



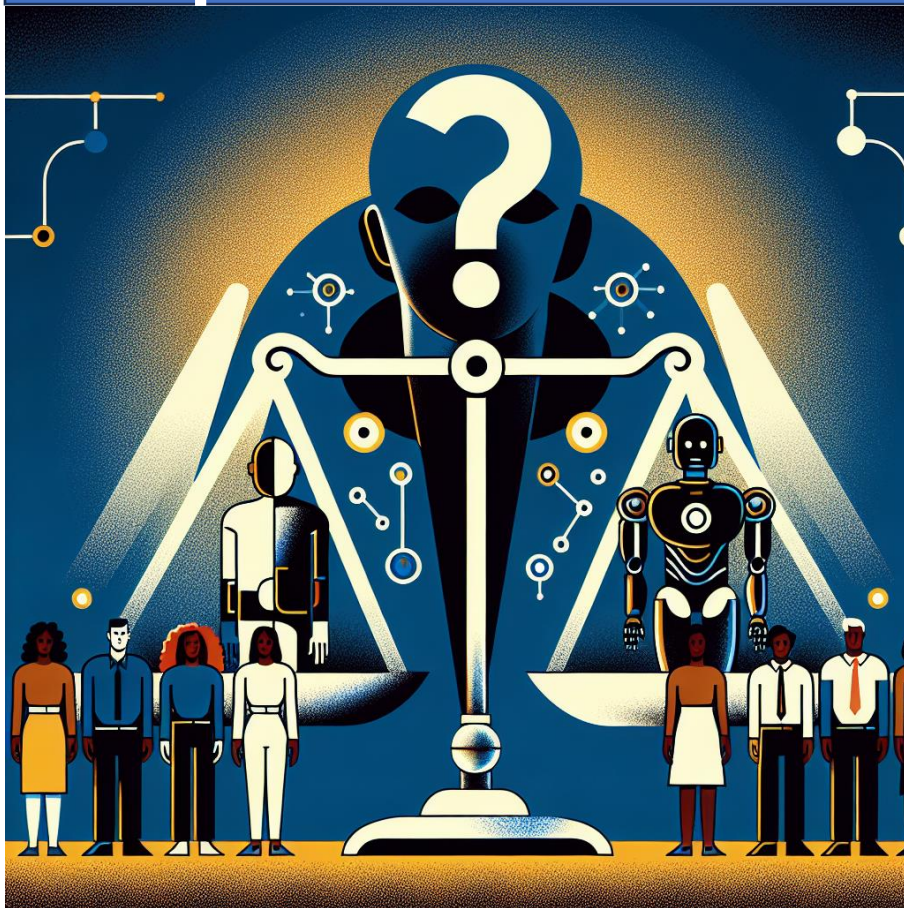
Human Factors in Generative AI-Human Collaborations

Session:
Will AI create new
jobs and skills?

**As an organizational
manager, how to
implement generative AI
to improve employee
performance?**



Does human-AI
collaboration surpass
human-only
performance?

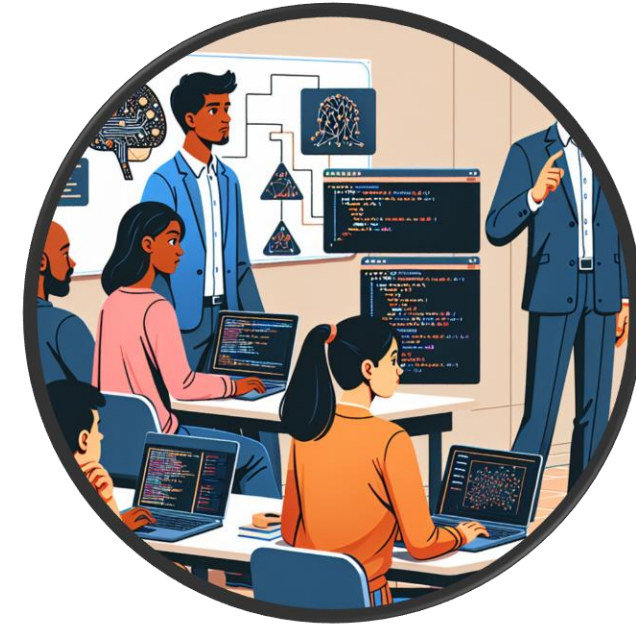


How to improve
human-AI
collaboration?

