October 17, 2023

TO: U.S. Copyright Office and The Library of Congress
FR: Maxwell Leung, Ph.D. , David Hisaya Asari , J.D. Zamfirescu-Pereira
RE: Question #1 https://www.federalregister.gov/d/2023-18624/p-67

INTRODUCTION
As the authors of this commentary, we are explicitly stating that we are not representing our institution, but in a personal capacity individuals, as educators and researchers at an art and design college who have a vested interest in the creative community, the impact of generative AI for our young artists and designers, the future of copyright, and the protection of artists. We are educators employed at the California College of the Arts, who are affiliated with the Programs of Critical Studies, Graphic Design, and the Minor in Computational Practices. Maxwell Leung is an Associate Professor in the Critical Studies and Critical Ethnic Studies Programs who teaches courses in American Politics and Asian American Studies. David Hisaya Asari who is based in Graphic Design teaches courses focused on information visualization and research. J.D. Zamfirescu-Pereira is an Associate Professor in Critical Studies who started the award-winning educational program Workshop Weekend, bringing together makers to share skills and help inspire the next generation of thinkers and builders. J.D.'s focus within the program is the pedagogy of computation, and is the founder of the Minor in Computational Practices at CCA. He will be completing his doctorate in Computer Science at the University of California at Berkeley.

We will be responding to Question #1 (https://www.federalregister.gov/d/2023-18624/p-67)

> *As described above, generative AI systems have the ability to produce material that would be copyrightable if it were created by a human author. What are your views on the potential benefits and risks of this technology? How is the use of this technology currently affecting or likely to affect creators, copyright owners, technology developers, researchers, and the public? (https://www.federalregister.gov/d/2023-18624/p-67)*

We will be employing two student surveys that have yielded some promising results on how young people have come to know what generative AI is about, and what that means for the protection of their artwork and designs as well as our changing role in educating them about the future of their practices, copyright policies that might impact them professionally, and what it means to be living in the future where AI is a part of their work.

The findings underscore a crucial point: without clear guidelines that both protect artists' work and regulate the use of generative AI, the future of art and design is at risk. As educators and practitioners, we have the potential to offer transformative experiences to emerging artists, designers, and creators. However, without solid guidelines protecting the original work of these artists, designers, and creators in evolving contexts including competitive markets, both the value of their education and their investment of time and money could be undermined. Finally, art colleges have a very specific mission dedicated to preservation and cultivation of artists,

designers, and creators. Generative AI can be a powerful tool to transform our institution and push the boundaries of what art is and our subsequent pedagogies. Yet, art colleges face a paradox: the very drive to innovate that sustains us could threaten the livelihoods of our educators, practicing artists, architects, and designers working throughout the San Francisco Bay Area. We serve multiple communities who have long sought a life of art and design.

Generative AI represents an opportunity to learn and innovate, yet without principled guidelines around the ethical development of and informed access to generative AI tools, and the development of stringent protections on the production of artists' works, and making clear that the human hands and minds of authorship remain the fundamental principle defining copyright law, the sanctity of individual artistic expression and the core tenets of copyright may be compromised. With it, the foundations of our pedagogy and the meaning of an art college may become blurred, even diminish the unique value and essence of art education.

HOW DO WE KNOW WHAT WE KNOW?

Two informal surveys were conducted in the Spring and Fall 2023 semesters (Appendix A). The survey asked the A total of 69 students were surveyed out of a total of 85 for a 81% participation rate. The survey asked students about their familiarity with artificial intelligence and their usage in the classroom. We used "familiarity" as a primary control to understand how students' perception, attitudes, and knowledge of artificial intelligence and whether it would impact:

- Their willingness to incorporate AI apps and tech into their artistic or design app
- Their belief that AI will enhance their learning experience
- Their belief that AI can provide feedback on their artistic and design work
- Their concern about the general use of AI in the classroom
- Whether AI can be used to personalize their learning experience
- Whether professors should have a policy about AI use in the classroom
- Whether AI can replace human teachers
- Whether AI can be used to support students' learning

Underlying these questions, students reveal implicit biases, subtexts, and dispositions which, upon further textual and IAT analysis can demonstrate robust findings. But for the purposes of this commentary, we will only limit our methodology to univariate and correlative to demonstrate how a students' familiarity with artificial intelligence reveals much about their relationship with artificial intelligence and what that means to educators and to copyright law.

That is to say, if students demonstrate a low familiarity with artificial intelligence, it does not necessarily follow that they will show little interest in its usefulness. Instead, we argue that low familiarity represents an opportunity for students to become engaged in the use of artificial intelligence, and the sooner students become educated about the rules of its use, the better off they will be understanding the policies regulating their usage, and by extension, the protection of

their work. As we stated before, this result cannot happen without a robust protection of copyright law.

HOW WE DID OUR WORK: USING CORRELATION

The Spearman's rank correlation coefficient gauges the consistency in the ordering of two sets of data. It's especially useful for ranked data, like our survey answers.

We'll use it to compare "Familiarity with AI" with one example for the sake of brevity in this commentary. It is our hope that this datapoint will represent a compelling story to the U.S. Copyright Office about regulating artificial intelligence and protecting artists' works..

Beginning with the Fall 2023 survey (Appendix A), we can infer the following:

- The average familiarity with AI is moderately high, with most respondents indicating some level of familiarity.
- Students are somewhat likely to incorporate AI tools in their artistic or design practice.
- There's a general agreement that AI has the potential to enhance the learning experience.
- The majority of students do not believe that AI can replace human teachers, as indicated by the low average.
- Most students agree that tools like ChatGPT can be used to support learning.

High Familiarity
Our findings indicate that the majority of students have a moderate to high familiarity with the concept of artificial intelligence (AI). This observation aligns with the broader trend in society where AI, once a niche academic topic, has become more mainstream. The proliferation of AI in diverse sectors such as healthcare, entertainment, finance, and especially education has contributed to its increasing visibility and recognition.

However, the spread in responses can be attributed to differing levels of exposure to AI among students. Some might have pursued courses, projects, or personal interests related to AI, whereas others might have a more peripheral awareness stemming from media or general tech usage. Importantly, our findings reveal that no student selected the lowest familiarity score, emphasizing that AI is not an entirely foreign concept to anyone in the sample.

