Misperceived Social Norms: Use and Disclosure of AI in the Classroom

ECON 6360 - Experimental Economics

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April 21, 2025

Contents

Introduction

- Large Language Models (LLMs) like ChatGPT are commonly used
- People *do* use AI on their homework, and it is almost impossible to control its use outside of the classroom.
- Some are aggressively in favor of LLM use, others aggressively against it — **consensus?**

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Research Questions

1. Are students correctly perceiving their peers opinions on the use of AI in an academic course setting?
2. Do students conservatively assume that their peers are AI "averse" and presume they are less likely to use AI overall?
3. Can a "nudge" change this likelihood perception?

- It may inform university policies.

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Some Related Research

- The use of AI poses multiple ethical concerns: bias, privacy and security, authorship and plagiarism, and abuse (see Zhou et al., 2024).
- AI use may enhance students learning subject to certain constraints (see Baidoo-anu & Owusu Ansah, 2023)
- The widely use of AI in educational settings have already been documented using anonymous surveys (see Bego, 2023; Sublime & Renna, 2024)
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Contribution

- To provide empirical evidence about whether students conceal the use of AI in their homework because a misperceived social norm.

Note:

RPI does not have a clear AI policy.

Contents

Hypothesis

1. Students misperceive their peers' opinions on the use of AI on classroom settings.
2. An information nudge revealing their peers' opinions on AI use will improve their peer-likelihood estimation survey results.

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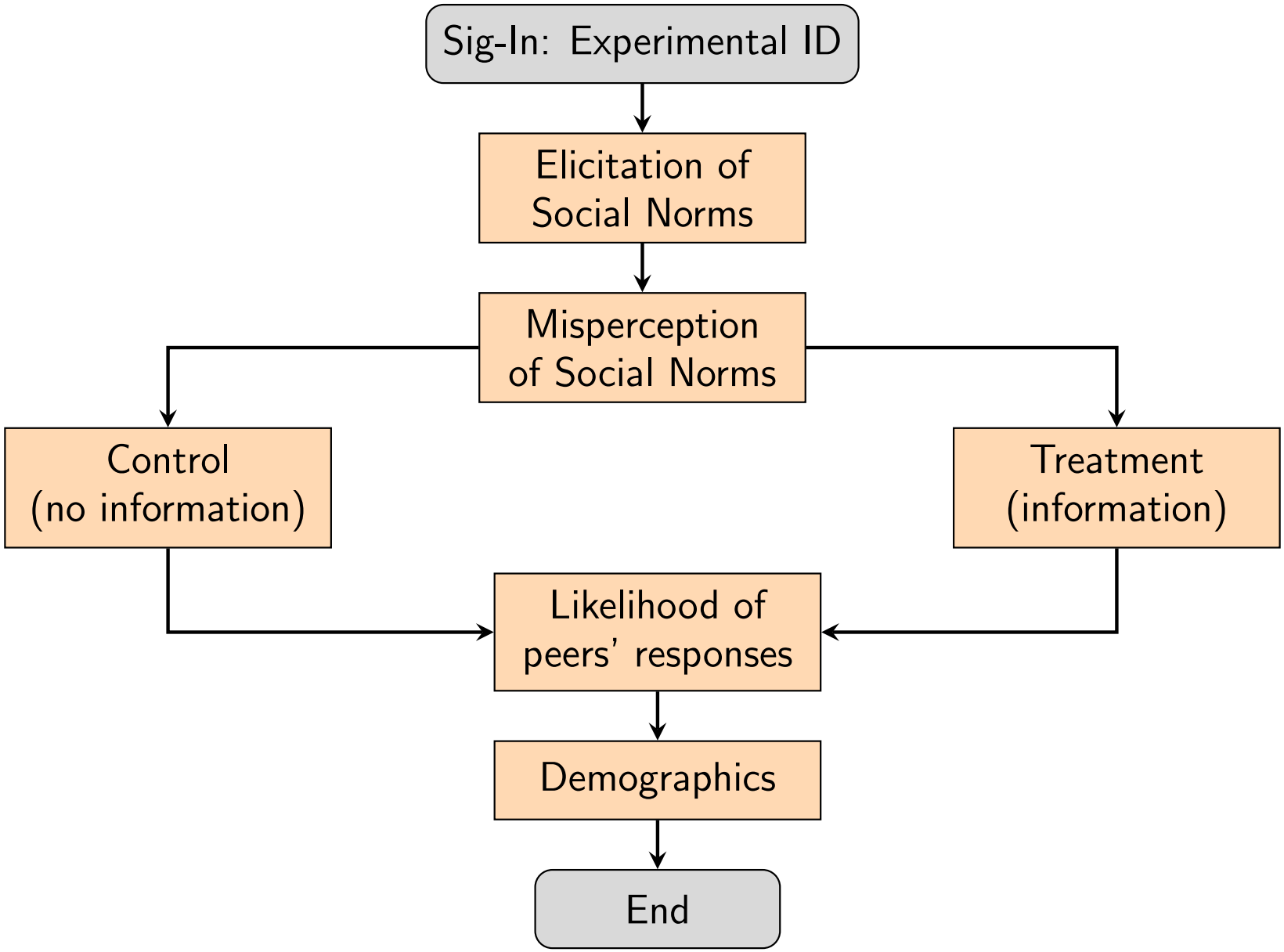

