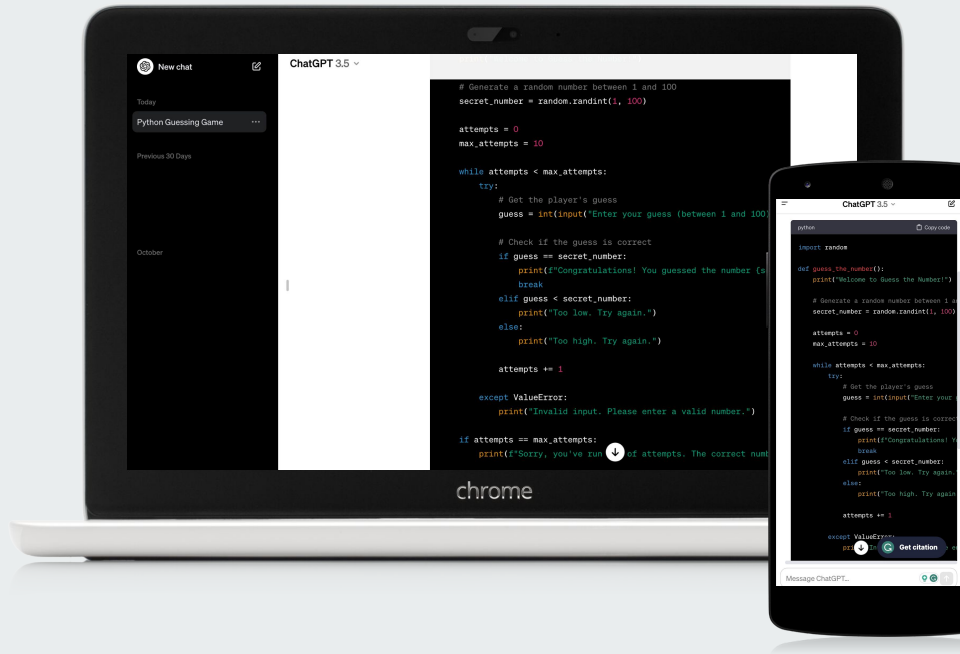


ChatGPT Adoption Levels among CSU East Bay MSBA Students

MKGT612
Marketing Analytics Project



Team

Adeel Nasir - GD8408

Anna Kistner - HF1994

Sukhman Legha - VY3059

Vishwanath Reddy Saikam - WU3638

Outline

- Background (Sukhman)
- Problem Statement (Sukhman)
- Research Design (Sukhman)
- Secondary Research (Anna)
- Primary Data Research (Professors: Anna, Students: Sukhman)
- Research Instrument (Aqeel)
- Analysis (Aqeel)
- Conclusion and Recommendations (Adeel)



Background

The emergence of ChatGPT, a recently developed conversational chatbot by OpenAI, offers a promising avenue for educators to integrate AI into teaching and learning. Employing natural language processing, ChatGPT produces human-like responses to user queries, garnering global attention for its ability to generate coherent, systematic, and informative content.

Since its launch on November 30, 2022, this innovative chatbot has achieved unprecedented growth, amassing 100 million active users by January 2023 – a remarkable milestone within just two months.



Background

However, alongside its success, ChatGPT presents novel challenges and concerns within the realm of education. Its capacity to furnish specific answers to user queries raises apprehensions about potential misuse, particularly in the context of academic integrity. The fear stems from the possibility of students utilizing ChatGPT to complete written assignments and exams, giving rise to concerns regarding AI-assisted cheating.

Some other concerns, for students, range from issues from plagiarism to the generation of incorrect responses and inaccurate citations. As we explore the impact of ChatGPT on education, particularly on students, it is essential to navigate these concerns and strike a balance between leveraging its benefits and addressing potential pitfalls.



Problem statement

- The research focuses on the extent of ChatGPT adoption among MSBA students in CSUEB.
- This encompasses a comprehensive investigation into demographic, socioeconomic, psychographic, and behavioral segmentation.
- We aim to understand which categories of students are frequent users and for what purposes, as well as those who do not use it at all.
- Furthermore, we seek to ascertain their aspirations regarding the role of ChatGPT and generative AI tools in their lives and the predicted impact on their future.



Main Focus

- What is the current adoption level of ChatGPT among postgraduate students at CSU East Bay?
- To segment the student population based on demographics, psychographics, and behaviors to identify usage patterns.
- To understand the specific use cases and motivations for ChatGPT adoption.
- What are the aspirations of students regarding the role of ChatGPT and generative AI in their future lives?



Research Design

Mixed-Methods Approach:

This research has employed a mixed-methods approach, combining quantitative analysis through surveys with qualitative insights gathered from secondary research and interviews.

This dual approach has provided a more comprehensive understanding of ChatGPT adoption.



Methodology:

Survey questionnaires were distributed among a representative sample of postgraduate students, and detailed interview was conducted with a CSUEB professor to gather in-depth insights. A structured analysis framework was used for both data collection and interpretation.

Analytics Tools:

The quantitative data from surveys were analyzed using Enginious software while qualitative insights from interview was analyzed thematically. This combination of methods and tools ensured a comprehensive analysis of the research questions and objectives.