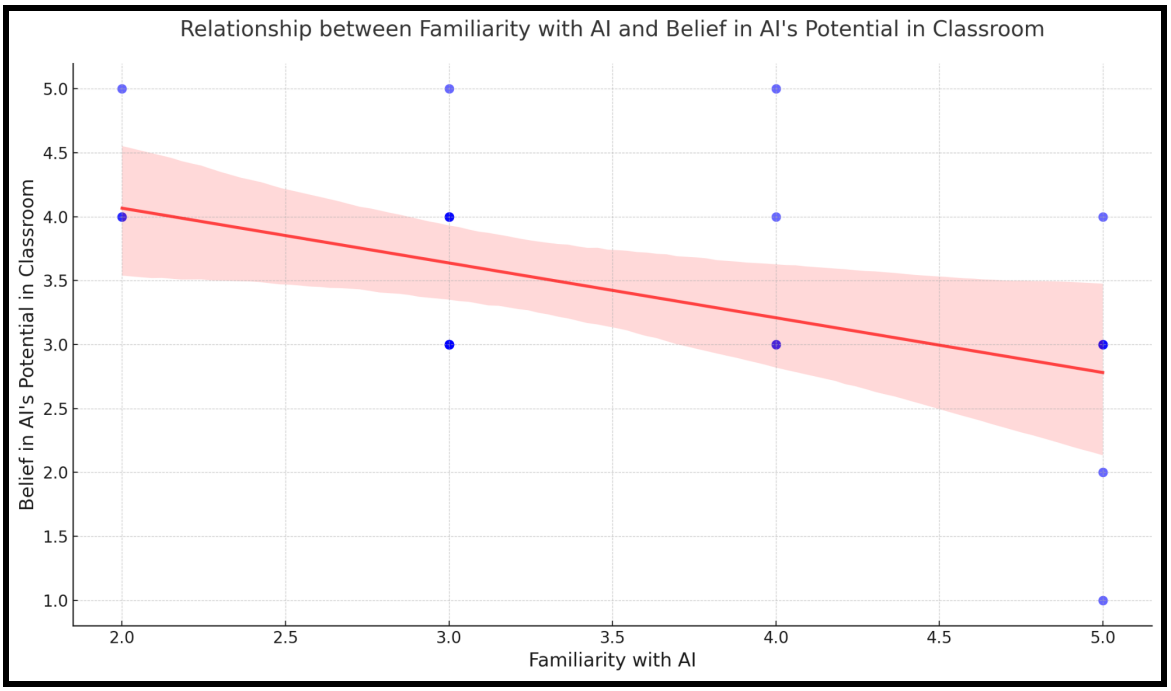
The demonstrated familiarity with AI among students offers insights for educational strategies. In our curricula, there's the potential to integrate technology and digital literacy, with AI being a significant component. Given that students already have a foundational understanding, educators have an opportunity to introduce more sophisticated AI topics, tools, and hands-on experiences. This prior knowledge can be leveraged to enhance both the depth and breadth of AI education.

Despite the generally high familiarity, it's crucial for educational institutions to recognize and cater to the spectrum of understanding. Tailored approaches, such as differentiated instruction, can ensure that while advanced students are challenged with intricate AI topics, those

at the foundational level are not left behind. It's a delicate balance between capitalizing on the existing knowledge and ensuring inclusivity in instruction.

The data, while providing a snapshot of the current semester, also hints at future trajectories. As AI continues to permeate various facets of life and work, the demand for AI literacy will likely grow. The existing familiarity among students can serve as a foundation upon which advanced AI competencies can be built. Preparing students for a world where AI will play an even more prominent role, both in professional and personal contexts, is not just advantageous—it's imperative. This literacy can also include professional development, standards, policies, and copyright laws and artists' protections.

For example, looking at the correlation between "Familiarity with AI" and "Belief in AI's Potential in the Classroom" as a visualization provides a more detailed analysis.



Each point on the scatter plot represents an individual student's response. The x-axis indicates their familiarity with AI, while the y-axis represents their belief in AI's potential in the classroom. While there is a spread across the chart, indicating diverse opinions, the general trend aligns with the negative correlation coefficient of −0.434.

It's natural to assume that a deeper understanding of a technology would translate to higher optimism about its potential. However, our findings reveal a contrasting narrative. Students with a more profound understanding of AI may have a more grounded view of its capabilities, recognizing that while AI can perform certain tasks efficiently, it cannot replicate the nuanced interactions of a human educator.

An arts education is not just about transferring knowledge. It involves building relationships, understanding emotions, and fostering a conducive environment for growth to make expressions possible. Our students with a deeper understanding of AI might realize that algorithms, despite their sophistication, can't fully grasp these complexities. Hence, while they might appreciate AI's capabilities in data processing or pattern recognition, they might be skeptical about its role in human-centric tasks.

Art students familiar with AI might have had direct experiences with AI-driven educational tools. Depending on whether these experiences were positive or negative, their beliefs about AI's potential in the classroom would be influenced. A student who had a subpar experience with an AI-driven tutor might generalize that experience to AI's broader role in education. In fact, there is some evidence that users of AI systems generalize, sometimes too much, from both positive and negative examples of use (Zamfirescu-Pereira et al, 2023). It becomes incumbent upon us as educators to shape – reshape – their disposition into a positive one, especially if AI becomes a matter of fact in their profession.