Sig-In: Experimental ID
Elicitation of Social Norms
Misperception of Social Norms
Control (no information)
Treatment (information)
Likelihood of peers' responses
Demographics
End

Elicitation of Social Norms

Individual A is taking a programming class and is working on a very challenging homework assignment that requires the writing of a new program. The class instructor has not specified any policy about the use of AI, and will not be able to know if any AI tool was used in the assignment. Individual A has the option of using an AI tool to help with the assignment.

Please evaluate the social acceptability of the following decisions Individual A can make:

Elicitation of Social Norms

Use AI and to write a significant part of the code and disclose its use, specifying which parts (e.g., "The AI generated the sorting algorithm in lines 20–100")

- Very socially inappropriate
- Somewhat socially inappropriate
- Somewhat socially appropriate
- Very socially appropriate

Misperception of Social Norms

Do you agree with the following statement?
Students should disclose the use of AI in their assignments even if the instructor did not specify any AI policy.

- Yes
- No

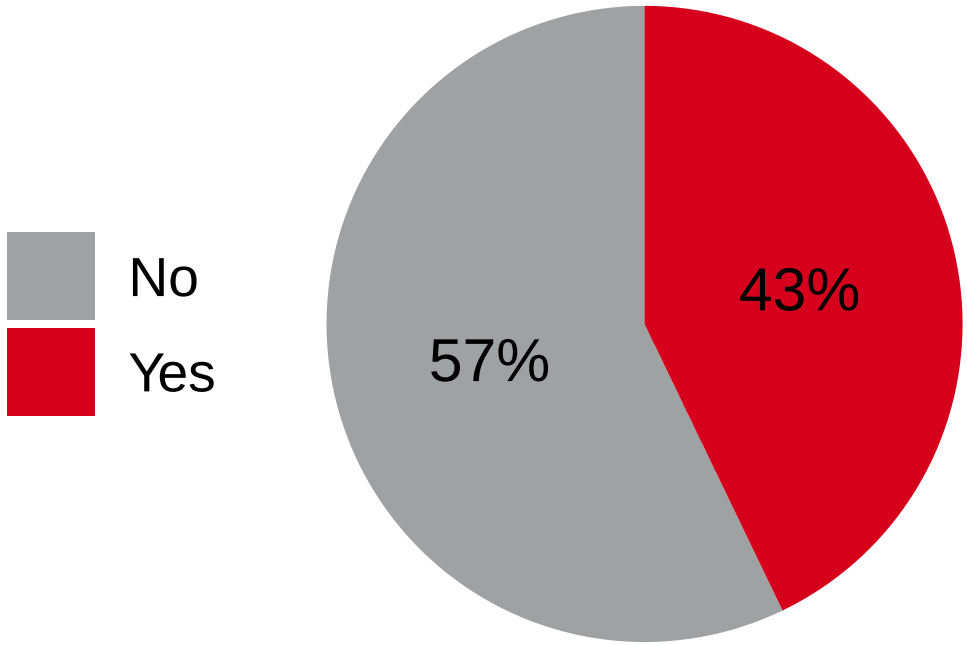
Misperception of Social Norms

If you had to guess, how many people among the other 17 study participants in the room do you think agree with the statement:
"Students should disclose the use of AI in their assignments even if the instructor did not specify any AI policy."