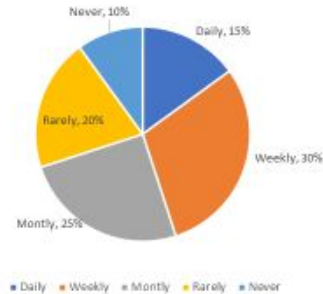


Secondary Research

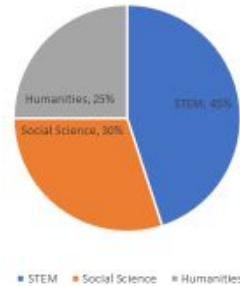
Methodology

1. Participants: 200 students from diverse academic disciplines were recruited for this study.
2. Procedure: The study took place over a six-week period.
3. Data Collection: surveys, in-depth interviews, and analysis of academic performance metrics.

Frequency of ChatGPT Use:



Academic Background distribution



Source:

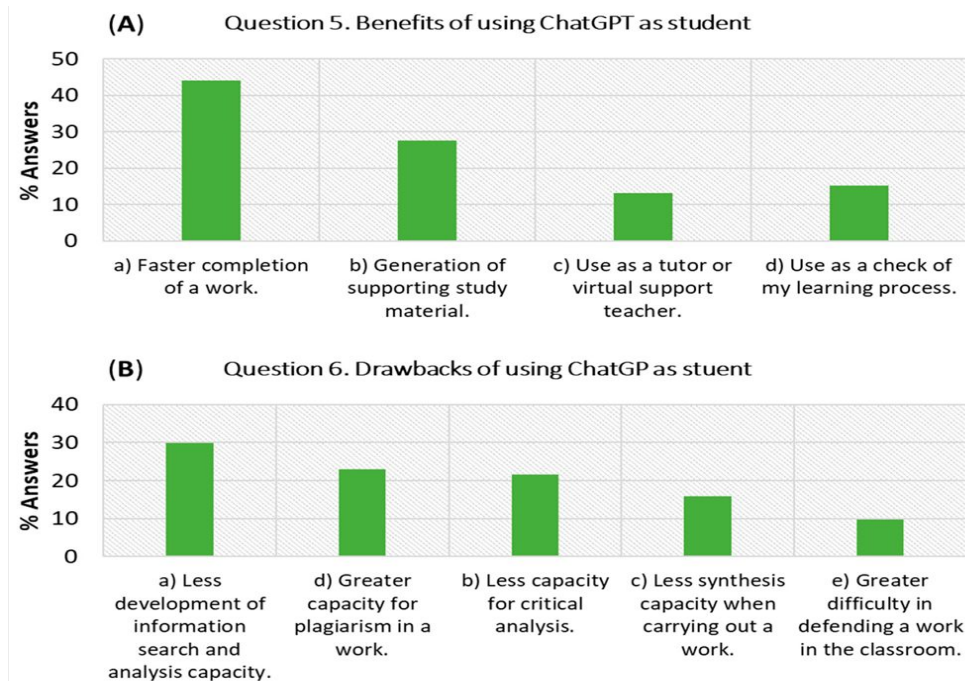
https://www.researchgate.net/publication/375003900_The_Impact_of_ChatGPT_on_Student_Learning_Behavior_An_Experimental_Research_Study/link/653b2e7d5d51a8012b7178d8/download?_tp=eyJjb250ZXh0Ijp7ImZpcnN0UGFnZSI6InB1YmtpY2F0aW9uIiwicGFnZSI6InB1YmtpY2F0aW9uIn19

Table 4. ChatGPT functions to support student learning.

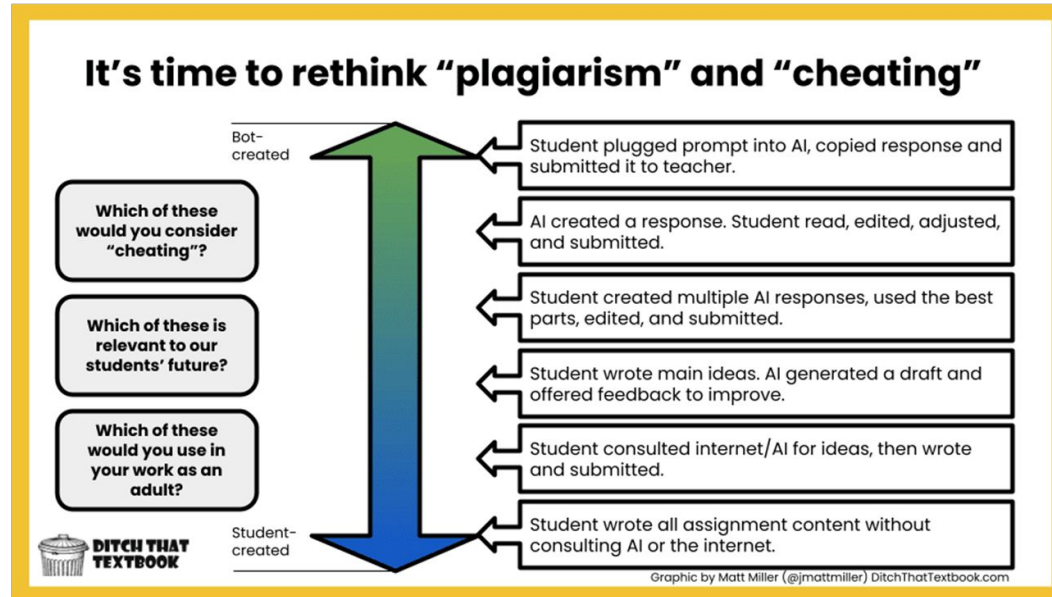
| Aspect | Function | Representative Quotes |
|------------|---------------------------------------|---|
| Learning | Answering questions | "The answer[s] given by ChatGPT were relevant and accurate . . . The tool can used as quick reference and self-studying instrument" [28] (p. 1). |
| | Summarising information | "it is very good at processing information, distilling it, and presenting it verbally" [54] (p. 92). |
| | Facilitating collaboration | "The ChatGPT application has the potential to serve as a means of generating different scenarios for students to work together to solve problems and achieve goals" [52] (p. 13). |
| Assessment | Concept checking and exam preparation | "ChatGPT has shown promising results in becoming a powerful reference and self-learning tool for preparing for the life support exams" [26] (p. 1). |
| | Drafting assistance | "students could be encouraged to use AI to give a 'first draft' answer, and then asked to improve upon that answer manually" [23] (p. 21). |
| | Providing feedback | "ChatGPT could be used to grade assignments and provide feedback to students in real-time" [50] (p. 2). |