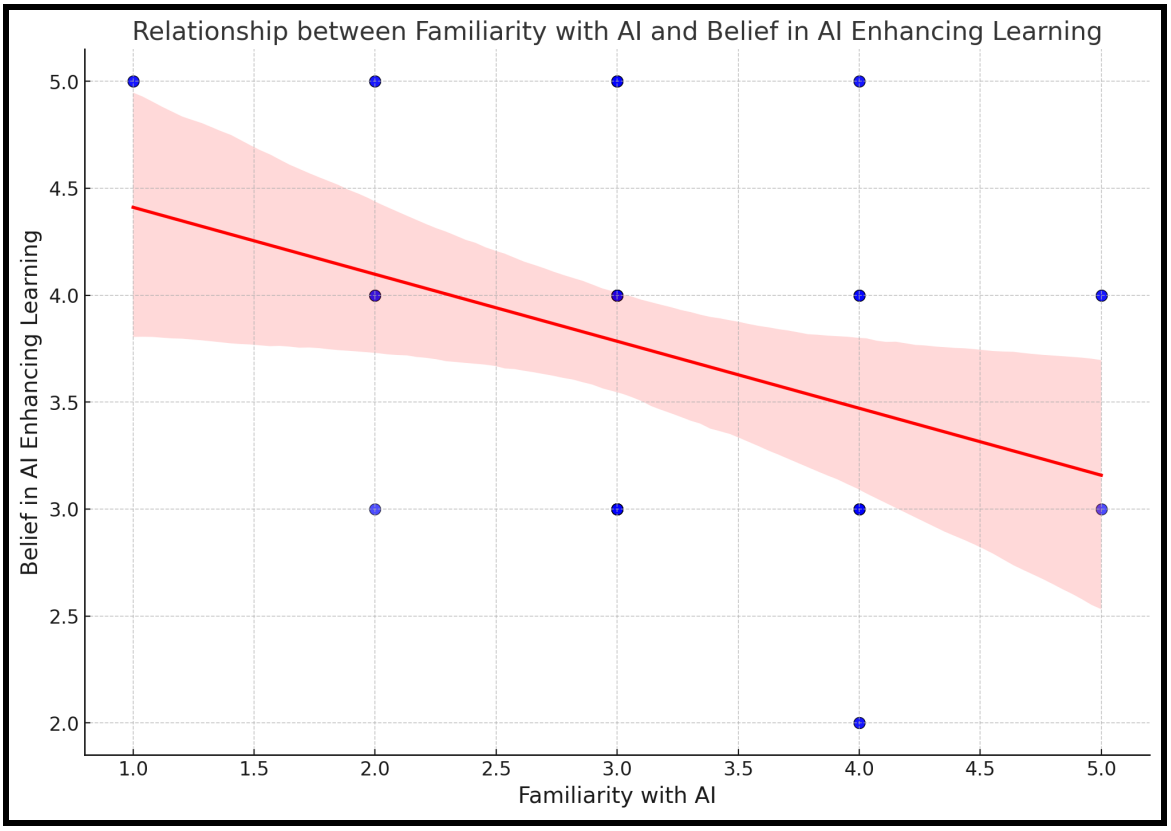
Beyond practical considerations, art students might have ethical or philosophical reservations about AI's role in education. Concerns about data privacy, the impersonal nature of machine interactions, or the potential for algorithms to reinforce biases might be more pronounced in students who have delved deeper into AI's workings. It is not only the job of the U.S. Copyright Office to determine the boundaries of protection, but we also share and embrace the responsibility on the parameters of using AI at our educational institution as well.

The correlation suggests that as our students become more familiar with AI, they develop a more balanced perspective. They might recognize AI as a valuable tool that can augment the learning experience but not replace the irreplaceable – the human touch, the understanding, the empathy, and the context-awareness that a human educator brings to the classroom.

Continuing with survey results from Spring 2023, we can infer the following and use this semester as a comparison:

- Students have a moderate familiarity with AI and are somewhat open to its incorporation into their practices.
- There's a general belief that AI can enhance the learning experience, but students are skeptical about its capabilities in grading and providing feedback.
- There's a noticeable concern among students about the use of AI in the classroom.
- The diversity in responses underscores the importance of understanding and addressing individual students' perspectives when considering the introduction or expansion of AI tools in educational settings.

A correlation analysis suggests a negative correlation, meaning that as students become more familiar with AI, they might be somewhat less optimistic about its potential to enhance learning. The visualization illustrates the relationship between "Familiarity with AI" and Students' Belief in AI's Potential to Enhance the Learning Experience. The correlation coefficient is approximately −0.279. It's a weak correlation, suggesting that while there's a trend, the relationship isn't very strong.



We found that the correlation between "Familiarity with AI" and the "Likelihood to Incorporate AI in Practice" was much weaker compared to Fall 2023. This suggests that, generally, when students first became acquainted with AI concepts and technologies, they were less inclined to consider integrating AI tools into their artistic or design endeavors.

Although not very strong, the positive trend can be interpreted in several ways. One possibility is that the initial exposure and understanding of AI technologies may demystify them, making students more comfortable, even excited, with their potential applications. As they grasp AI's capabilities, they might recognize its potential benefits in their specific fields, hence being more open to its integration. After all, ChatGPT was released in December 2022, and the survey was taken two months into Spring 2023.

However, it's crucial to understand the limitations of this correlation. A weak correlation coefficient indicates that while there's a general trend, there are several exceptions. Some students, even with a high familiarity with AI, might not see its applicability in their work in the beginning. Conversely, some with limited AI exposure might be highly enthusiastic about its potential. The correlation doesn't capture individual motivations, external influences, or specific

use-cases students might have in mind. Additionally, correlation doesn't imply causation. While there's a relationship, it doesn't necessarily mean that increasing one's familiarity with AI will directly lead to a higher likelihood of its incorporation. It does imply that in this period of excitement – or anxiety – greater direction from college administrators, educators, or even government agencies were important to provide guidance, guidelines, and guardrails to understand artificial intelligence.

Despite its limitations, this correlation is significant. Educational institutions and instructors, especially at our art college, can infer that increasing AI awareness and understanding might foster a more positive attitude towards its applications. By integrating AI-focused modules or workshops in curricula, there's potential to boost students' receptiveness to AI tools, preparing them for a future where such technologies might be prevalent.

For example, in classes where generative AI use is focused on creating computer programs, rather than visual art, students appreciate the “leapfrogging” in ability to use computer code as a design material. Anecdotally, students are finding themselves newly liberated from a need to master symbolic reasoning, reporting that these tools support their creative practices by enabling wider exploration and a deeper connection with the discipline of computing itself. Of course, these benefits only accrue as long as AI is thoughtfully regulated in a way that preserves access for students and other learners.