- (Enter a positive integer)

Nudge

Do you agree with the following statement?
Students should disclose the use of AI in their assignments even if the instructor did not specify any AI policy.



Likelihood of peers' responses

How likely do you think are your peers to use AI?

- Answer on a 1-10 scale of "Very Unlikely" to "Very Likely"

Contents

Subjects Description

	Control	Treatment
Observations	11	10
Age [mean (SD)]	21.1 (1.6)	20.4 (1.5)
Gender		
Female [%]	45.5	20.0
Male [%]	54.5	70.0
Major		
Business/Management [%]	18.2	0.0
Computational Biology [%]	9.1	10.0
Computer Science [%]	0.0	10.0
Economics [%]	9.1	20.0
Engineering [%]	63.6	50.0
Mathematics [%]	0.0	10.0
Expected graduation year		
2025 [%]	45.5	40.0
2026 [%]	9.1	20.0
2027 [%]	27.3	20.0
2028 [%]	9.1	20.0
2029 [%]	9.1	0.0
Planning to attend grad school		
No [%]	54.5	30.0
Yes [%]	45.5	70.0

Elicited Social Norms (1/2)

Action	Mean	Very Socially Inappropriate	Somewhat Socially Inappropriate	Somewhat Socially Appropriate	Very Socially Appropriate
Essay with no AI policy					
Detailed disclose	**0.78**	5%	0%	19%	76%
Disclose	**0.37**	10%	24%	19%	48%
Conceal	**-0.21**	33%	29%	24%	14%
Do not use	**0.81**	5%	0%	14%	81%
Essay with AI policy					
Detailed disclose	**0.75**	5%	0%	24%	71%
Disclose	**0.43**	0%	19%	48%	33%
Conceal	**-0.43**	48%	24%	24%	5%
Do not use	**0.75**	10%	0%	10%	81%

To construct the mean ratings, we converted responses into numerical scores
"very socially inappropriate" $= -1$; "somewhat socially inappropriate" $= -1/3$
"somewhat socially appropriate" $= 1/3$; "very socially appropriate" $= 1$

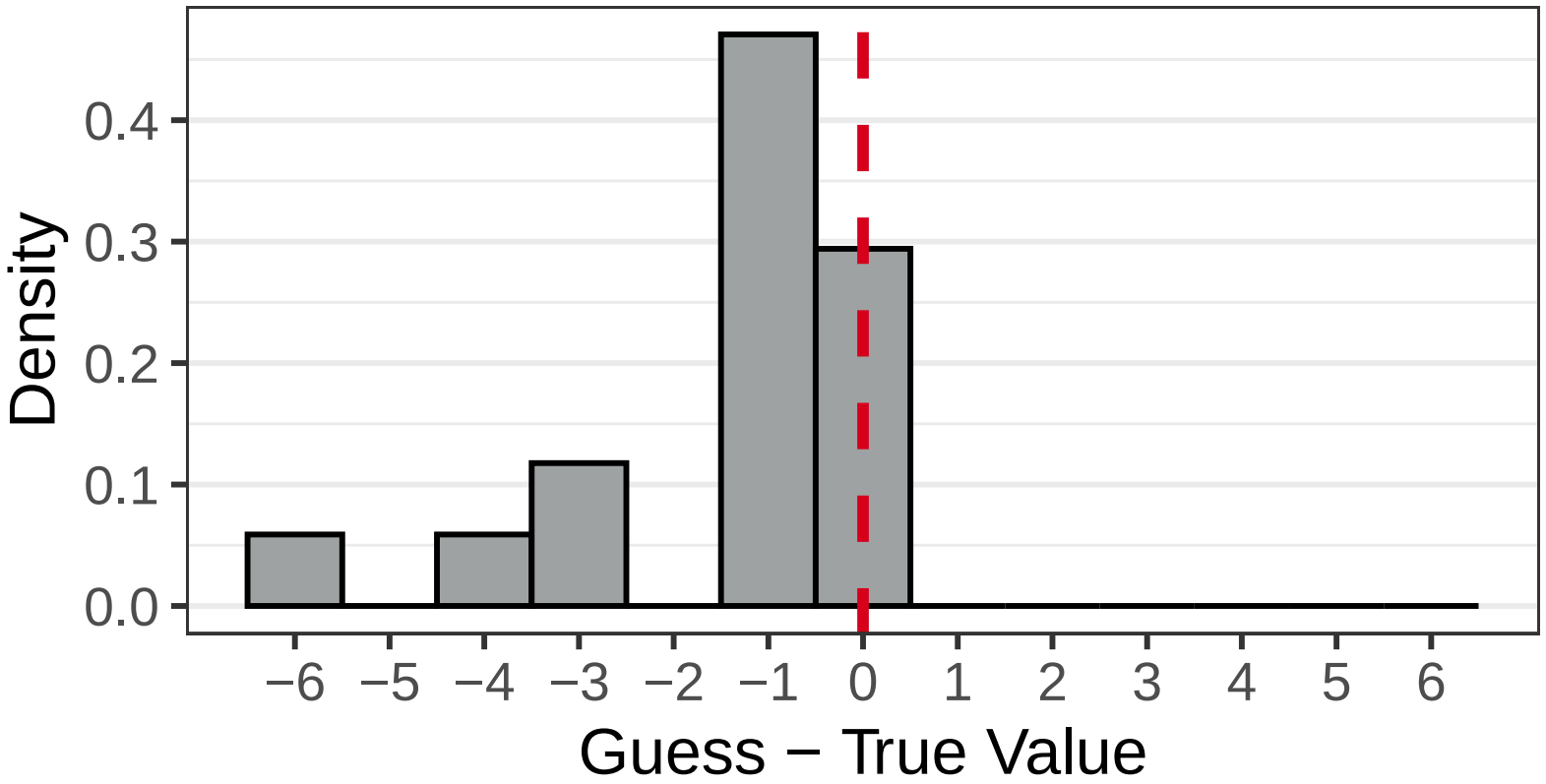
Elicited Social Norms (2/2)