Table 5. Major potential issues associated with ChatGPT.

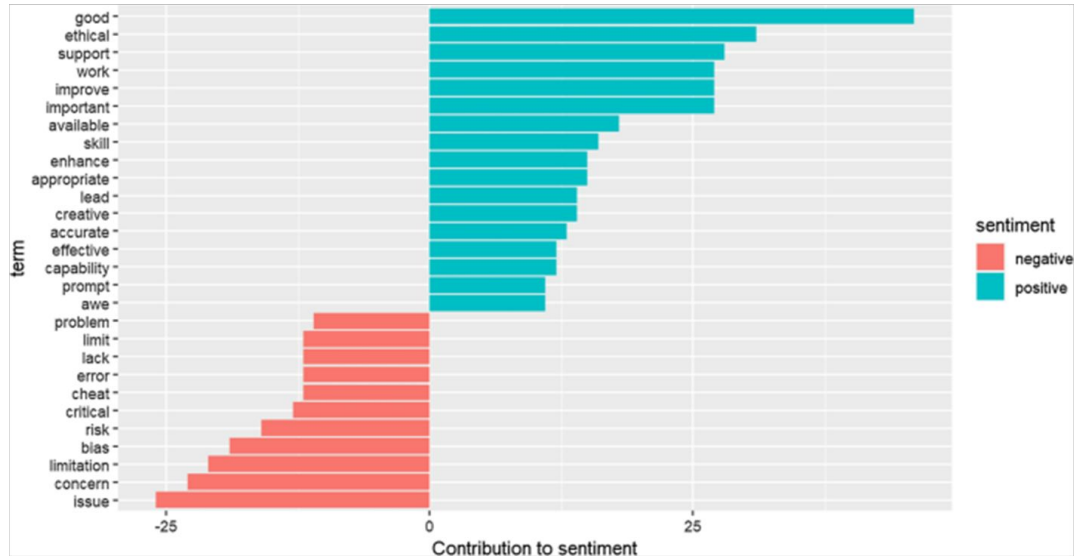
| Aspect | Issues | Representative quotes |
|--------------------------|---------------------------------------|---|
| Accuracy and reliability | Relying on biased data | "These biases stem from research performed in high-income countries and textbooks [i.e., the training data of ChatGPT]" [57] (p. 2). |
| | Having limited up-to-date knowledge | "ChatGPT has no idea of the world after 2021 and hence it could not add any references or information after 2021" [46] (p. 14). |
| | Generating incorrect/fake information | "ChatGPT included a make-up article which does not exist and even provided full bibliographic details of the article with a non-functional URL" [46] (p. 14). |
| Plagiarism prevention | Student plagiarism | "Our experimental group [with ChatGPT support] had slightly more problems with plagiarism than the control group [without ChatGPT support]" [59] (p. 7). |
| | Bypassing plagiarism detectors | "Of the 50 essays inspected, the plagiarism-detection software considered 40 of them with a high level of originality, as evidenced by a similarity score of 20% or less" [61] (p. 10). |



Concerns are you about potential misuse of ChatGPT for cheating



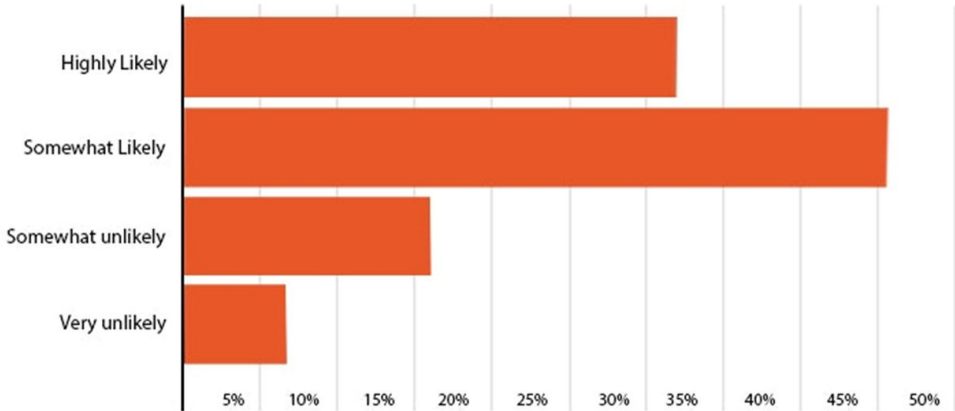
What do academics have to say about ChatGPT? A text mining analytics on the discussions regarding ChatGPT on research writing