While our focus is on the context of artistic or design practice, the correlation has broader implications. In various sectors, the integration of AI is becoming more common. As such, a positive disposition towards AI, fostered by familiarity and an understanding of their responsibilities in the use of these tools, can be advantageous for students as they transition into professional roles, making them more adaptable and forward-looking.

COMPARING FALL 2023 AND SPRING 2023: GENERAL TRENDS

We end this commentary with a comparative analysis between the Fall 2023 and Spring 2023 datasets to provide insights about changes in student perceptions over time.

We simply compared summary statistics for each question across both semesters to understand any shifts in central tendencies or spreads.

Survey Question (Abbreviated)	Mean (Spring 2023)	Mean (Fall 2023)	Std. Dev (Spring 2023)	Std. Dev (Fall 2023)
Familiarity with AI	3.18	3.50	0.90	0.99
Likelihood to Incorporate AI	3.16	2.77	1.18	0.95
Use of AI in Classroom	3.73	N/A	0.87	N/A
AI Grading Assignments	2.73	2.38	1.23	0.98
Concerns about AI	2.27	2.69	1.04	0.93
AI Personalizing Learning	3.41	N/A	0.92	N/A
Ethical Concerns about AI	2.86	N/A	1.17	N/A
AI Replacing Teachers	1.68	1.54	0.96	0.71
AI-tools like ChatGPT	3.89	3.50	0.87	1.14

Some key observations reveal the following:

- Familiarity with AI: There's a slight increase in the mean familiarity with AI from Spring to Fall 2023. This might indicate growing awareness or exposure to AI among students.
- Likelihood to Incorporate AI: There's a decrease in the mean score from Spring to Fall, suggesting a reduced inclination among students to incorporate AI into their practice.
- Use of AI in Classroom & AI Personalizing Learning: These questions were not present in the Fall 2023 survey.
- AI Grading Assignments: A decrease in the mean score from Spring to Fall indicates slightly reduced agreement on AI's potential to grade assignments.
- Concerns about AI: The mean score increased from Spring to Fall, indicating heightened concerns among students about AI's role in the classroom.
- AI Replacing Teachers: The mean score remained relatively stable between the two semesters, with students generally not in favor of AI replacing human teachers.

- AI-tools like ChatGPT: A decrease in the mean score suggests a slightly reduced agreement on the potential of AI-tools like ChatGPT in supporting learning from Spring to Fall 2023.

This comparative analysis provides a snapshot of how students' perceptions might have evolved over the two semesters. In 2023, students showed a growing awareness of AI from Spring to Fall. However, their inclination to incorporate AI in their practices and belief in AI's potential in grading and tools like ChatGPT lessened. Interestingly, concerns about AI's classroom role increased, while the idea of AI replacing teachers remained largely unfavorable. This evolution in perceptions underscores the need for thoughtful integration of AI in educational settings. With generative AI's rapid advancements, it's essential to strike a balance, ensuring that technology enhances learning while preserving the sanctity of human creativity and the principles of copyright protection.

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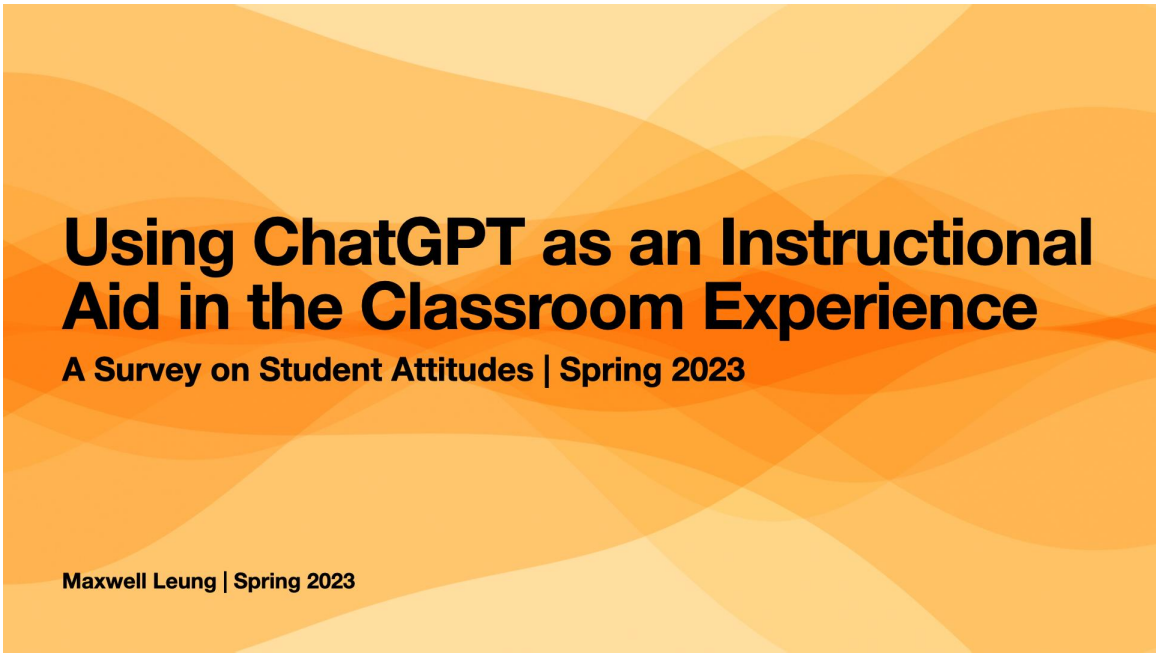
APPENDIX A: Fall 2023 and Spring 2023 Survey Results

