(CST:461) Project Presentation for 21st April 2023

By: Anmoldeep Sandhu, Adam Abrams Flohr, Jiaqi Zhou, Nicholas Kohout, and Talbert Herndon

Tasks of each member in the Project:

Adam: Project Manager (Designing)

Talbert: Lead Developer

Anmoldeep: UI/Frontend

Chris: UI/ Frontend

Nick: Backend

Slides by: Adam

Experiment: 1

Soft Skills Experiment

Hypothesis: A hybrid online/in person class format encourages students to develop soft skills over the course of a semester that they would not normally develop.

Data Collections:

1. Running note taking on personal soft skills development or loss.
2. Survey (18 responses) seeing which soft skills people gained or lost.

Personal Responses

- Running tally kept throughout the semester on what I improved on and lost.
- Started week 5 and continues going to week 13

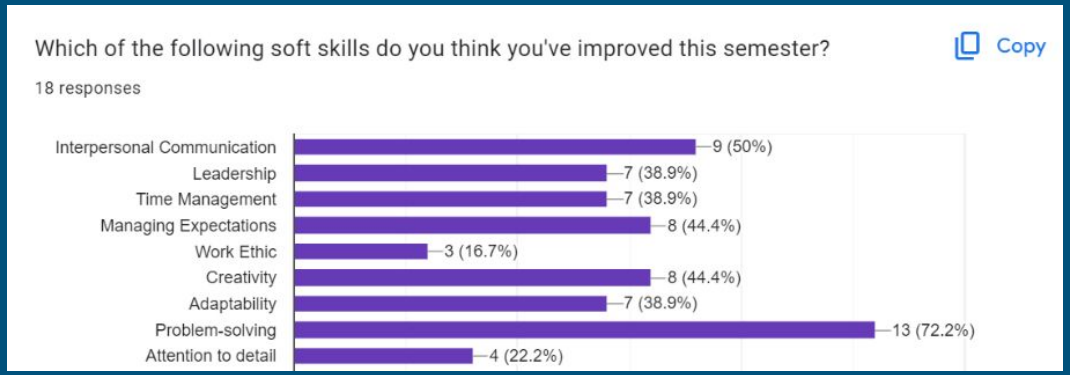
Times Mentioned Improving:

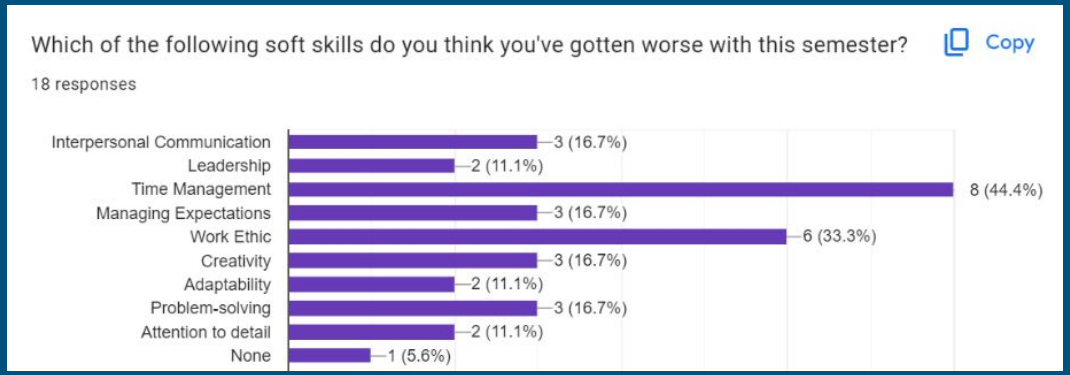
Interpersonal Communication: 5
Time management: 1
Leadership: 3
Teamwork: 2
Creativity: 1

Times Mentioned Losing:

Time Management: 2

Survey Responses



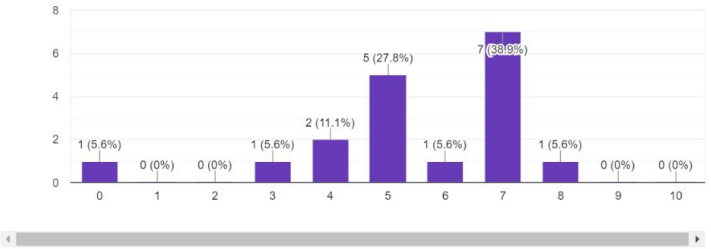


Survey Highest Gain/Loss

How much better or worse have your interpersonal communication skills gotten this semester? (5 being no change)

Copy

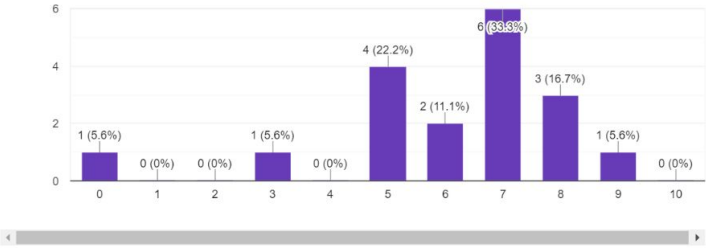
18 responses



How much better or worse have your leadership skills gotten this semester? (5 being no change)

Copy

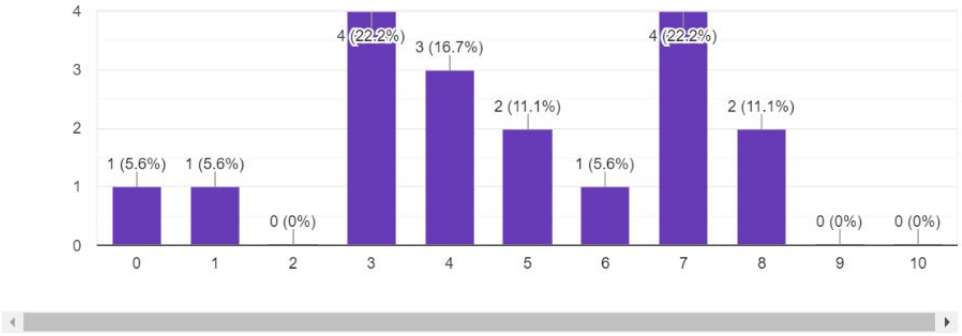
18 responses



How much better or worse have your time management skills gotten this semester? (5 being no change)

Copy

18 responses



Project Contribution

- Main contributions towards planning and leading each of the sprints.
- Dissemination of expectations
- Assistance in testing
- Bi-weekly Figma work and updates