Improve AI



Improve human





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When Advanced AI Isn't Enough: Human Factors as Drivers of Success in Generative AI-Human Collaborations

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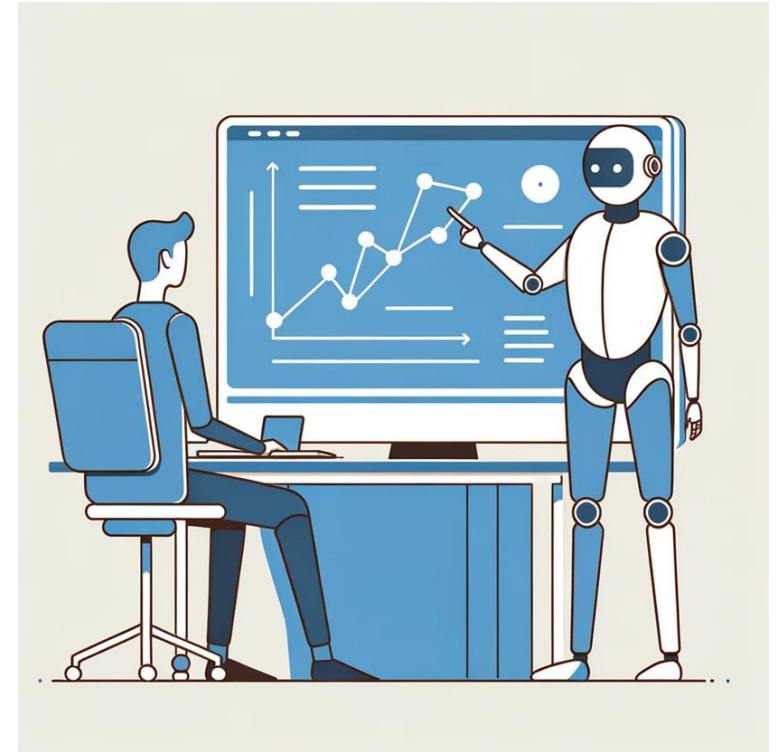
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Date Written: February 26, 2024

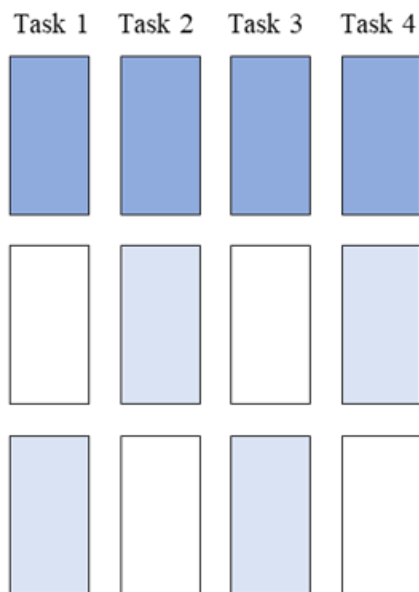


□ Human

□ ChatGPT3.5

■ ChatGPT4.0

Randomized control
(college students and working
professionals)



SSSS Condition

HWHW Condition

WHWH Condition

Experiment 1:

Participants divided into three groups

- Complete the task independently
- Complete the task using ChatGPT3.5
- Complete the task using ChatGPT4.0

Each task scored by 6 experts

Experiment 2:

Based on Experiment 1, an AI training group was added, and AI training was performed before task completion

Additionally, after a first round of AI-assisted tasks, it was tested whether AI training could further improve task performance

■ Training

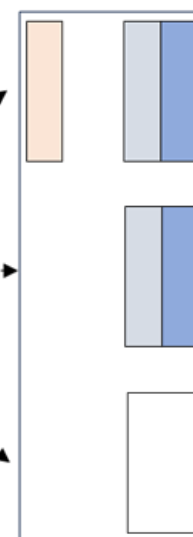
■ ChatGPT (3.5/4.0)

□ Human

Randomized control
(college students and working
professionals)