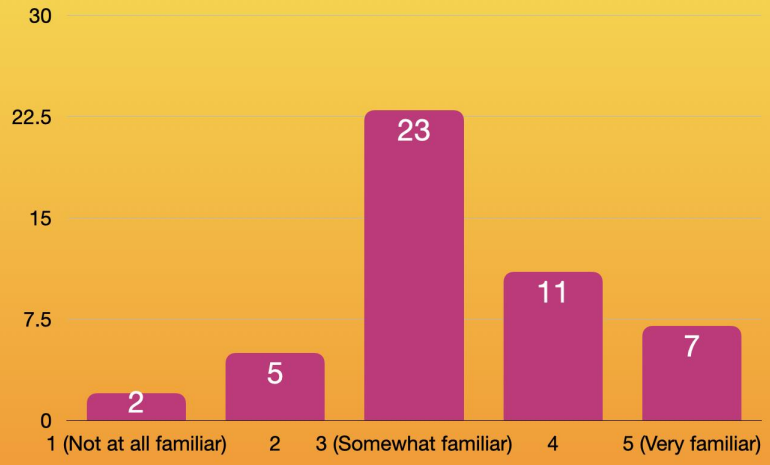


Survey Demographics

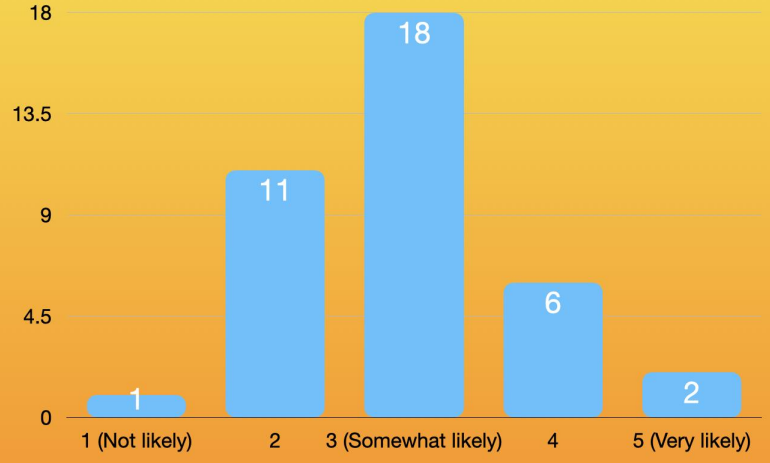
- Three courses: American Politics, Culture and Politics of San Francisco, and Contemporary Asian American Issues
- 43 responses out of a possible 51 (N) total resulting in a 84% response rate.
- Total perceived demographic breakdown 51 (N) students: 42 Asians, 5 Whites, 3 Latinos, 1 Black; 29 F / 22 M
- Total majors:

Animation: 4	Curatorial Practice / VCS: 1	Illustration: 5	Interior Design: 4
Architecture: 1	Fashion Design: 4	Industrial Design: 11	Jewelry and Metal Arts: 2
Ceramics: 1	Graphic Design: 7	Interaction Design: 9	Painting/Drawing/Photography: 1

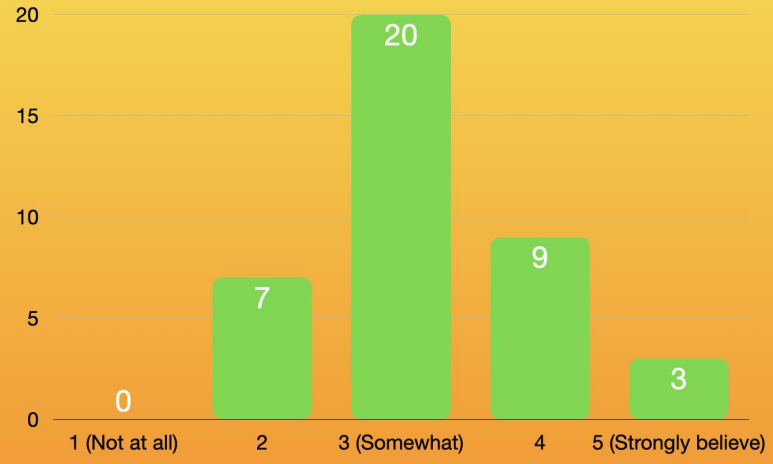
Q1 How familiar are you with the concept of artificial intelligence?



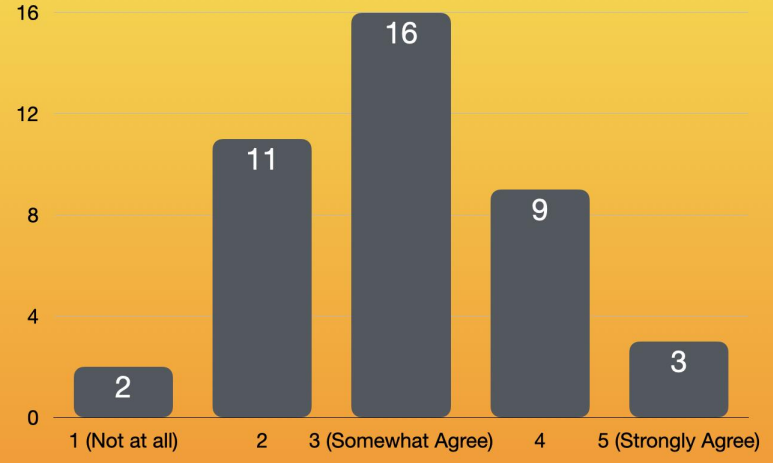
Q2 How likely are you to incorporate AI apps and tech to assist in your artistic or design practice?



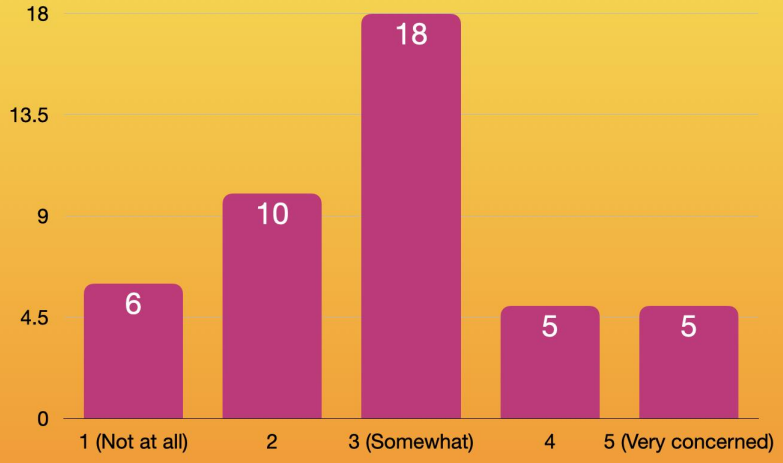
Q3 Do you believe that the use of AI in the classroom has the potential to enhance your learning experience?