Slides by: Chris

Experiment: 2

AI in developing

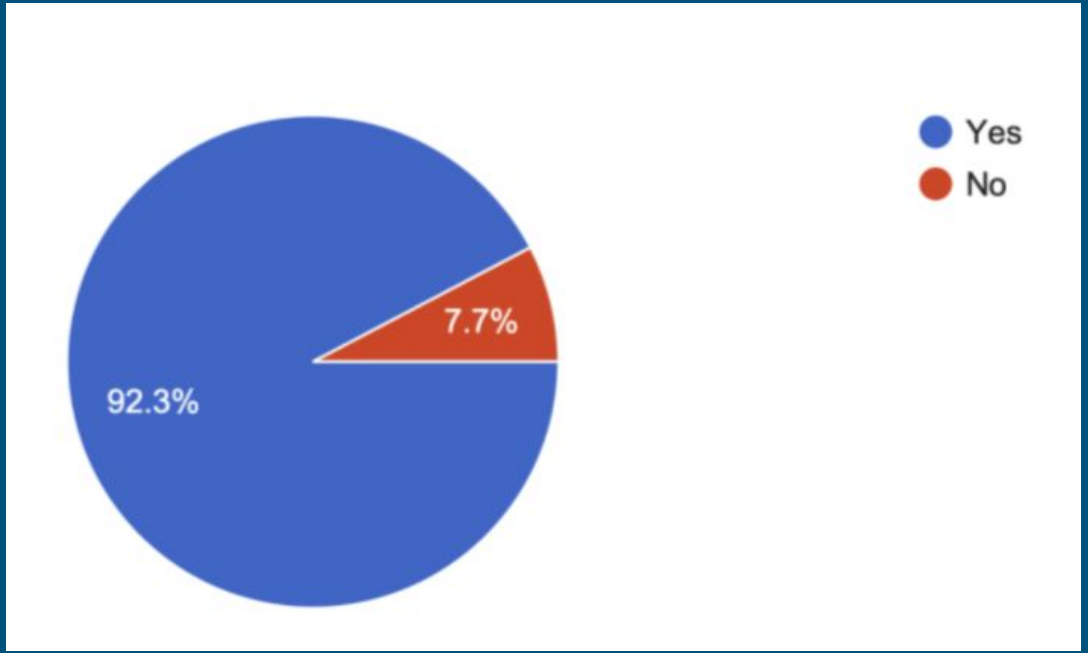
Hypothesis: The majority of the students hold a positive attitude towards the impact of AI technology and believes that it has the potential to greatly impact various industries in the upcoming years.

Data:

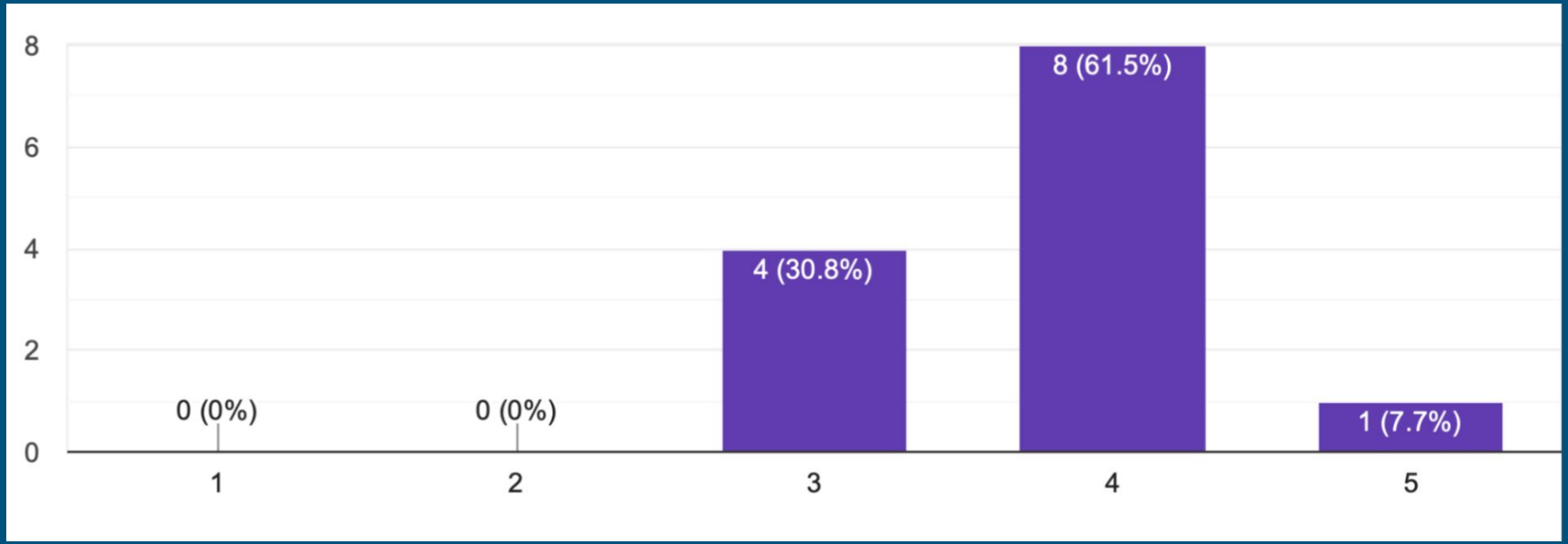
- Self made survey that was taken by class students.
- Notes that I had from using AI assisting.

Regulations with AI?

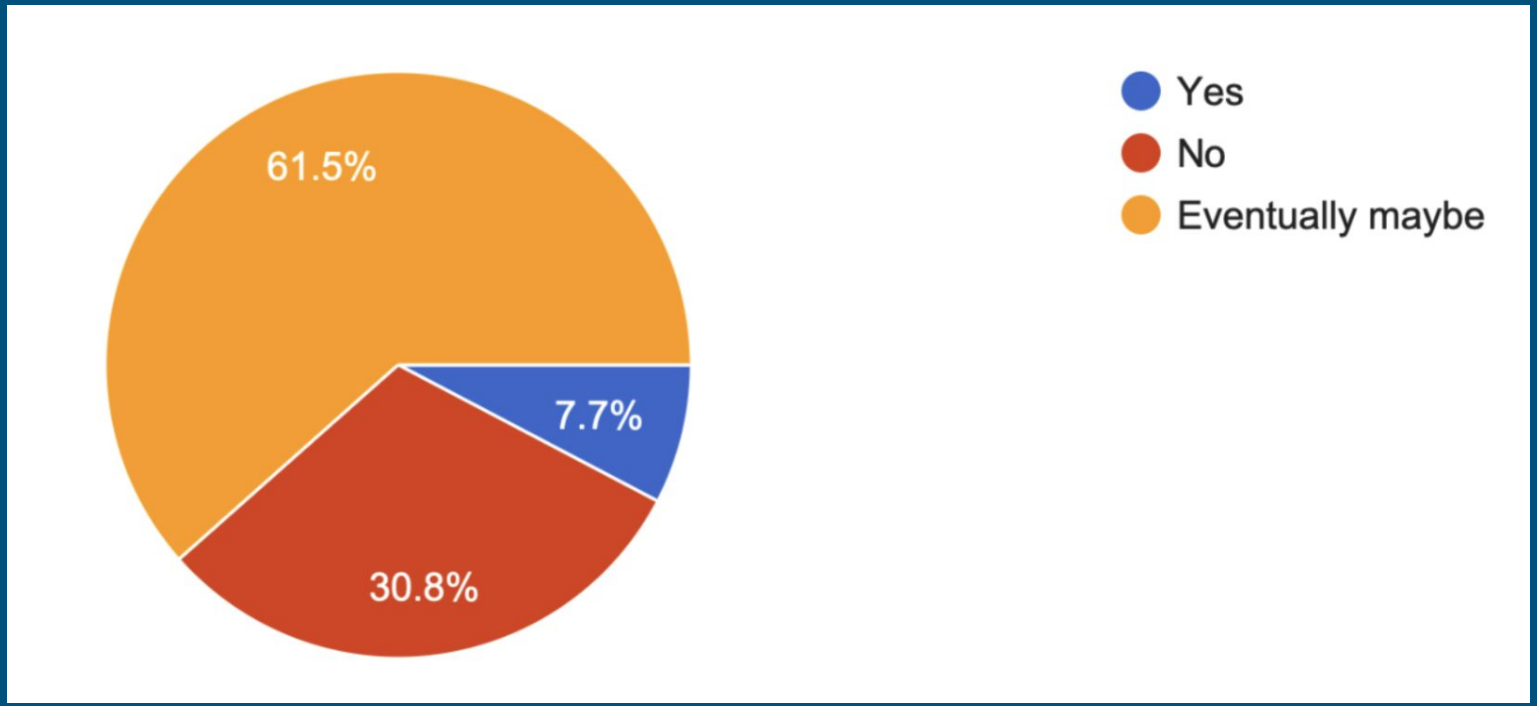
- In education?
- In work?