Source: <https://link.springer.com/article/10.1007/s43681-023-00354-w>



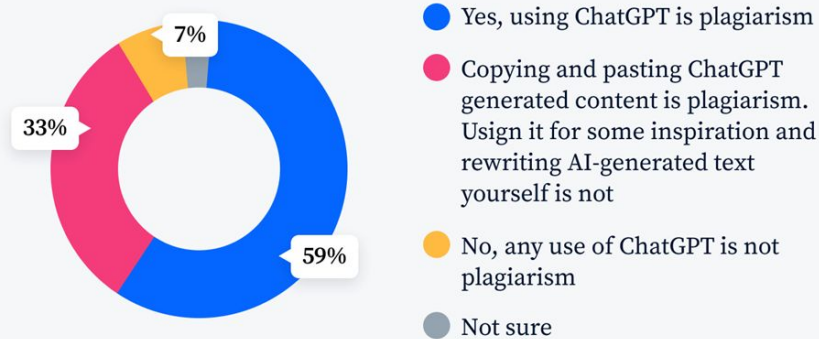
**How likely are you to recommend using
ChatGPT to study to another student?**



Intelligent.com

Source: <https://www.diverseeducation.com/reports-data/article/15448462/survey-30-of-college-students-used-chatgpt-for-schoolwork-this-past-academic-year>

Do you think using ChatGPT for content creation
and/or academic writing should be classified
as plagiarism?





Primary Research

Students: Questions designed to gauge the frequency of ChatGPT use, its perceived benefits, areas for improvement, and expectations for future growth.

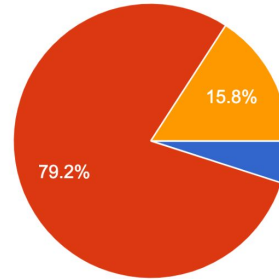
Professors: Aimed to gather academic perspectives on ChatGPT's impact and potential. However, note the lower response rate from this group, highlighting a potential area for further research.

Importance of Diverse Perspectives: Emphasizes the need to understand both student and educator viewpoints to fully assess the impact and future of ChatGPT in an academic setting.

Who are the users?

Which age group do you belong to?

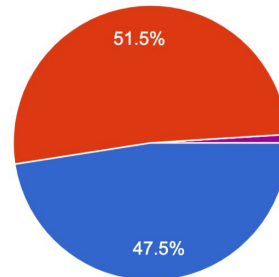
101 responses



- 21 or below
- 22 - 30
- 30 - 40
- 41 - 50
- 50 or above

What are your pronouns?

101 responses

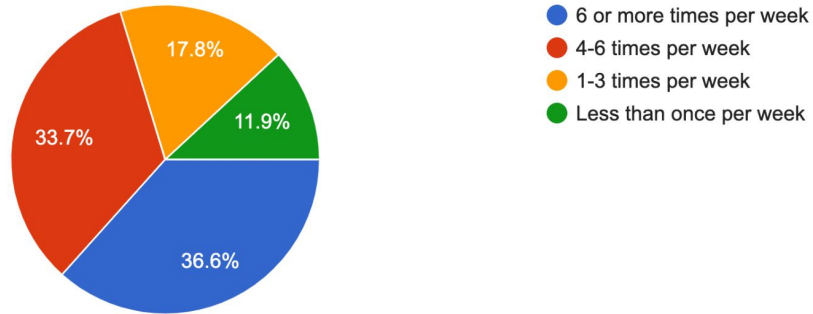


- He/Him
- She/Her
- They/Them
- Ze/Zir
- Prefer not to say

Frequency of Usage

How many time a week do you use ChatGPT for learning/academic purposes?

101 responses

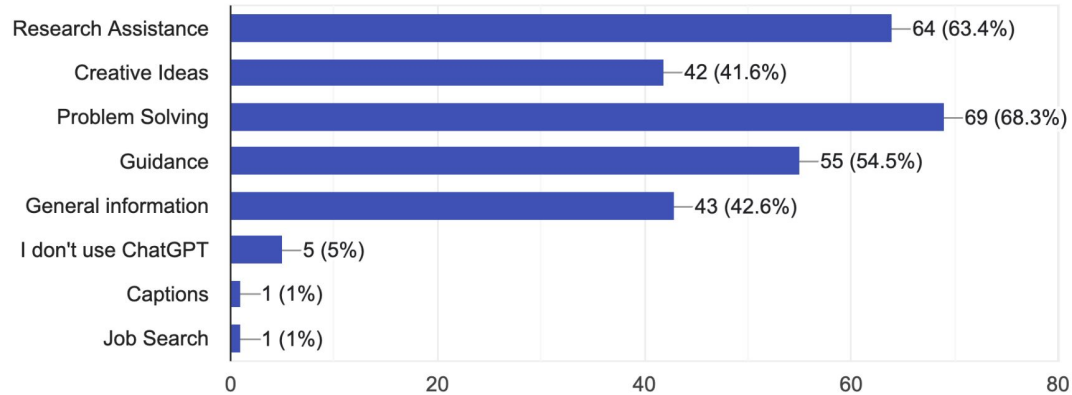




What for?