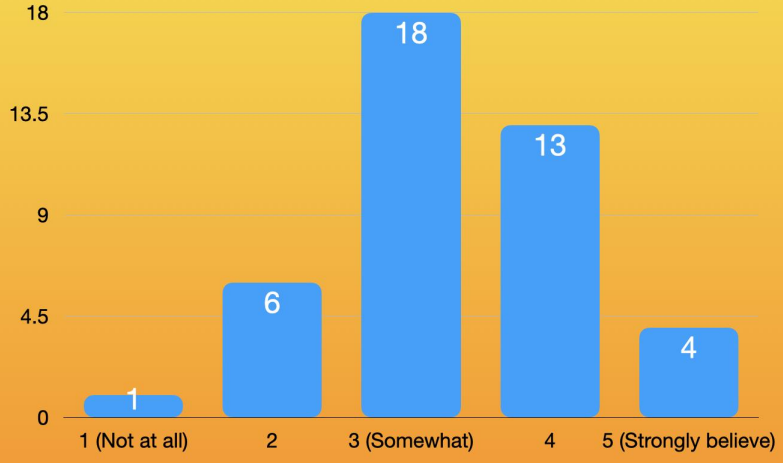
Q4 Do you agree with the idea that AI can be used to grade assignments and provide feedback on your artistic and design work?



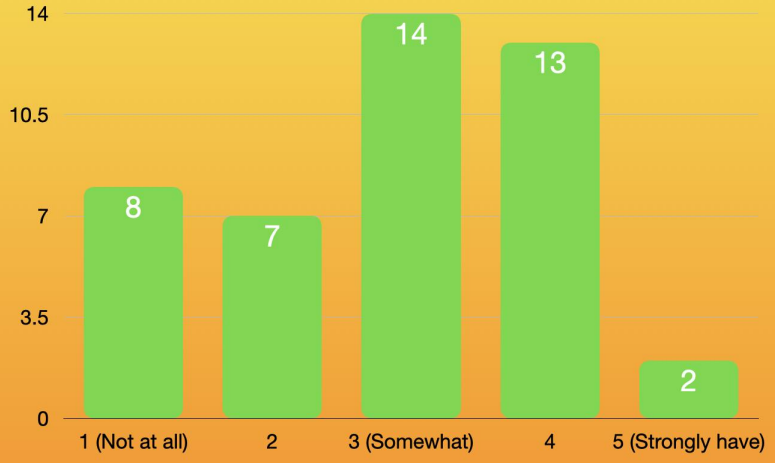
Q5 Are you concerned about the use of AI in the classroom?



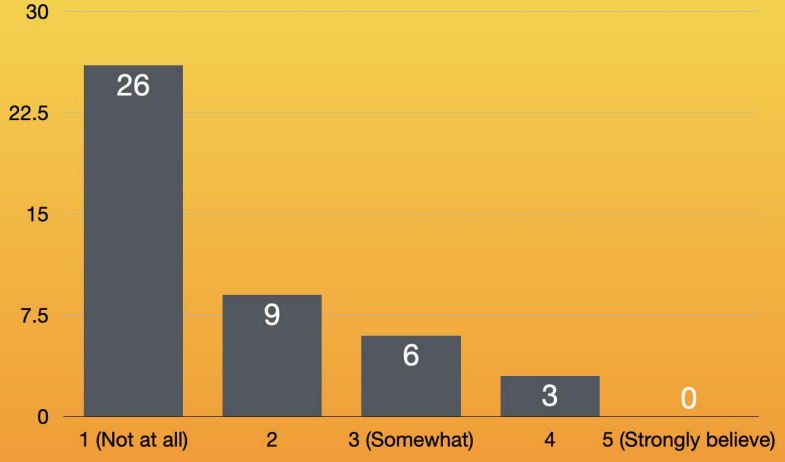
Q6 Do you believe that AI can be used to personalize your learning experience?



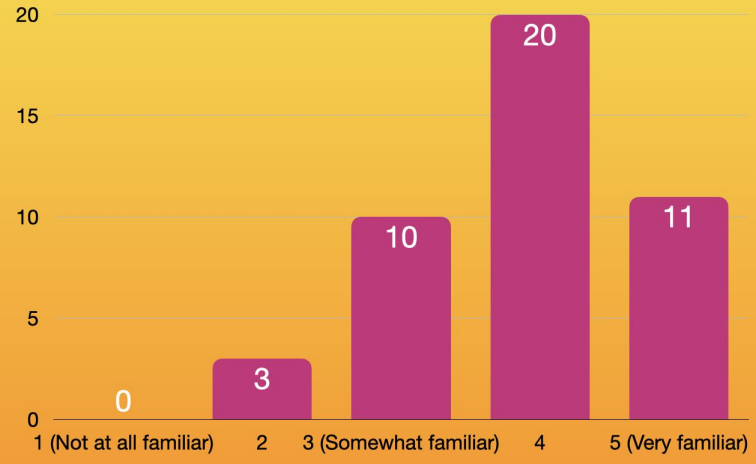
Q7 Do you have ethical concerns about the use of AI in the classrooms?



Q8 Do you believe that artificial intelligence can be used to replace human teachers?



Q9 Do you agree with the idea that AI-tools like ChatGPT can be used to support students' learning?