Concert with Malicious actors



Do you trust in AI



Impact on industries

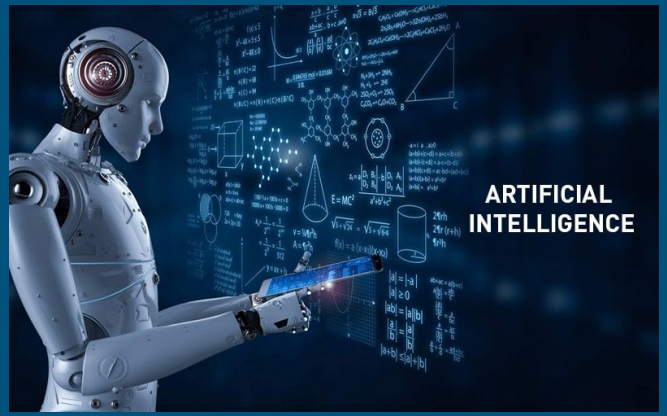
Anything IT or basic human operating roles
Pretty much all
art and technology
Definitely IT and other technology fields.
Technology
writing and content creation
software
Tech companies and Education companies.
Call centers

Summary

Based on the data that was provided by students, The majority of the students hold a positive attitude towards the usefulness of AI technology, but need strict education restriction for learning purpose and believes that it has the potential to greatly impact various industries in the upcoming years.

Slides by: Anmol

Experiment: 3



Experiment: (Effectiveness of AI in Enhancing Classroom Learning)

Hypothesis: AI can significantly improve students' classroom experience and learning outcomes, and the majority of students will find AI responses helpful and agreeable.

Data: The data for this experiment was collected through a survey of 13 students from the class. While the sample size is relatively small, it provides a preliminary indication of how students perceive AI in the classroom.

Primary Data:

Collecting primary data involves conducting research to gather original and firsthand information about a particular topic. In this case, the primary data is focused on exploring people's perceptions and opinions on the effectiveness of artificial intelligence (AI) in enhancing classroom learning. Also, the following links were used for primary data as a reference.

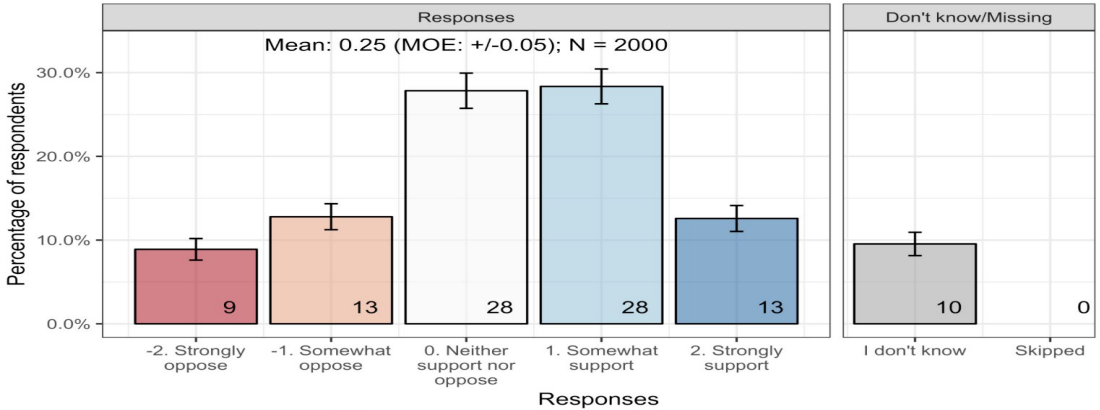
- https://elearningindustry.com/incorporating-artificial-intelligence-into-classroom-examination-benefits-challenges-and-best-practices
- https://governanceai.github.io/US-Public-Opinion-Report-Jan-2019/general-attitudes-toward-ai.html
- https://www.forbes.com/sites/forbestechcouncil/2022/09/20/how-ai-is-changing-the-way-students-learn/?sh=513c0f687338
- https://appinventiv.com/blog/10-ways-artificial-intelligence-transforming-the-education-industry/

More Americans support than oppose developing AI

We measured respondents' support for the further development of AI after providing them with basic information about the technology. Respondents were given the following definition of AI:

> Artificial Intelligence (AI) refers to computer systems that perform tasks or make decisions that usually require human intelligence. AI can perform these tasks or make these decisions without explicit human instructions. Today, AI has been used in the following applications: [five randomly selected applications]