Task 1 & Task 2

Task 1 & Task 2
Refinement

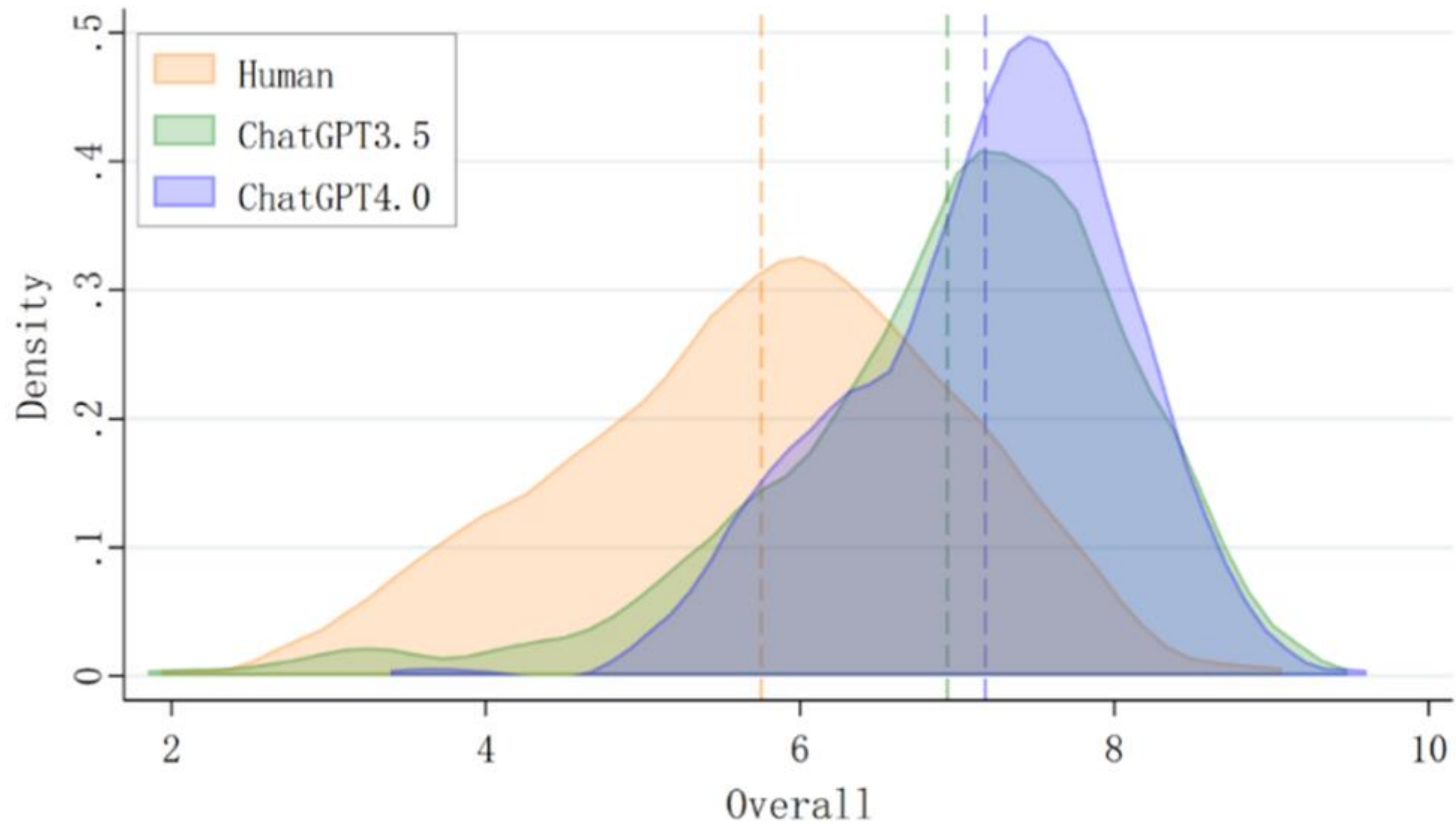


ChatGPT+Training

ChatGPT Only

Human

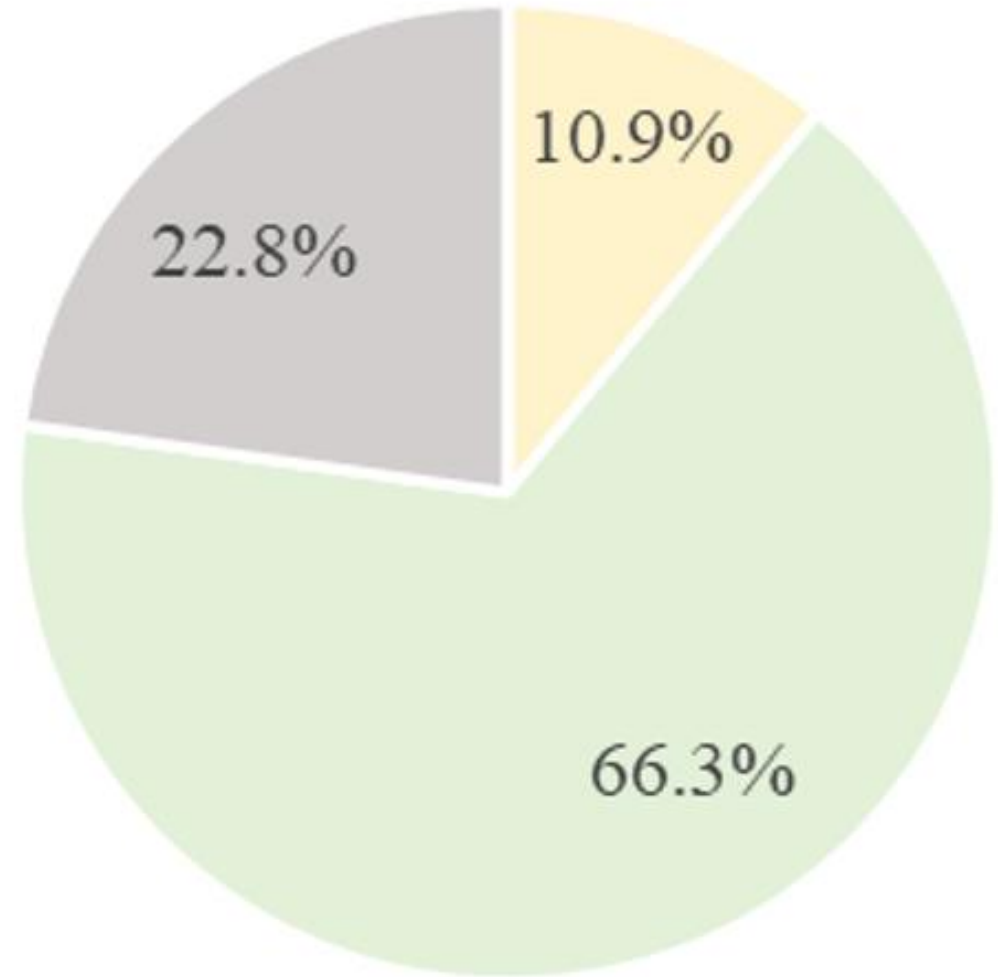
Experiment 1: Median values and distribution of each group