Using ChatGPT as an Instructional Aid in the Classroom Experience

A Survey on Student Attitudes | Fall 2023

Maxwell Leung | Fall 2023

Survey Demographics

- Two courses: American Politics, Social Problems
- 26 responses out of a possible 34 (N) total resulting in a 76% response rate.
- Total perceived demographic breakdown 51 (N) students: 25 Asians, 3 Whites, 5 Latinos, 1 Black; 26 F / 8 M
- Total majors:

Animation: 8	Curatorial Practice / VCS:	Illustration: 1	Photography: 1
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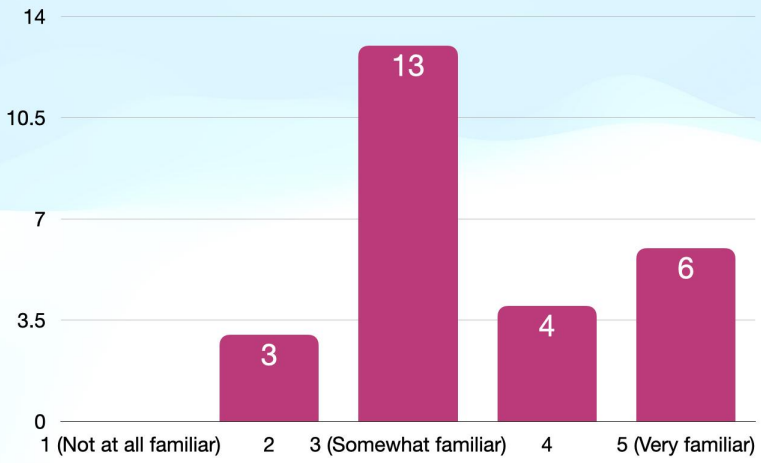
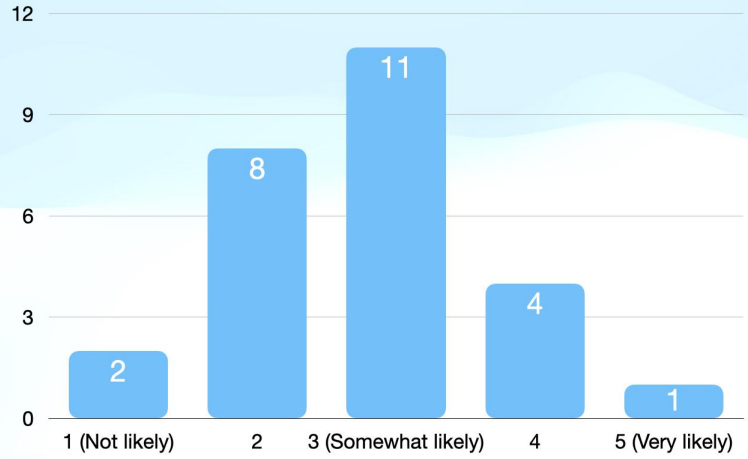


Q2 How likely are you to incorporate AI apps and tech to assist in your artistic or design practice?



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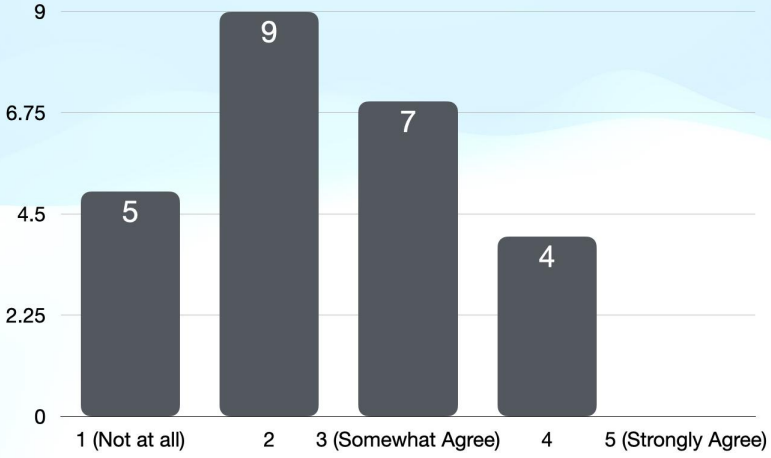

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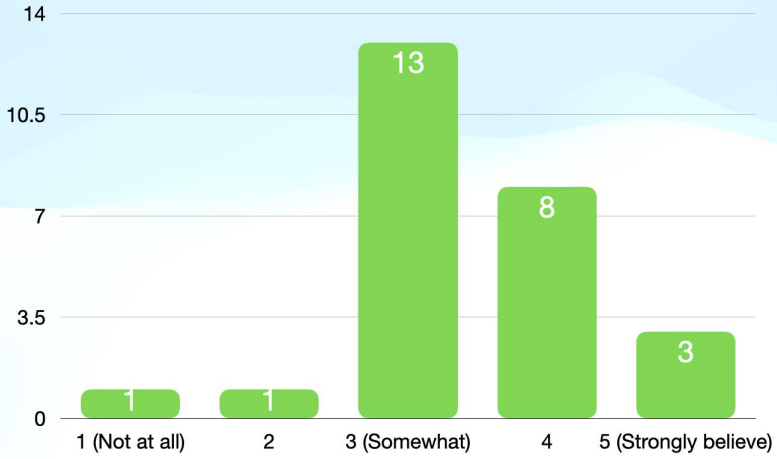