What types of academic tasks do you use ChatGPT for? (Select all that apply)

101 responses

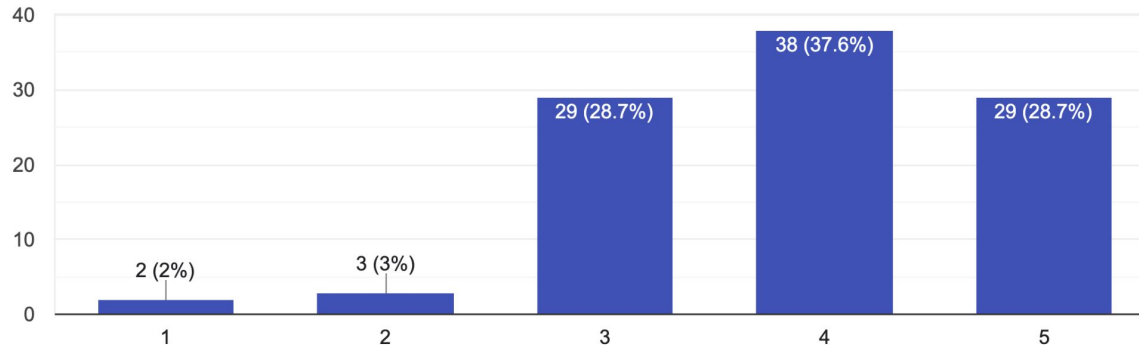




Did it really help?

To what extent has ChatGPT impacted your academic performance and productivity?

101 responses



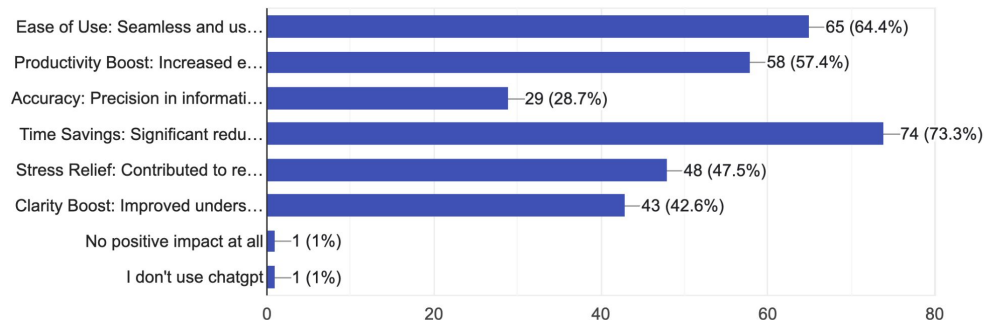
The Positives

&

The Negatives

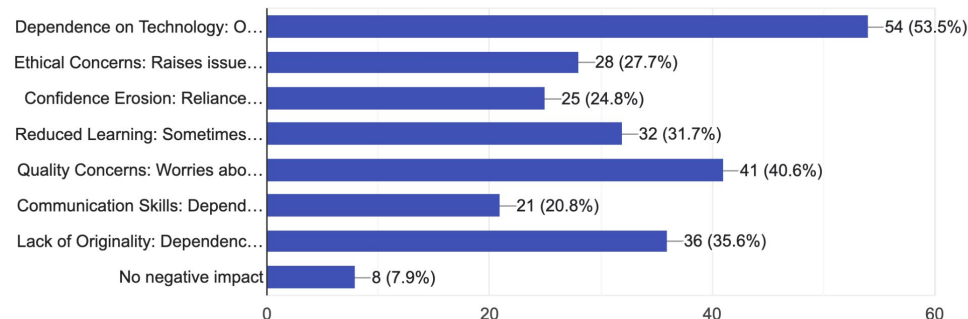
What positive impacts does ChatGPT have on your academic pursuits?

101 responses



What negative impacts does ChatGPT have on your academic pursuits?

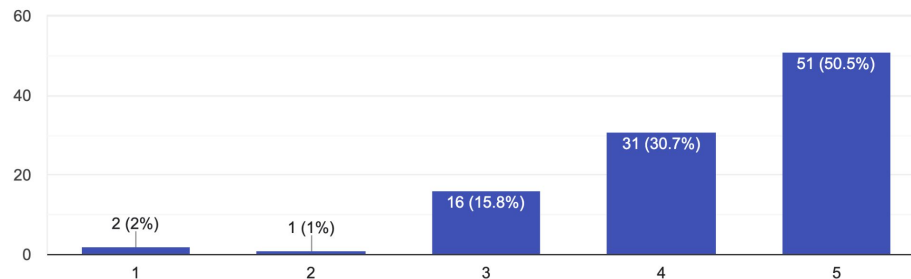
101 responses



Future Expectations

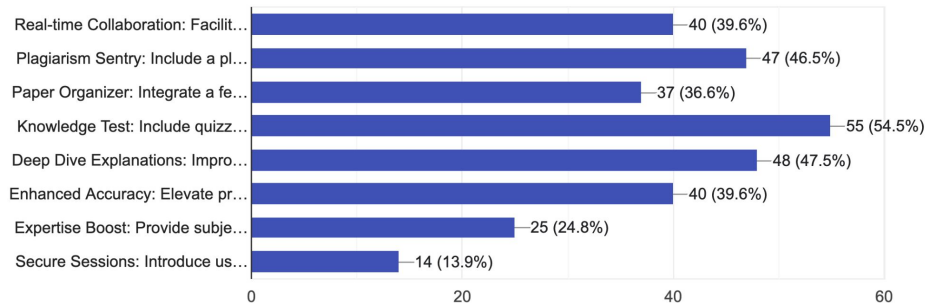
To what extent do you agree that generative AI will become a regular part of higher education in the next 5 years?