Action	Mean	Very Socially Inappropriate	Somewhat Socially Inappropriate	Somewhat Socially Appropriate	Very Socially Appropriate
Coding with no AI policy					
Heavy use and detailed disclose	**0.43**	0%	24%	33%	38%
Heavy use and disclose	**0.03**	5%	48%	29%	14%
Heavy use and conceal	**-0.52**	62%	14%	14%	10%
Light use and detailed disclose	**0.65**	5%	14%	10%	71%
Light use and disclose	**0.46**	5%	14%	38%	43%
Light use and conceal	**-0.11**	14%	43%	38%	5%
Do not use	**0.75**	10%	0%	10%	81%
Coding with AI policy					
Heavy use and detailed disclose	**0.4**	0%	24%	43%	33%
Heavy use and disclose	**-0.02**	10%	52%	19%	19%
Heavy use and conceal	**-0.71**	71%	19%	5%	5%
Light use and detailed disclose	**0.68**	0%	14%	19%	67%
Light use and disclose	**0.37**	0%	29%	38%	33%
Light use and conceal	**-0.4**	38%	38%	19%	5%
Do not use	**0.68**	14%	0%	5%	81%

To construct the mean ratings, we converted responses into numerical scores
"very socially inappropriate" $= -1$; "somewhat socially inappropriate" $= -1/3$
"somewhat socially appropriate" $= 1/3$; "very socially appropriate" $= 1$