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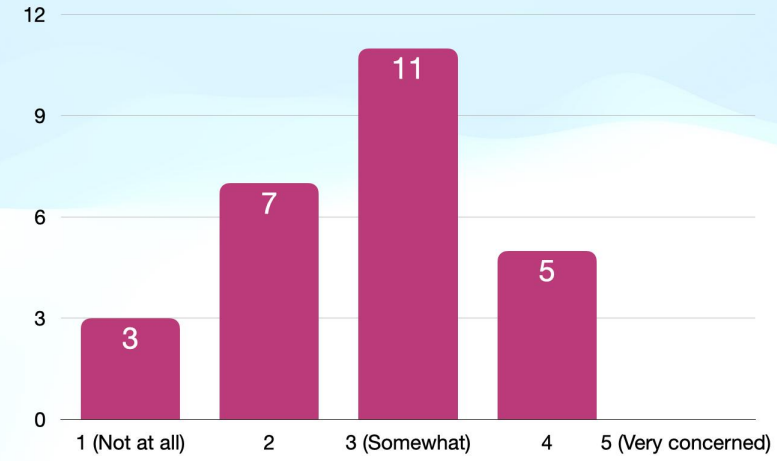
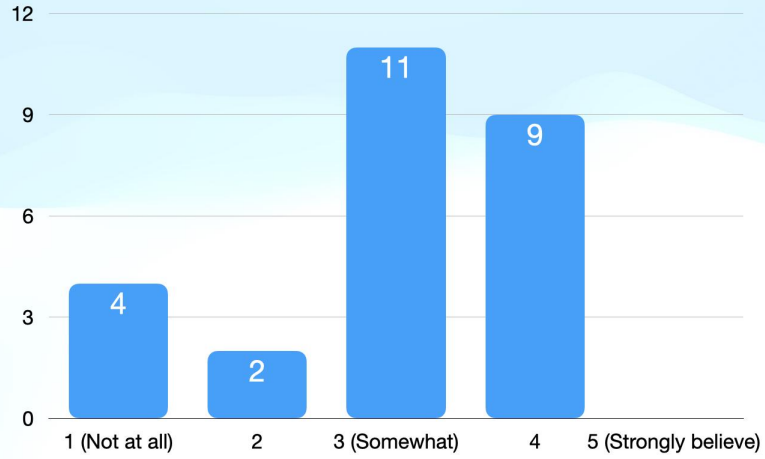
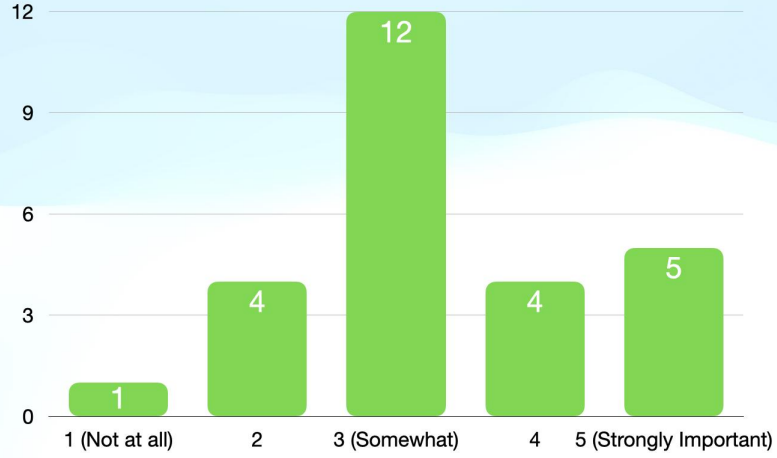
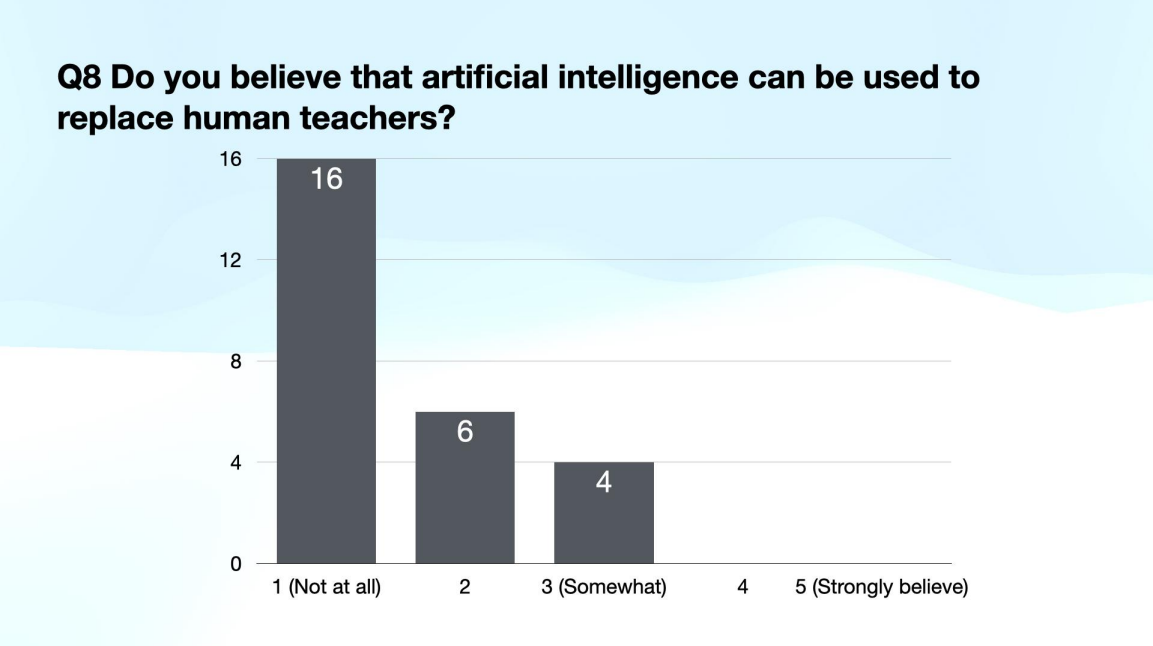


Q6 Do you believe that AI can be used to personalize your learning experience?

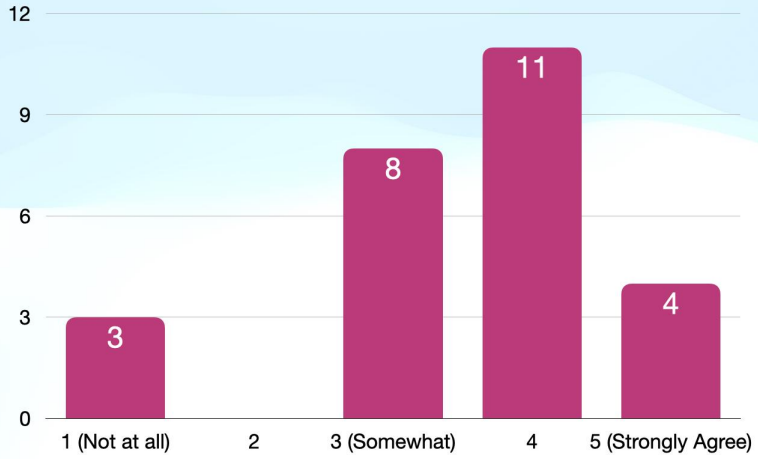


Q7 How important should your professor have a policy about AI use in the classroom?




Q8 Do you believe that artificial intelligence can be used to replace human teachers?
16
12
8
4
0
16
6
4
1 (Not at all)
2
3 (Somewhat)
4
5 (Strongly believe)

Q9 Do you agree with the idea that AI-tools like ChatGPT can be used to support students' learning?



End

Maxwell Leung FALL 2023