101 responses



What future applications or capabilities would make you more likely to adopt or enhance the use of ChatGPT ?

101 responses

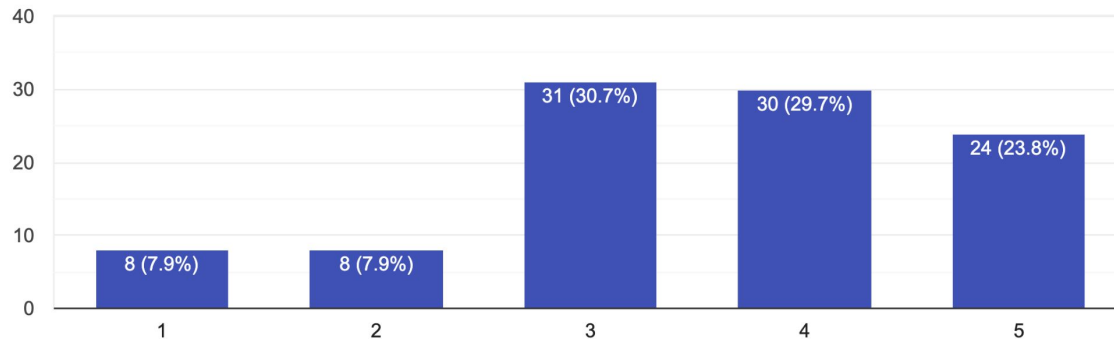




Concerned?

How concerned are you about potential misuse of ChatGPT for cheating or spreading misinformation?

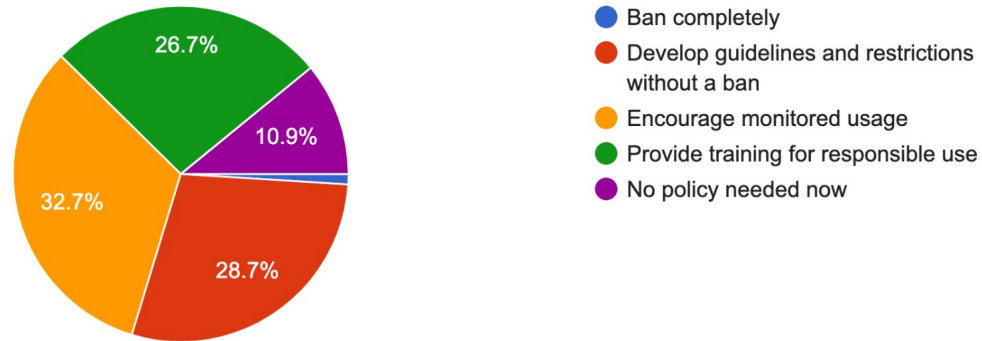
101 responses



What can be done?

What policies would you recommend institutions implement regarding use of ChatGPT?

101 responses



We managed to collect an in- depth interview from CSUEB professor and STEM program teacher. Below is the summary of their responses:

- 
- **To what extent has ChatGPT impacted your student's academic performance and productivity?**

Little or unsure. The content I have taught doesn't involve much with writing. The assessments are traditional such as paper exam. I can't evaluate the impact of Chat GPT on the analytics class, as I can't tell if the code was copied from ChatGPT or not - there is only one absolute right answer to implement certain functions, in coding.

- **What factors do you think motivate students to use ChatGPT the most?**

Ease of use, accuracy and time savings. It literally eliminate the time for self-research.

- **What future applications or capabilities would make you more accepting of students using ChatGPT for academic purposes?**

Plagiarism detection, User authentication.

- 
- **To what extent do you agree that generative AI will become a regular part of higher education in the next 5 years?**

Somewhat agree. Though I hold relatively conservative opinion towards AI, but it is a non-stoppable trend.

- **How concerned are you about potential misuse of ChatGPT for cheating or spreading misinformation?**

Very concerned. It will make it tremendously difficult for educator to properly assess the learning of the students. It will also downgrade the ability of learning, which have long term impact on the students.

- **What policies would you recommend institutions implement regarding use of ChatGPT?**

Allow use with restrictions. It can't be banned as once it has (it probably already had) a breakthrough improvement for AGI, everyone would get involved no matter they like it or not. Government regulations are extremely important.

- **In what ways has ChatGPT positively impacted student's academic pursuits?**

Productivity Boost: The support from ChatGPT has played a pivotal role in augmenting overall productivity, empowering students to achieve more within tight timelines.

- 
- **Do you use ChatGPT for your own work? If you do, please state how often?**

I use it rarely, a few times per month

- **Have you faced any obstacles or constraints while utilizing ChatGPT for academic tasks?**

Plagiarism Concerns: Ethical dilemmas arise due to concerns about inadvertent plagiarism when utilizing content generated by ChatGPT. I haven't explored much about subjective questions or formulation questions.

Research Instruments

- **Survey Distribution:** Implemented through social media platforms to reach a wide audience of CSU East Bay postgraduate students and faculty.
- **Ethical Consideration in Demographics:** Employed age ranges instead of exact ages in surveys to ensure ethical data collection practices.