Experiment 1: Humans are Key

When using AI to complete tasks, technical factors, such as the level of sophistication of AI models, have an influence of **only 10.9%**

Human factors – such as IQ and experience using AI – are key drivers



relative explanatory power

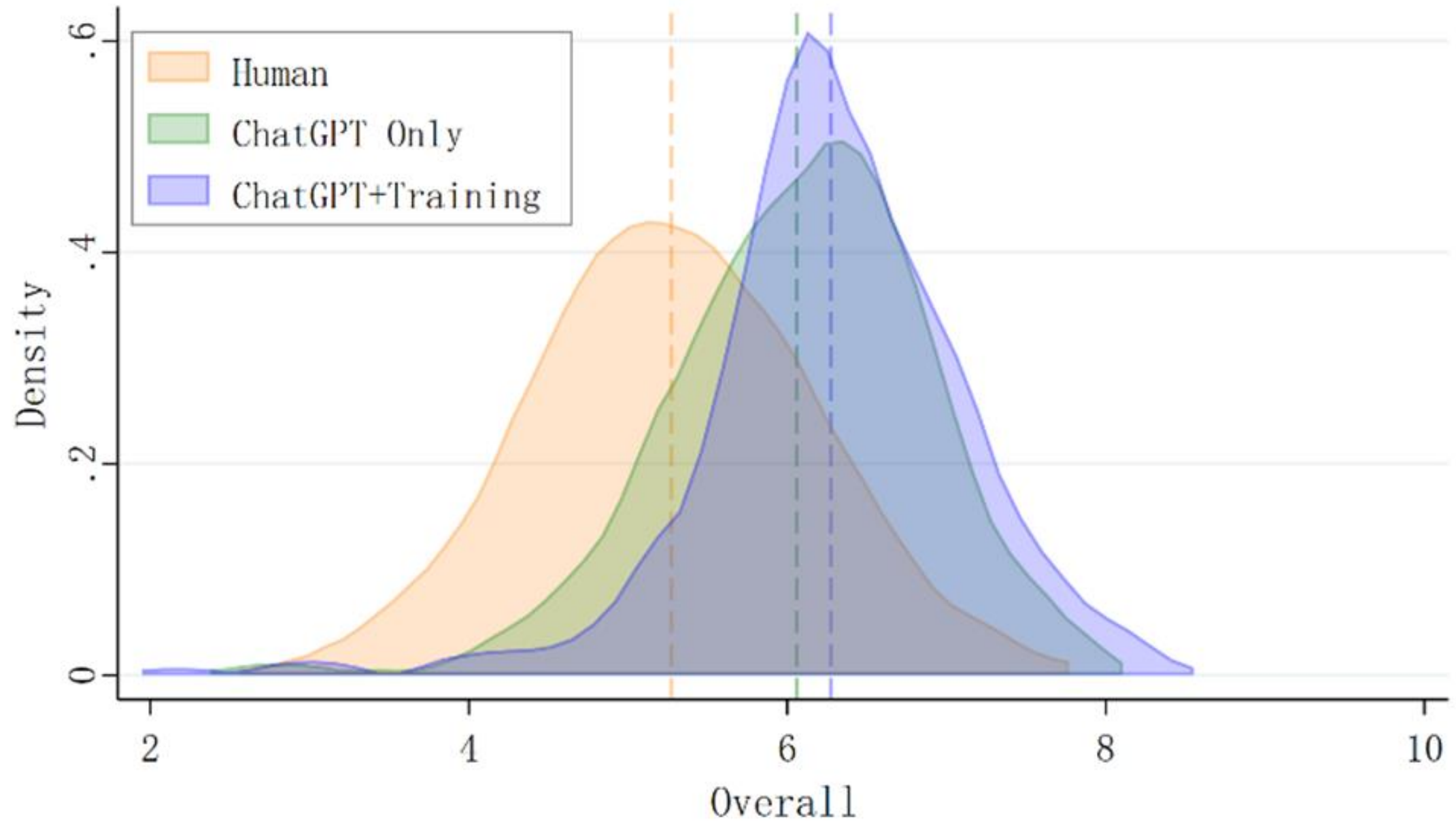
■ ChatGPT4.0 ■ Human Factors ■ Others



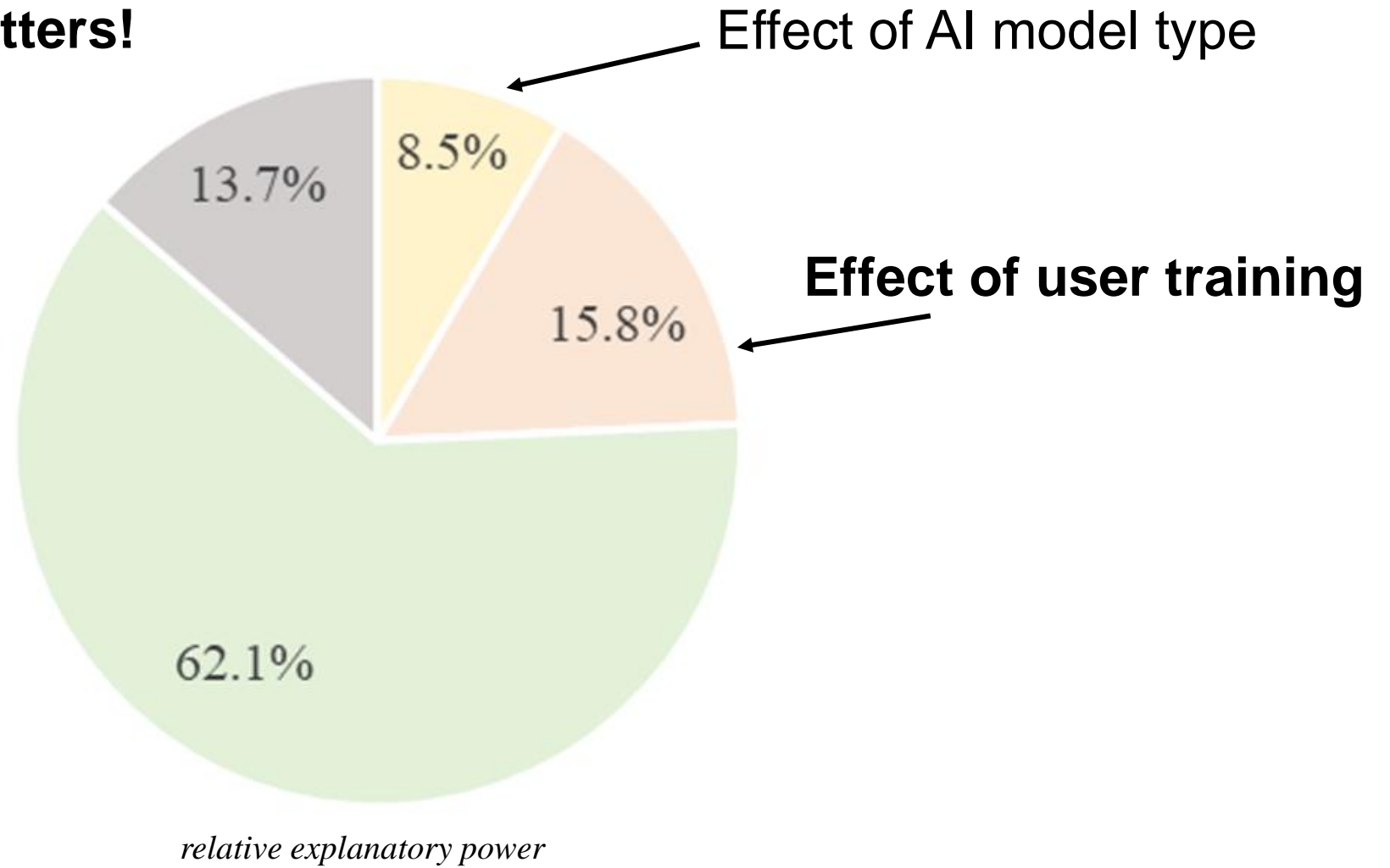
In complex road conditions, the driver is the decisive factor

How to become a better driver?