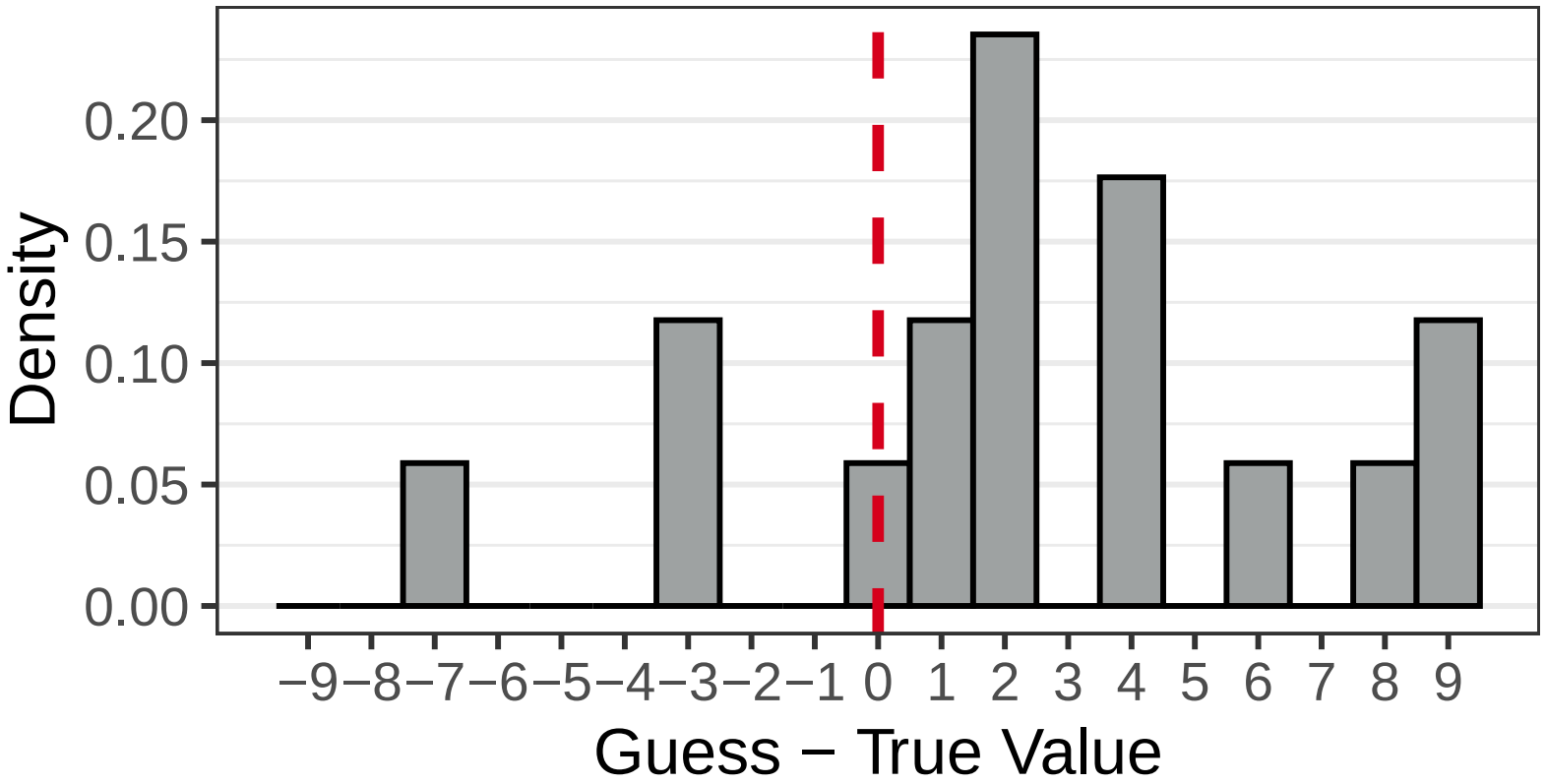
Difference in Perceptions (1/2)

"I have used AI to help me complete school assignments or research topics relating to class material even if the instructor did not specify any AI policy."



Difference in Perceptions (2/2)

"Students should disclose the use of AI in their assignments even if the instructor did not specify any AI policy."



Effect of Providing Information (1/4)

	How likely do you think are your peers to use AI?		How likely do you think your peers are to disclose their use of AI?		How likely do you think your peers are to think AI is ethical for school use?	
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Treatment	0.391	0.310	-0.727	-3.732	0.800	4.413
	(0.642)	(1.957)	(0.898)	(3.159)	(0.747)	(3.391)
Constant	8.909***	11.952	4.727***	-9.339	7.000***	35.435
	(0.443)	(19.941)	(0.619)	(32.195)	(0.516)	(34.552)
Controls	No	Yes	No	Yes	No	Yes
Num. Obs.	21	20	21	20	21	20
R2	0.019	0.725	0.033	0.645	0.057	0.425
AIC	79.7	75.3	93.7	94.4	86.0	97.2
RMSE	1.40	0.75	1.95	1.21	1.63	1.30

+ p <0.1, * p <0.05, ** p <0.01, *** p <0.001

Effect of Providing Information (2/4)