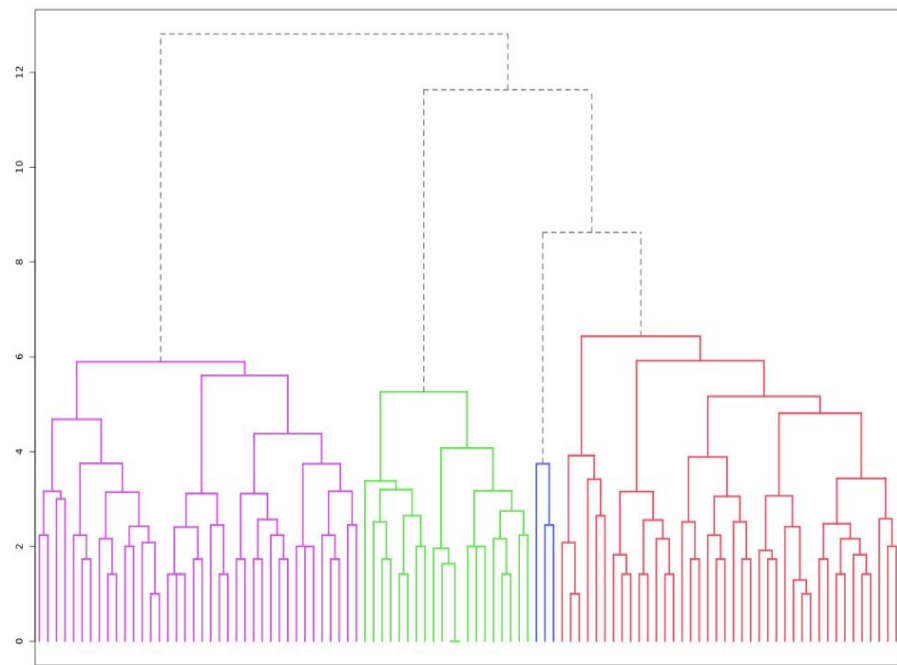
Survey Focus:

- **Students:** Questions designed to gauge the frequency of ChatGPT use, its perceived benefits, areas for improvement, and expectations for future growth.
- **Professors:** Aimed to gather academic perspectives on ChatGPT's impact and potential. However, note the lower response rate from this group, highlighting a potential area for further research.
- **Importance of Diverse Perspectives:** Emphasizes the need to understand both student and educator viewpoints to fully assess the impact and future of ChatGPT in an academic setting.

Analysis

Understanding Our Audience: Segmentation Methodology

- Leveraged Enginius software for precise market segmentation of CSU East Bay postgraduate students.
- Initiated our market segmentation analysis by employing a dendrogram, which helped us visually discern distinct student groups based on their responses.
- A minor segment, accounting for 3% of the total, was excluded due to its lack of distinctive characteristics
- We decided to focus on three primary segments, each characterized by unique features such as age distributions, usage patterns, and attitudes towards ChatGPT
- This approach enabled us to categorize the CSU East Bay postgraduate students into segments that not only varied in demographic composition but also in their engagement and perspectives regarding ChatGPT.