Experiment 2: Median values and distribution of each group



Experiment 2: Training Matters!



ChatGPT4.0 Training
Human Factors Others

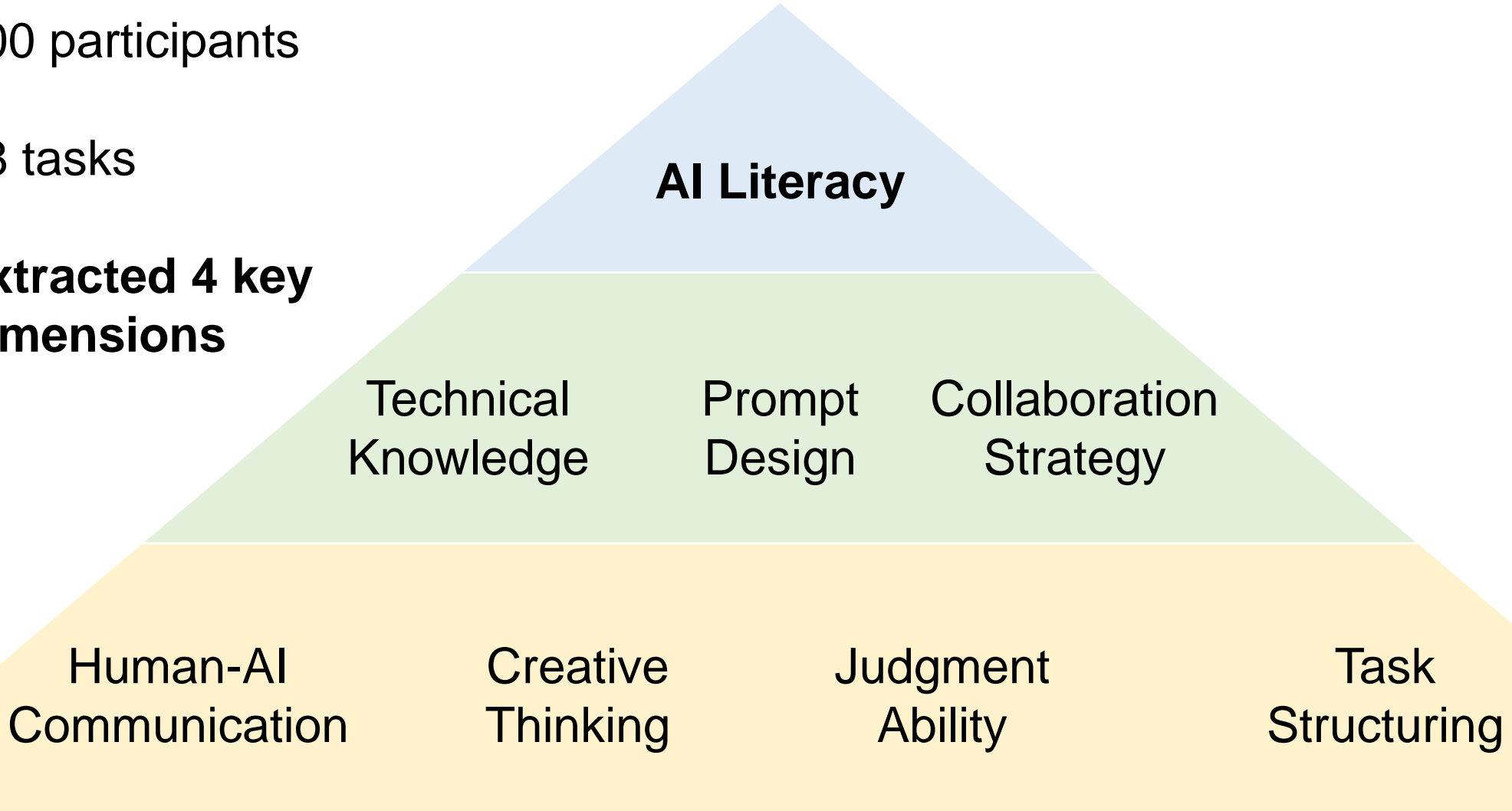
Unraveling High-quality Collaboration

Table 14 Two-sample T Test with Equal Variances (Experiment II)

Variables	ChatGPT Only		ChatGPT+Training		MeanDiff
	N	Mean	N	Mean	
Interactive Round	201	6.174	215	7.837	-1.663***
Total Prompt Length	201	347.403	215	451.214	-103.811***
First Prompt Length	201	95.209	215	120.912	-25.703***
JS divergence	201	0.513	215	0.491	0.022***
Question Diversity	201	5.259	215	5.735	-0.476**
Question Depth	201	5.861	215	6.474	-0.614***
Question Clarity	201	6.592	215	7.126	-0.534***
Feedback	201	3.388	215	4.898	-1.510***