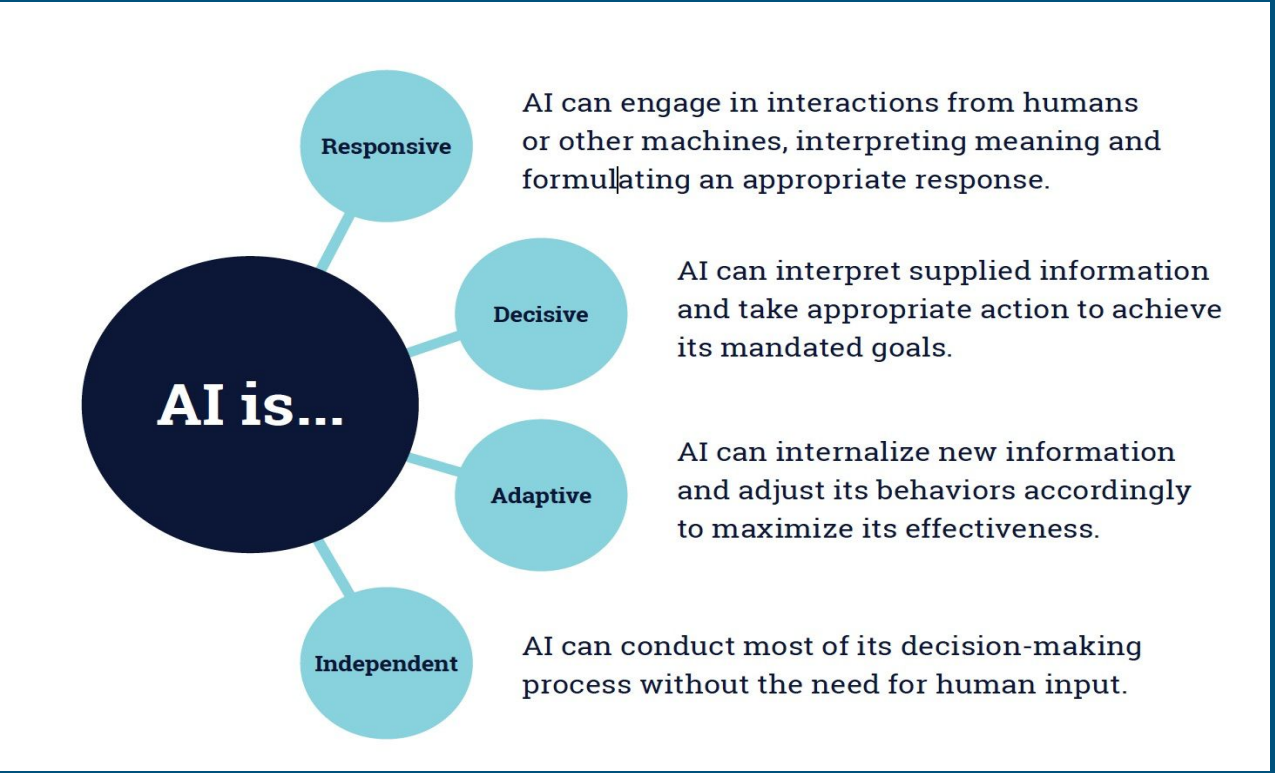
Each respondent viewed five applications randomly selected from a list of 14 that included translation, image classification, and disease diagnosis. Afterward, respondents were asked how much they support or oppose the development of AI. (See Appendix B for the list of the 14 applications and the survey question.)



Jan-2019/public-opinion-on-ai-governance.html" in a new tab

Source: Center for the Governance of AI

AI in Higher Education:



Secondary Data:

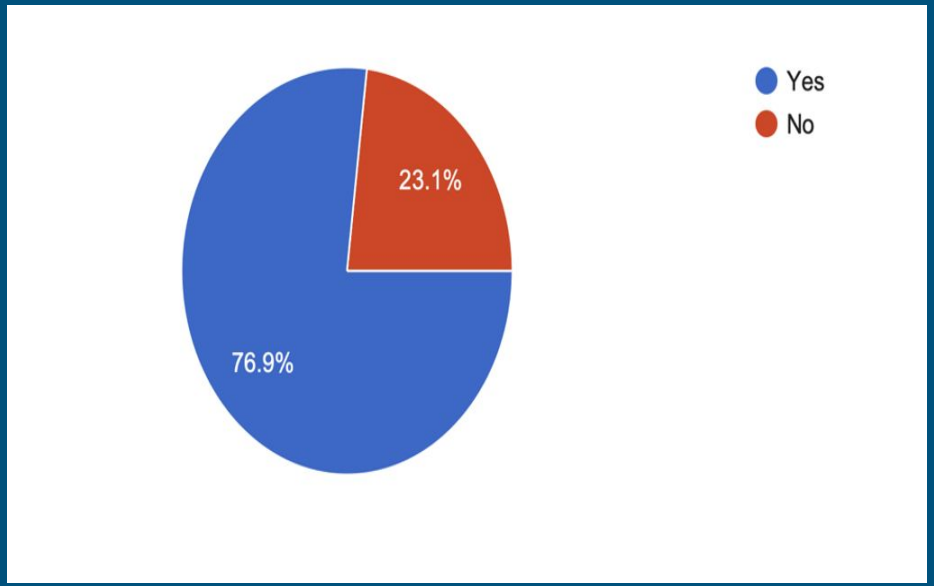
The process of collecting secondary data by distributing surveys or questionnaires to students in a classroom setting is a valid and reliable method that can provide valuable insights into a wide range of topics. This approach involves carefully designing survey questions that are clear, concise, and meaningful, and distributing them to a representative sample of students who are willing and able to provide accurate and honest responses.

By using this method, researchers can gather data on a variety of subjects, such as attitudes towards a specific issue, opinions on a product or service, or even demographic information about the population being studied. Additionally, collecting data from students in a classroom setting can be an efficient and cost-effective way to obtain large amounts of data quickly.

Furthermore, it is important to note that the reliability and validity of secondary data collected from students in a classroom setting can be strengthened by ensuring that the survey questions are designed with care and that the data collection process is conducted in a consistent and standardized manner. Researchers can also enhance the credibility of the data by utilizing statistical methods to analyze the data and identify any potential sources of bias.

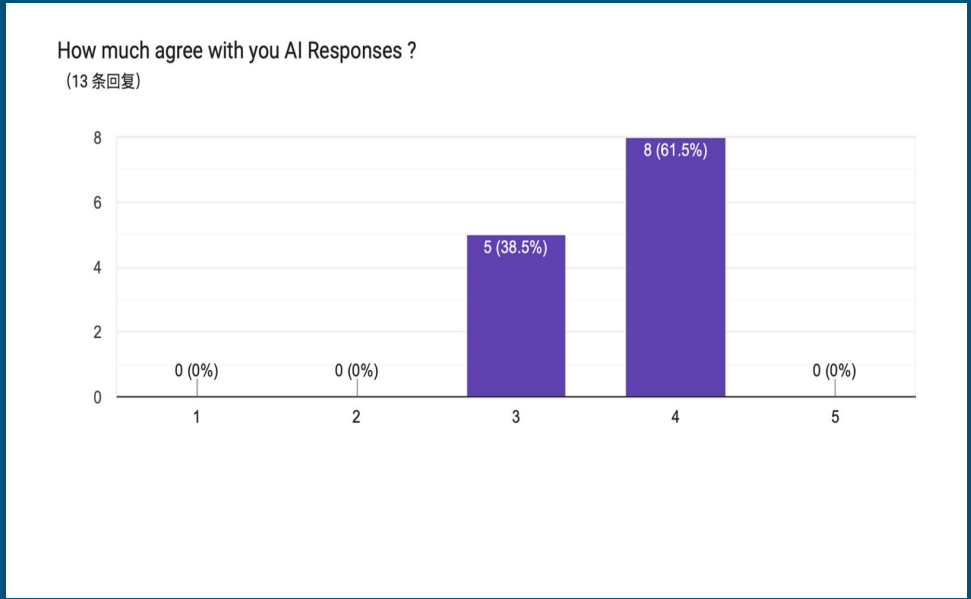
Was AI really helpful throughout this class for students?

In a survey conducted among 13 students, 76.9% of the respondents reported that they found AI helpful throughout the class, while 23.1% of the respondents reported that they did not find AI helpful.