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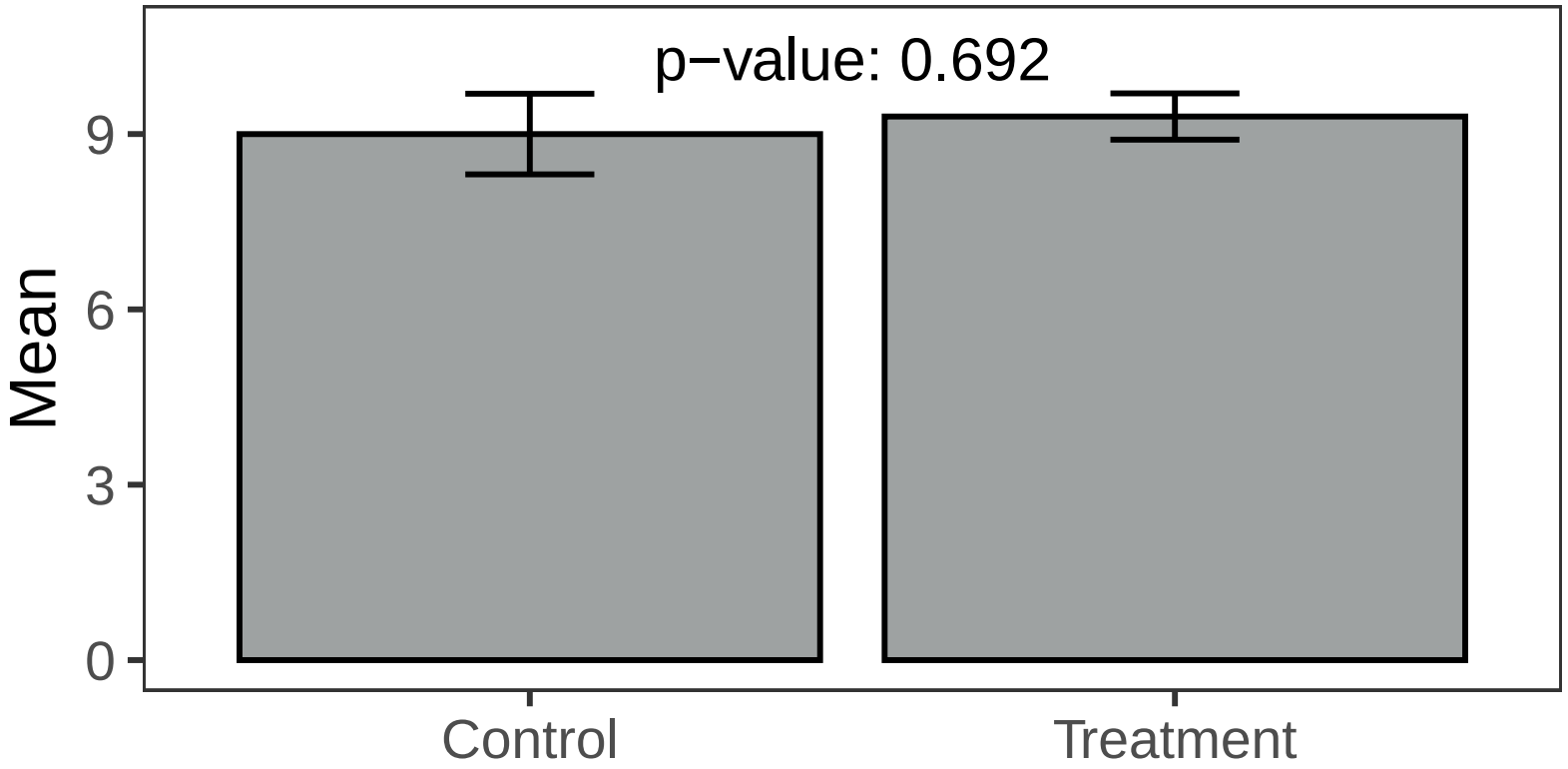
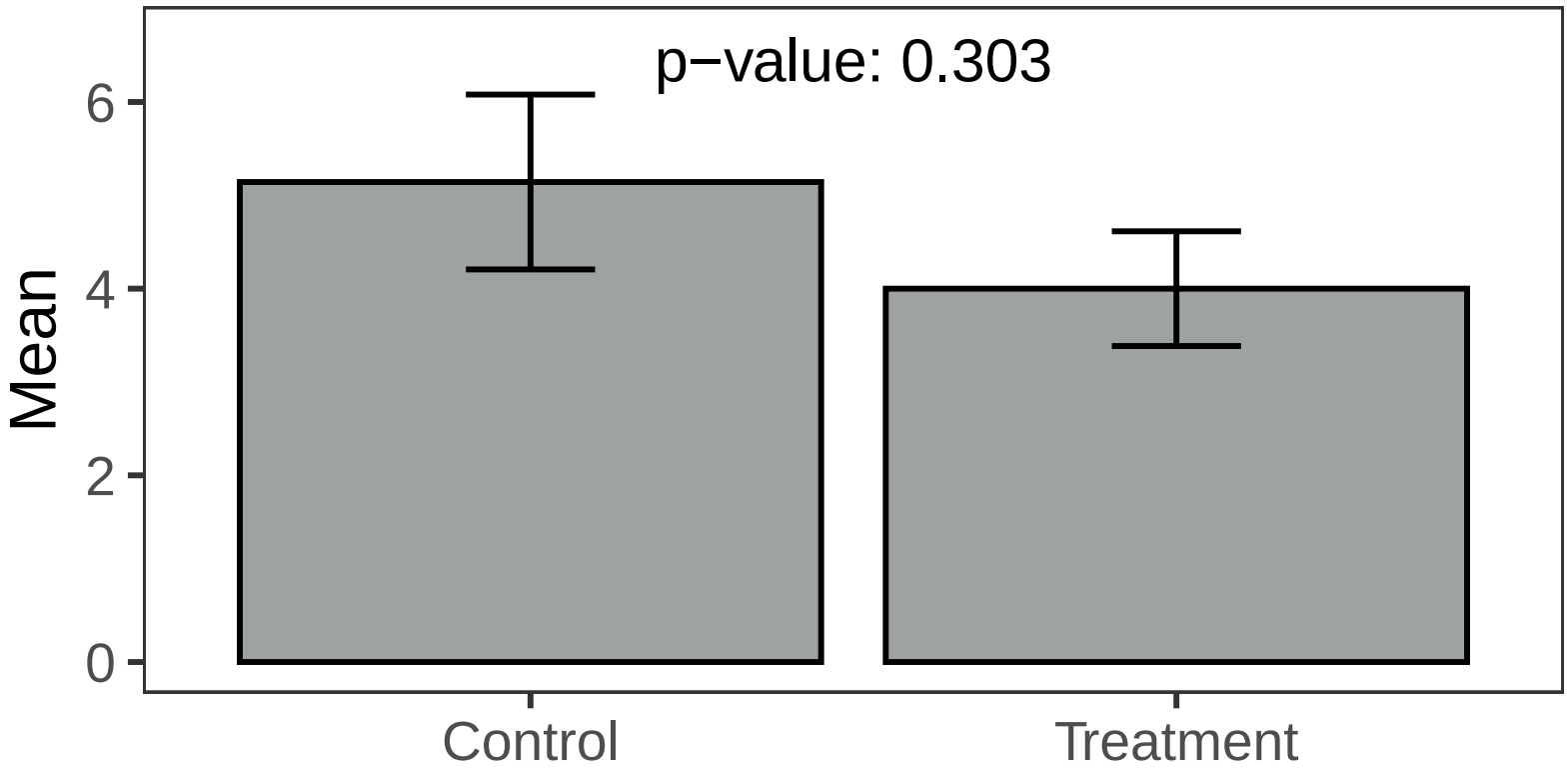