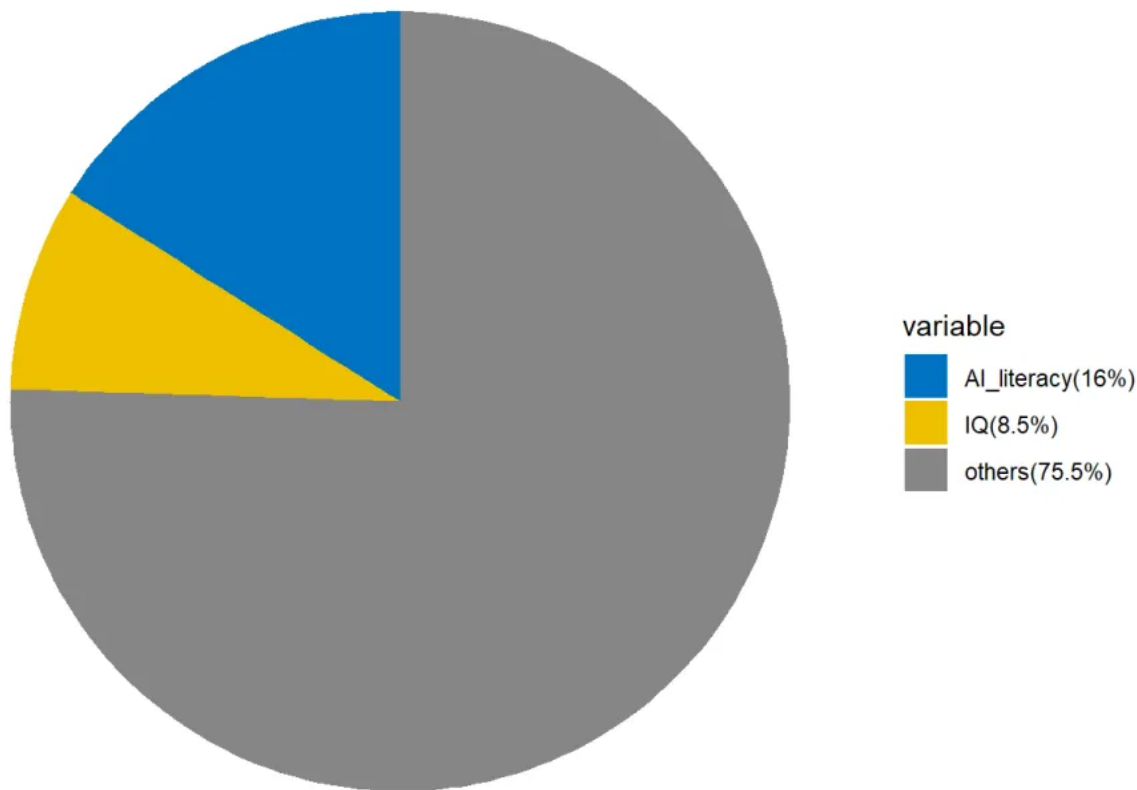
Ongoing Research: AI Literacy

- 200 participants
- 18 tasks
- **Extracted 4 key dimensions**

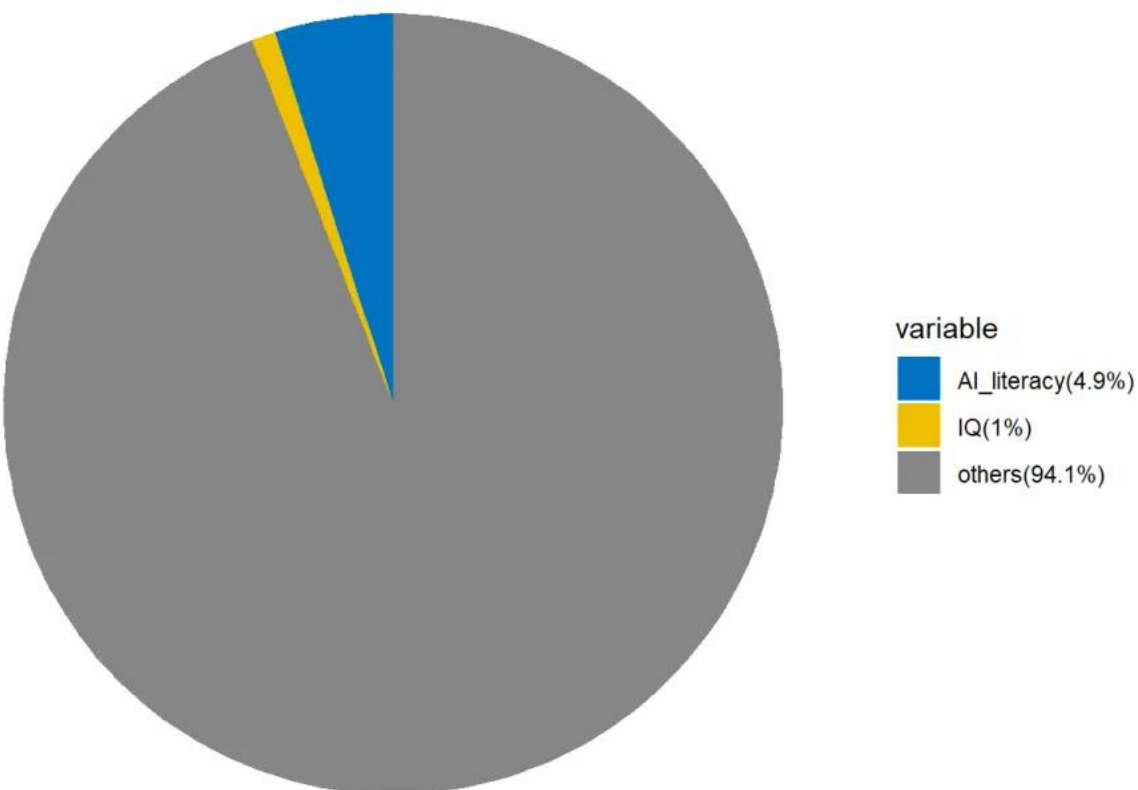