Dendrogram

| | Population | Segment 1 | Segment 2 | Segment 3 | Segment 4 |
|--|------------|-----------|-----------|-----------|-----------|
| Which age group do you belong to? = 22-30 | 0.792 | 0.900 | 0.842 | 0.675 | 1.000 |
| Which age group do you belong to? = 30-40 | 0.158 | 0.050 | 0.158 | 0.225 | 0.000 |
| What are your pronouns? = He/Him | 0.475 | 0.500 | 0.447 | 0.500 | 0.333 |
| How many time a week do you use ChatGPT for learning/academic purposes? = 1-3 times per week | 0.178 | 0.000 | 0.105 | 0.300 | 0.687 |
| How many time a week do you use ChatGPT for learning/academic purposes? = 4-6 times per week | 0.337 | 0.200 | 0.368 | 0.400 | 0.000 |
| How many time a week do you use ChatGPT for learning/academic purposes? = Less than once per week | 0.119 | 0.000 | 0.105 | 0.200 | 0.000 |
| What types of academic tasks do you use ChatGPT for? (Select all that apply) = Research Assistance, Problem Solving, Guidance | 0.079 | 0.100 | 0.132 | 0.025 | 0.000 |
| What types of academic tasks do you use ChatGPT for? (Select all that apply) = Research Assistance, Creative Ideas, Problem Solving, Guidance, General information | 0.139 | 0.100 | 0.211 | 0.075 | 0.333 |
| What types of academic tasks do you use ChatGPT for? (Select all that apply) = Research Assistance, Problem Solving | 0.089 | 0.200 | 0.053 | 0.075 | 0.000 |
| What types of academic tasks do you use ChatGPT for? (Select all that apply) = Research Assistance, Problem Solving, General information | 0.089 | 0.150 | 0.105 | 0.025 | 0.333 |
| To what extent has ChatGPT impacted your academic performance and productivity? | 3.88 | 4.75 | 4.11 | 3.28 | 3.33 |
| What positive impacts does ChatGPT have on your academic pursuits? = Ease of Use: Seamless and user-friendly experience, Productivity Boost: Increased efficiency for accomplishing tasks, Accuracy: Precision in information and responses, Time Savings: Significant reduction in time investment, Stress Relief: Contributed to reduced academic stress, Clarity Boost: Improved understanding of complex topics. | 0.089 | 0.200 | 0.132 | 0.000 | 0.000 |
| What positive impacts does ChatGPT have on your academic pursuits? = Ease of Use: Seamless and user-friendly experience, Productivity Boost: Increased efficiency for accomplishing tasks, Time Savings: Significant reduction in time investment, Stress Relief: Contributed to reduced academic stress, Clarity Boost: Improved understanding of complex topics. | 0.069 | 0.100 | 0.132 | 0.000 | 0.000 |
| What positive impacts does ChatGPT have on your academic pursuits? = Ease of Use: Seamless and user-friendly experience, Productivity Boost: Increased efficiency for accomplishing tasks, Time Savings: Significant reduction in time investment. | 0.059 | 0.000 | 0.079 | 0.075 | 0.000 |
| What positive impacts does ChatGPT have on your academic pursuits? = Ease of Use: Seamless and user-friendly experience, Productivity Boost: Increased efficiency for accomplishing tasks, Time Savings: Significant reduction in time investment, Stress Relief: Contributed to reduced academic stress. | 0.059 | 0.100 | 0.079 | 0.025 | 0.000 |
| What negative impacts does ChatGPT have on your academic pursuits? = Quality Concerns: Worries about the overall quality of academic work when using ChatGPT. | 0.059 | 0.050 | 0.053 | 0.075 | 0.000 |
| What negative impacts does ChatGPT have on your academic pursuits? = Dependence on Technology: Over reliance on ChatGPT hinders independent academic skills, Quality Concerns: Worries about the overall quality of academic work when using ChatGPT. | 0.059 | 0.100 | 0.026 | 0.075 | 0.000 |
| What negative impacts does ChatGPT have on your academic pursuits? = Dependence on Technology: Over reliance on ChatGPT hinders independent academic skills, Lack of Originality: Dependence on ChatGPT results in a lack of original thought. | 0.059 | 0.050 | 0.053 | 0.075 | 0.000 |
| What negative impacts does ChatGPT have on your academic pursuits? = Dependence on Technology: Over reliance on ChatGPT hinders independent academic skills. | 0.069 | 0.050 | 0.053 | 0.100 | 0.000 |
| To what extent do you agree that generative AI will become a regular part of higher education in the next 5 years? | 4.27 | 4.90 | 4.50 | 3.95 | 1.33 |
| How concerned are you about potential misuse of ChatGPT for cheating or spreading misinformation? | 3.53 | 2.20 | 4.63 | 3.35 | 1.00 |
| What policies would you recommend institutions implement regarding use of ChatGPT? = Provide training for responsible use | 0.267 | 0.450 | 0.211 | 0.225 | 0.333 |
| What policies would you recommend institutions implement regarding use of ChatGPT? = Encourage monitored usage | 0.327 | 0.150 | 0.395 | 0.375 | 0.000 |
| What policies would you recommend institutions implement regarding use of ChatGPT? = No policy needed now | 0.109 | 0.300 | 0.053 | 0.050 | 0.333 |
| What policies would you recommend institutions implement regarding use of ChatGPT? = Develop guidelines and restrictions without a ban | 0.287 | 0.100 | 0.316 | 0.350 | 0.333 |

Segment 1 & 3: Contrasting Perspectives

- Segment 1 Characteristics:

Predominantly aged 22-30, with minimal representation of 30-40 year olds.

Regular use of ChatGPT, averaging 4-6 times a week.

Strong belief in the positive impact of ChatGPT on academic performance.

Opposes regulation of ChatGPT, foreseeing AI as a standard in future education

- Segment 3 Characteristics:

Includes a higher proportion of 30-40 year olds.

Less frequent use of ChatGPT, typically less than 3 times a week.

Skeptical about ChatGPT's role in reducing stress and improving learning and favors implementing regulatory policies for ChatGPT use

Insights from Segment 2



- Age distribution similar to other segments, but with the highest frequency of usage (4-6 times a week).
- Primarily uses ChatGPT for research, idea generation, and problem-solving
- Acknowledges significant academic benefits from ChatGPT
- Conscious of potential negative consequences, including misuse of AI.
- Represents 38% of the respondents, second only to Segment 3 at 40%

Conclusion

- Our in-depth segmentation analysis uncovered three primary student groups with distinct ChatGPT adoption levels, usage motivations, and perspectives. We name them - Innovators, Pragmatists and Skeptics
- Widespread regular usage points to the mainstream appeal of ChatGPT's perceived benefits like enabling convenience, better productivity and easier research.
- However, critical issues around academic integrity like plagiarism, reduced learning incentives, and long-term societal implications necessitate balanced regulation.
- A balanced, tailored regulatory approach is imperative to maximize the advantages while restricting misuse based on the needs of each segment. Such approach aligned to segment-specific needs is vital to harness AI's advantages while curbing misuse.

Recommendations

- Uphold academic honesty across all student groups via stringent plagiarism detection and zero tolerance protocols.
- Promote critical thinking by encouraging evaluation instead of blind ChatGPT output acceptance.
- Craft segmented guidelines recognizing differing priorities on user's primary use:
 - **Innovators:** Encourage responsible innovation by directing passions towards advancing AI safety research and development.
 - **Pragmatists:** Foster critical thinking skills rather than penalize ChatGPT usage to improve learning outcomes.
 - **Skeptics:** Bridge skepticism by demonstrating stringent policies upholding academic integrity and ethical AI standards.
 - **Cross-Segment:** Continually re-evaluate policies considering the rapid pace of AI progress to balance productivity, equity and responsible usage.
- Continually reassess existing protocols considering the rapid evolution of generative AI to balance innovation with responsible usage.
- Increase awareness regarding the importance of ethical AI via targeted interventions specific to peer segments.

Questions?