How many students are agree with AI responses.

Based on the survey of 13 students, 8 students agreed with the AI responses while 5 students did not agree with the AI responses.



Conclusion:

In conclusion, AI has the potential to improve students' learning experience, as 76.9% found it beneficial in class and 61.5% found AI responses helpful. Further research is needed to determine the best practices for integrating AI in classrooms.

References:

1. eLearning Industry. (n.d.). Incorporating Artificial Intelligence into Classroom Examination: Benefits, Challenges, and Best Practices. https://elearningindustry.com/incorporating-artificial-intelligence-into-classroom-examination-benefits-challenges-and-best-practices
2. Governance of AI Program. (2019). General attitudes toward AI. https://governanceai.github.io/US-Public-Opinion-Report-Jan-2019/general-attitudes-toward-ai.html
3. Forbes Tech Council. (2022, September 20). How AI is changing the way students learn. Forbes. https://www.forbes.com/sites/forbestechcouncil/2022/09/20/how-ai-is-changing-the-way-students-learn/?sh=513c0f687338
4. Appinventiv. (n.d.). 10 Ways Artificial Intelligence Is Transforming The Education Industry. https://appinventiv.com/blog/10-ways-artificial-intelligence-transforming-the-education-industry/
5. Bates, T. (2018, December 2). Another perspective on AI in higher education. Tony Bates. https://www.tonybates.ca/2018/12/02/another-perspective-on-ai-in-higher-education/

Slides by: Nick

Experiment: 4

Introduction

Hypothesis: As AI is given complex and comprehensive understanding of how human writing is done, then AI will be able to, in an increasing manner, generate text that AI detectors won't be able to correctly flag.

AI: ChatGPT 3.5

Detectors: gptzero.me, writer.com, copyleaks.com, crossplag.com, sapling.ai

Implementation

- 20 separate prompts
- 10 AI
  - Analyze the concept of leadership and evaluate the qualities of an effective leader.
  - Discuss the impact of globalization on cultures and economies around the world.
  - Explore the ethics of genetic engineering and the potential implications for society.
- 10 human
  - Write an essay about the history and impacts of the ":D" emoticon.
  - Write a comprehensive essay about the history of "Live, laugh, love"
  - Write an doctorate thesis about the impacts of Calvin and Hobbes on our current social economic system.
- 5 increasing complexities of primers
- Gathered AI estimation percentage from detectors

Prompt Primers

1. Write the following essay

2. Write the following essays with the goal of sounding human and not being detected as AI.

3. (2.) + Write the following essays while adding amounts of complexity and Burstiness.

4."When it comes to writing content, two factors are crucial, "perplexity" and "burstiness." Perplexity measures the complexity of text. Separately, burstiness compares the variations of sentences. Humans tend to write with greater burstiness, for example, with some longer or complex sentences alongside shorter ones. AI sentences tend to be more uniform. Therefore, when writing the following content I am going to ask you to create, I need it to have a good amount of perplexity and burstiness. Do you understand?"

5. (4.) + Rewrite this article by changing 50% of nouns and verbs for similar ones and rewrite verb usage to add natural sounding variations in complexity but retail the same tense and overall meaning. Also, try adding similes.

Data:

Primer 1: 89%

Prompts	writer.com	zerogpt.com	gptzero.me	crossplag.com	sapling.ai	Average
1	99%	100%	60%	100%	100%	92%
2	91%	94%	61%	100%	100%	89%
3	99%	100%	80%	100%	99%	96%
4	72%	100%	61%	100%	100%	87%
5	92%	100%	79%	100%	100%	94%
6	89%	91%	74%	100%	98%	90%
7	93%	100%	61%	100%	100%	91%
8	99%	100%	81%	100%	100%	96%
9	93%	92%	71%	100%	100%	91%
10	99%	100%	61%	100%	100%	92%
11	96%	70%	46%	100%	99%	82%
12	70%	90%	51%	100%	99%	82%
13	35%	100%	53%	100%	99%	77%
14	99%	100%	72%	100%	99%	94%
15	56%	100%	61%	100%	99%	83%
16	93%	100%	54%	100%	99%	89%
17	70%	91%	98%	100%	100%	92%
18	91%	100%	60%	100%	99%	90%
19	97%	92%	82%	100%	99%	94%
20	56%	100%	29%	100%	100%	77%
Average	84%	96%	65%	100%	99%	88.93%

Data:

Prompts	writer.com	zerogpt.com	gptzero.me	crossplag.com	sapling.ai	Average
1	99%	100%	87%	100%	99%	97%
2	31%	100%	41%	100%	99%	74%
3	99%	100%	91%	100%	99%	98%
4	17%	100%	80%	100%	98%	79%
5	98%	100%	83%	100%	99%	96%
6	99%	100%	93%	100%	100%	98%
7	31%	100%	94%	100%	99%	85%
8	98%	100%	85%	100%	99%	96%
9	99%	100%	99%	100%	99%	99%
10	19%	100%	81%	100%	100%	80%
11	6%	95%	70%	100%	70%	68%
12	99%	100%	56%	100%	100%	91%
13	99%	100%	76%	100%	99%	95%
14	99%	100%	79%	100%	60%	88%
15	0%	90%	13%	16%	0%	24%
16	12%	100%	71%	60%	0%	49%
17	24%	99%	81%	100%	99%	81%
18	99%	95%	31%	100%	99%	85%
19	99%	100%	99%	100%	89%	97%
20	2%	90%	95%	100%	12%	60%
Average	61%	98%	75%	94%	81%	81.98%

Prompts	writer.com	zerogpt.com	gptzero.me	crossplag.com	sapling.ai	Average
1	100%	100%	80%	100%	99%	96%
2	80.00%	90%	32.00%	100.00%	99.00%	80%
3	90.00%	100.00%	69.00%	100.00%	99.00%	92%
4	90.00%	100%	75.00%	100.00%	99.00%	93%
5	85.00%	100.00%	94.00%	100.00%	99.00%	96%
6	97.00%	99.00%	82.00%	100.00%	100.00%	96%
7	100.00%	100.00%	89.00%	100.00%	89.00%	96%
8	96.00%	95.00%	58.00%	100.00%	99.00%	90%
9	41.00%	100.00%	94.00%	100.00%	100.00%	87%
10	80.00%	100.00%	71.00%	100.00%	99.00%	90%
11	80.00%	92%	54.00%	100.00%	99.00%	85%
12	92.00%	100.00%	87.00%	100%	99.00%	96%
13	90.00%	92.00%	92.00%	100.00%	99.00%	95%
14	96.00%	100.00%	63.00%	100.00%	99.00%	92%
15	13.00%	100.00%	84.00%	100.00%	100.00%	79%
16	97.00%	99.00%	70.00%	100.00%	99.00%	93%
17	89.00%	100.00%	60.00%	100.00%	99.00%	90%
18	53.00%	100.00%	65.00%	100.00%	99.00%	83%
19	1.00%	100.00%	35.00%	100.00%	82.00%	64%
20	57.00%	99.00%	70.00%	100.00%	91.00%	83%
Average	76%	98%	71%	100%	97%	88.65%