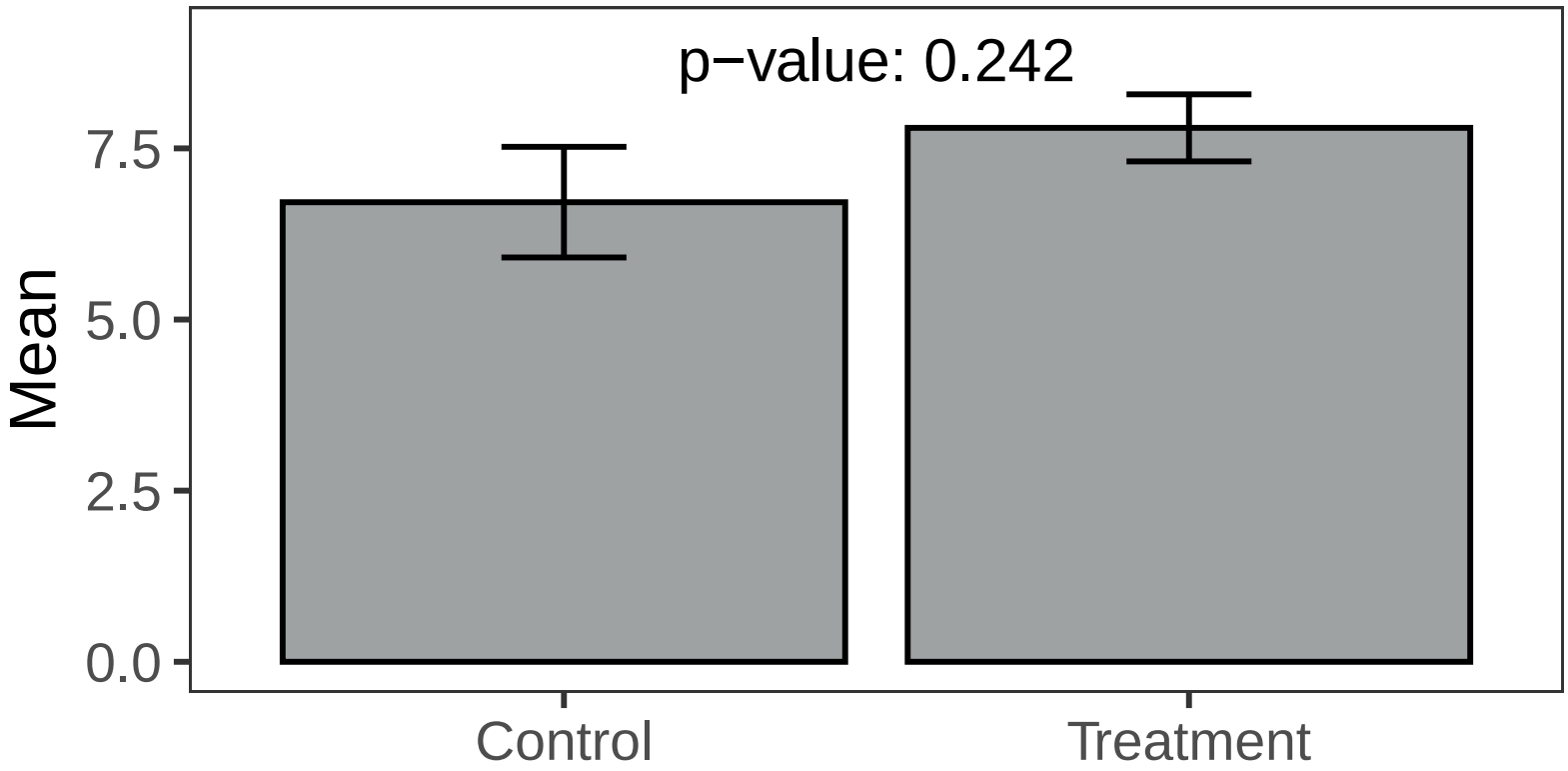
Effect of Providing Information (3/4)

"How likely do you think your peers are to disclose their use of AI, if they used AI?"



Effect of Providing Information (4/4)

"How likely do you think your peers are to think AI is ethical for school use?"



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Conclusions

- Using AI in homework and concealing it is perceived as socially inappropriate.
- Using AI in homework and disclosing it is perceived as socially appropriate. Not using AI is perceived as socially appropriate.
- Students accurately perceive how many of their peers' use of AI in assignments.
- Students misperceive (overestimate) how many of their peers disclose their use of AI in assignments.
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- **Cataclysmic mistake** in experimental design: it's possible the magnitude of the nudge was diminished
- *Google Forms doesn't have live responses...*

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Thank you!

Questions?

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Baidoo-anu, D., & Owusu Ansah, L. (2023).Education in the era of generative artificial intelligence (AI): Understanding the potential benefits of chatgpt in promoting teaching and learning. *Journal of AI*, *7*(1), 52–62. https://doi.org/10.61969/jai.1337500

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Zhou, J., Müller, H., Holzinger, A., & Chen, F. (2024).Ethical ChatGPT: Concerns, challenges, and commandments. *Electronics*, *13*(17), 3417. https://doi.org/10.3390/electronics13173417