Prompts	writer.com	zerogpt.com	gptzero.me	crossplag.com	sapling.ai	Average
1	0%	100%	80%	97%	26%	61%
2	7.00%	91%	30.00%	75.00%	99.00%	60%
3	99.00%	100.00%	82.00%	100.00%	99.00%	96%
4	5.00%	90.00%	50.00%	100.00%	20.00%	53%
5	99.00%	99.00%	46.00%	100.00%	99.00%	89%
6	65.00%	100.00%	58.00%	89.00%	49.00%	72%
7	97.00%	89.00%	86.00%	100.00%	99.00%	94%
8	99.00%	83.00%	89.00%	100.00%	100.00%	94%
9	47.00%	100.00%	23.00%	93.00%	99.00%	72%
10	77.00%	100.00%	95.00%	100.00%	99.00%	94%
11	2.00%	90.00%	50.00%	100.00%	99.00%	68%
12	32.00%	81.00%	50.00%	91.00%	99.00%	71%
13	15.00%	68.00%	74.00%	100.00%	99.00%	71%
14	87.00%	80.00%	92.00%	100.00%	100.00%	92%
15	1.00%	96.00%	73.00%	20.00%	81.00%	54%
16	99.00%	80.00%	50.00%	89.00%	99.00%	83%
17	0.00%	78.00%	25.00%	100.00%	93.00%	59%
18	95.00%	99.00%	44.00%	100.00%	99.00%	87%
19	98.00%	91.00%	83.00%	100.00%	99.00%	94%
20	2.00%	100.00%	67.00%	100.00%	100.00%	74%
Average	51%	91%	62%	93%	88%	76.99%

Primer 2: 82%

Primer 3: 89%

Primer 4: 77%

Data

Primer 5: 33%

	A	B	C	D	E	F	G
	Prompts	writer.com	zerogpt.com	gptzero.me	crossplag.com	sapling.ai	Average
	1	5%	93%	37%	100%	100%	67%
	2	7.00%	91%	30.00%	75.00%	100.00%	61%
	3	0.00%	0.00%	0.00%	1.00%	0.00%	0%
	4	0.00%	70.00%	51.00%	1.00%	0.00%	24%
	5	10.00%	92.00%	70.00%	100.00%	0.00%	54%
	6	3%	83.00%	84.00%	1.00%	95.00%	53%
	7	0.00%	0.00%	21.00%	1.00%	0.00%	4%
	8	14.00%	30.00%	28.00%	65.00%	100.00%	47%
	9	0.00%	91.00%	39.00%	1.00%	0.00%	26%
	10	0.00%	99.00%	21.00%	50.00%	0.00%	34%
	11	0.00%	37.00%	20.00%	1.00%	99.00%	31%
	12	1.00%	0.00%	8.00%	1.00%	0.00%	2%
	13	42.00%	42.00%	45.00%	76.00%	100.00%	61%
	14	0.00%	31.00%	21.00%	1.00%	0.00%	11%
	15	31.00%	81.00%	31.00%	90.00%	91.00%	65%
	16	0.00%	79.00%	41.00%	87.00%	90.00%	59%
	17	0.00%	41.00%	44.00%	1.00%	0.00%	17%
	18	14.00%	0.00%	0.00%	1.00%	68.00%	17%
	19	0.00%	67.00%	28.00%	55.00%	0.00%	30%
	20	0.00%	0.00%	13.00%	1.00%	12.00%	5%
	Average	6%	51%	32%	35%	43%	33.50%

Data

	A	B	C	D	E	F	G
		Primer 1	Primer 2	Primer 3	Primer 4	Primer 5	Average
	AI	92%	90%	91%	79%	37%	78%
	Human	86%	74%	86%	75%	30%	70%

- 500 Data Points
- Human generated prompts 8% less likely to be detected as AI
- CrossPlag.com most consistent while writer.com was the least

Data conclusion

- AI can be primed to generate text that is difficult for AI detectors to correctly flag.
- The reasoning is that we are forcing GPT to generate text in an abnormal environment.
- Eventually, these exploits will be fixed and the detectors are trained on outlier generation as well.
- Additionally, the AI could be trained on your specific writing style.

Slides by: Talbert

Experiment: 5

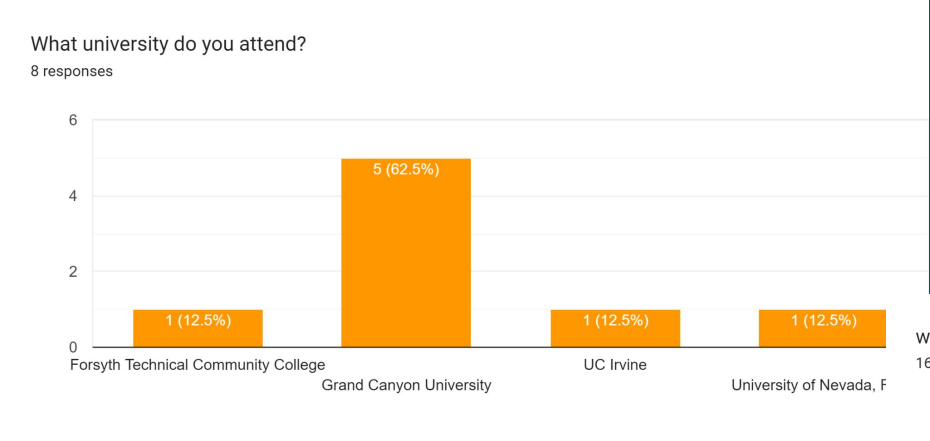
AI? Good or Bad Experiment

Goal: The goal of this experiment would be to investigate the effects of incorporating artificial intelligence (AI) into education. To conduct this experiment, a group of students will be surveyed before and after AI.

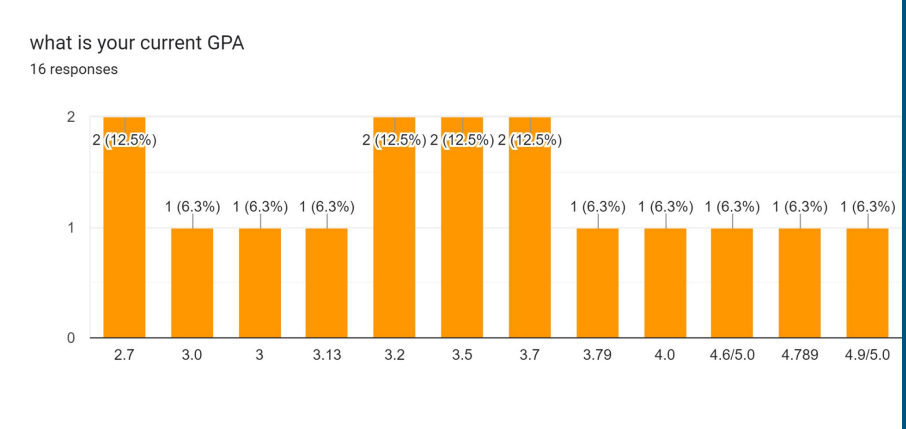
Data Collections:

1. Survey (18 responses /4 universities) - different levels of GPA
2. Usage log - backend database

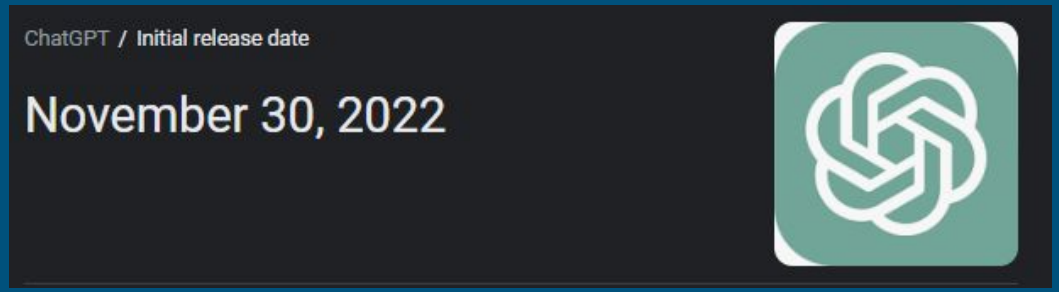
Demographics -

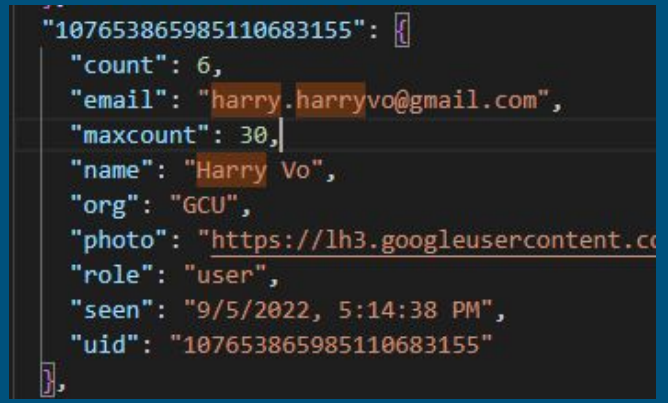


14 different majors...

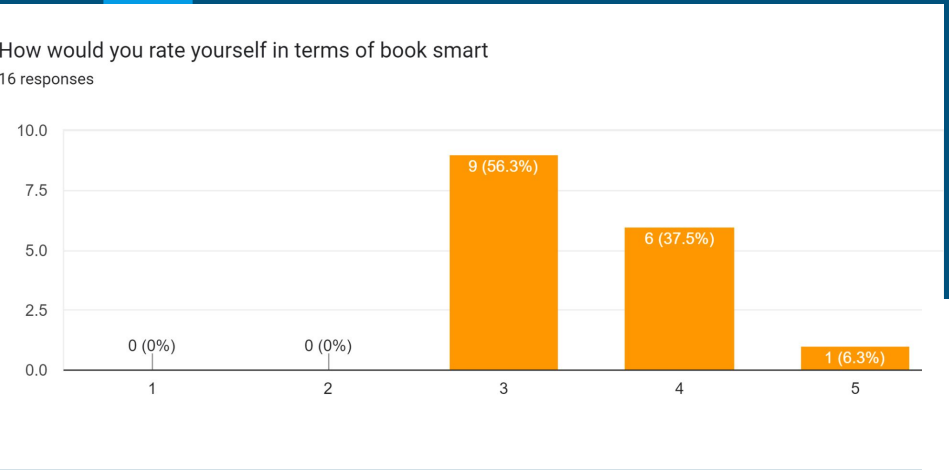


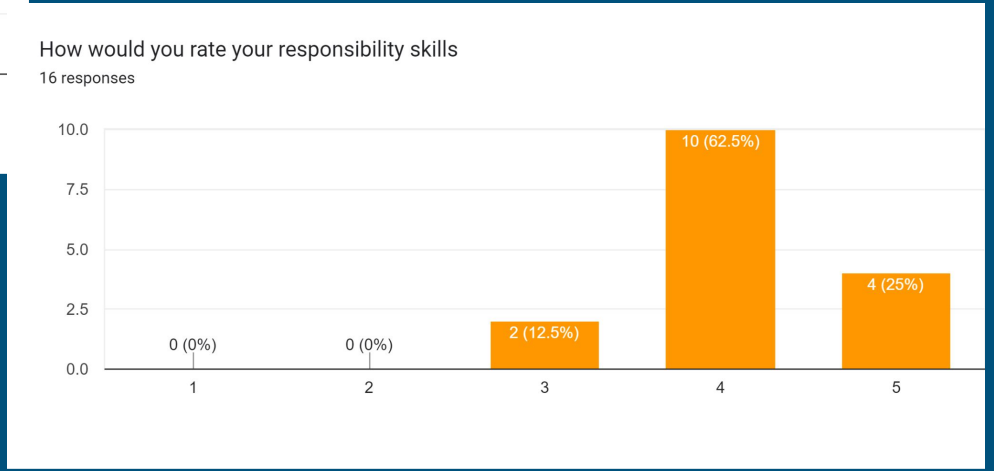
Before A.I. was a thing.





Before A.I. was a thing. - recorded @ 8/3/2022





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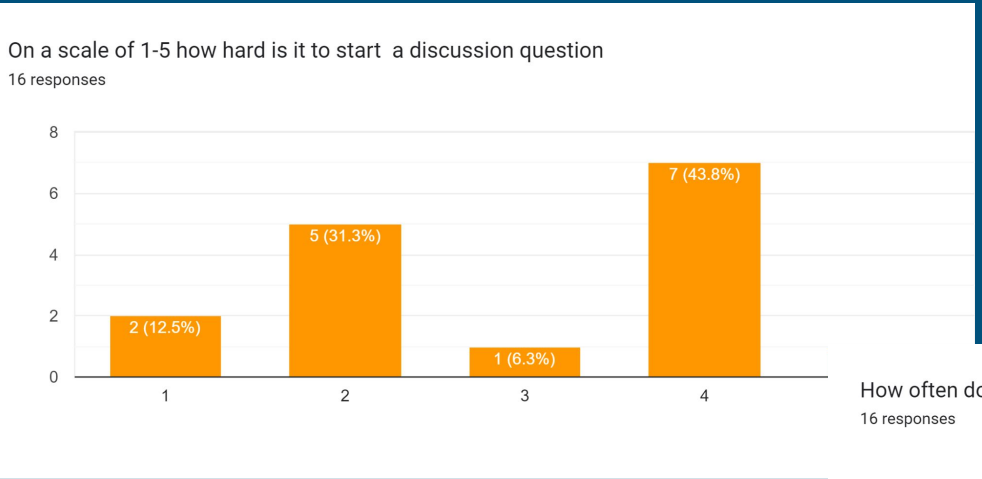

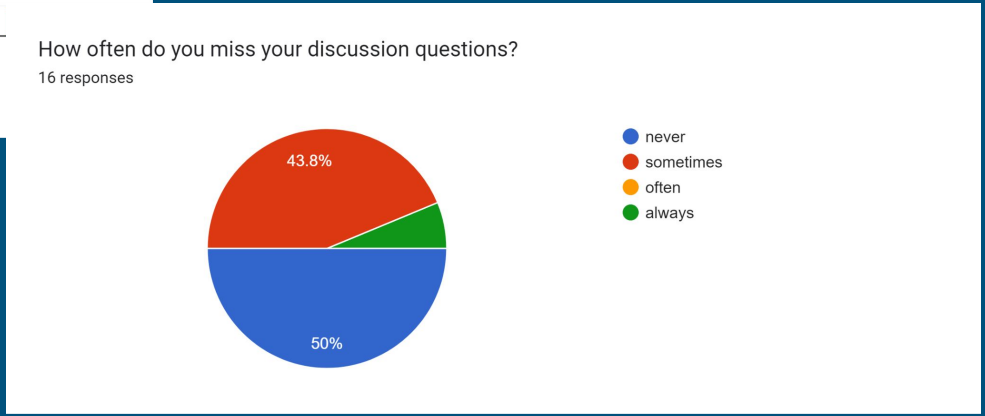

Case Study - Before A. I

Name: Harry Vo
Uses: 6 Times
Major : Finance
GPA: 3.2

On a scale of 1-5 how hard is it to start a discussion question *

	1	2	3	4	5	
very easy	○	○	○	○	◉	very hard

How often do you miss your discussion questions? *

- ○ never
- ◉ sometimes
- ○ often
- ○ always

How would you rate your self diligence *

	1	2	3	4	5	
I never double check	○	○	○	◉	○	I always perfect my work

How would you rate your organization skills

	1	2	3	4	5	
I am a mess	○	○	◉	○	○	I highlight and schedule everything

How would you rate yourself in terms of book smart *

	1	2	3	4	5	
I don't care to know things	○	○	◉	○	○	I pride myself in learning new subjects all the time

How would you rate your responsibility skills *

	1	2	3	4	5	
I forget things all the time	○	○	◉	○	○	I'm very responsible

Case Study - After A. I

Name: Harry Vo
Uses: 6 Times
Major : Finance
GPA: 3.4

On a scale of 1-5 how hard is it to start a discussion question *

	1	2	3	4	5	
very easy	◉	○	○	○	○	very hard

How often do you miss your discussion questions? *

- ○ never
- ○ sometimes
- ◉ often
- ○ always

How would you rate your self diligence *

	1	2	3	4	5	
I never double check	○	○	○	◉	○	I always perfect my work

How would you rate your organization skills

	1	2	3	4	5	
I am a mess	○	○	◉	○	○	I highlight and schedule everything

Clear selection

How would you rate yourself in terms of book smart *

	1	2	3	4	5	
I don't care to know things	◉	○	○	○	○	I pride myself in learning new subjects all the time

How would you rate your responsibility skills *

	1	2	3	4	5	
I forget things all the time	○	○	○	○	◉	I'm very responsible

Conclusion to the Data

The data collected from the study showed that on average, the ease of starting discussion questions increased by 2 points, and the perception of book smarts decreased by 1.5 points.

The introduction of AI into education has allowed for tasks and assignments to be completed more easily and quickly, which has resulted in students feeling more responsible for their work. This is supported by the data collected, which showed that people felt more responsible after the introduction of AI. The ease of starting discussion questions also increased, as AI made it easier to find relevant and accurate information. Finally, the perception of book smarts decreased slightly, indicating that people felt less reliant on memorization and textbook knowledge in order to understand topics.

Fight Fire with Fire

Overall, the potential impacts of AI and its increasing popularity are still unknown. While it appears to be beneficial on paper, its long-term effects on the intelligence of humans remain to be negative.

- Teachers must start using AI
- Developers/Entrepreneurs needs to make more tools in AI that actually enhance the mind of the user rather than dumbing-down their mind.

Poster on the Next Slide:

Research Project Dissemination Poster

Adam Abrams-Flohr, Nick Kohout, Anmoldeep Sandhu, Jiaqi Zhou, Talbert Herndon

C

B

EXPERIMENT ONE (Adam)

HYPOTHESES

Hypothesis: A hybrid online/in person class format encourages students to develop soft skills over the course of a semester that they would not normally develop.

DATA

Running note taking on personal soft skills development or loss.

Survey (18 responses) which saw what skills people gained or lost

ANALYSIS

- Personally saw gains in leadership and interpersonal communication with losses in time management.
- Survey backed up running notes this semester.
- Most students improved at problem solving and lost attention to time management.

CONCLUSION

Hypothesis can be validated as the majority of students gained more than they lost this semester.

EXPERIMENT TWO (Chris)

HYPOTHESES: The majority of the public holds a positive attitude towards AI technology and believe that it has the potential to greatly impact various industries in the coming year.

DATA: Based on a survey that was taken from 13 students, which the question types are all based on personal opinions on each survey taker that is based on the feedback from using AI.

ANALYSIS: Most of students in class think AI is a very useful tool, which it accelerates the process of developing and about seventy percent of student thinks AI will make better decisions than human eventually. However, for this specific class, not everyone felt enjoyable with the assistant of AI.

CONCLUSION: As of the result from my survey, most students believe that AI is a great tool to accelerate the developing, but not suitable for

EXPERIMENT THREE(Anmol)

HYPOTHESES: AI can significantly improve students' classroom experience and learning outcomes, and the majority of students will find AI responses helpful and agreeable.

DATA: The data for this experiment was collected through a survey of 13 students from the class. While the sample size is relatively small, it provides a preliminary indication of how students perceive AI in the classroom.

ANALYSIS: Experiment investigated AI's benefits for students and their perceptions. Results: 76.9% found AI beneficial, and 61.5% found AI responses helpful. Preliminary evidence suggests AI's potential for enhancing learning, but further research is necessary to determine best practices for using AI in classrooms.

CONCLUSION: In conclusion, AI has the potential to improve students' learning experience, as 76.9% found it beneficial in class and 61.5% found AI responses helpful. Further research is needed to determine the best practices for integrating AI in classrooms.

EXPERIMENT FOUR (Nick)

HYPOTHESES: As AI is given complex and comprehensive understanding of human writing, then AI will be able to, in an increasing manner, generate text that AI detectors won't be able to correctly flag.

DATA: 500 data points from text generated from GPT with data collected from 5 AI detectors and 5 primers

ANALYSIS: With full complexity, AI is able generate undetected text 70% of the time

CONCLUSION: Through explanation of human writing, AI is able to deceive most detectors

EXPERIMENT FIVE (Talbert)

HYPOTHESES: This experiment hypothesizes that incorporating artificial intelligence into education will have a positive effect on students' knowledge and learning outcomes.

DATA / ANALYSIS: The data collected from the study showed that on average, the ease of starting discussion questions increased by 2 points, and the perception of book smarts decreased by 1.5 points.

CONCLUSION: Overall, the potential impacts of AI and its increasing popularity are still unknown. While it appears to be beneficial on paper, its long-term effects on the intelligence of humans remain to be negative.

Thanks

Any Questions ?