Ongoing Research: AI Literacy

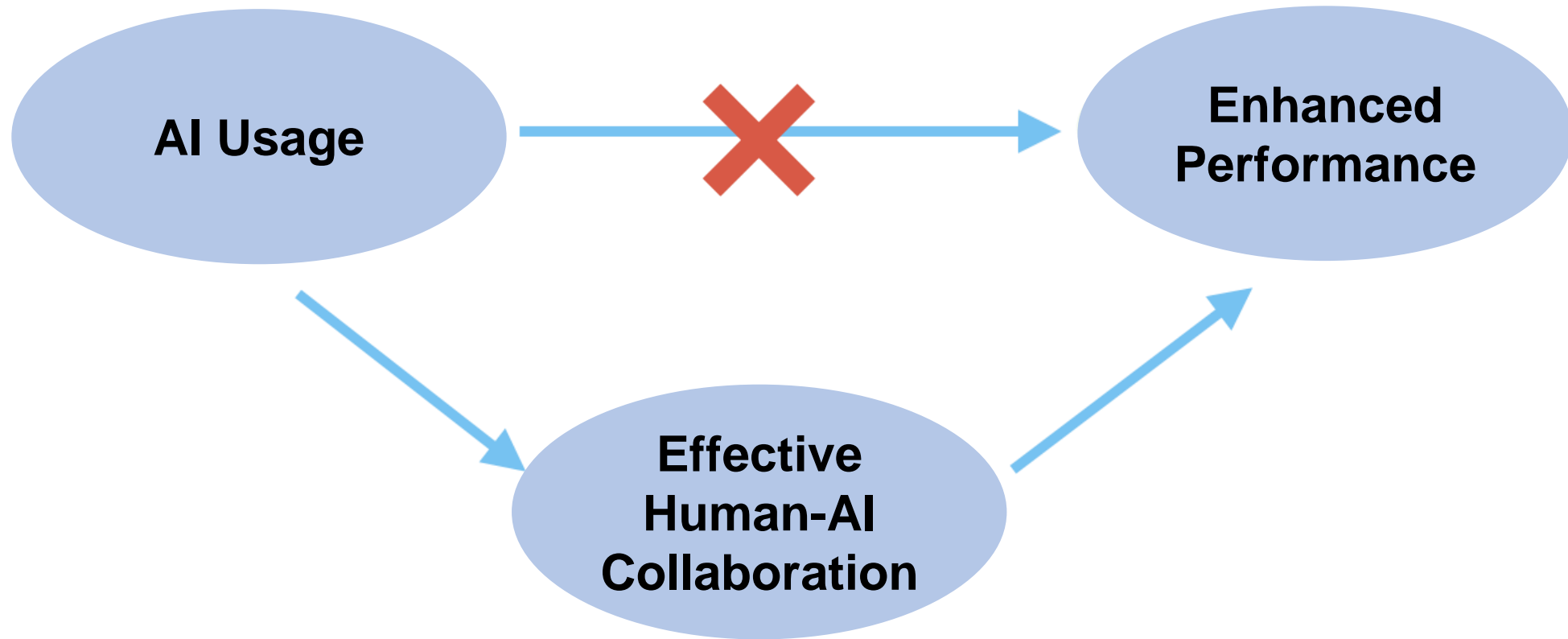
Business Plan Task



Creative Writing Task



Implementing AI in Organizations



Need to Develop AI Literacy!

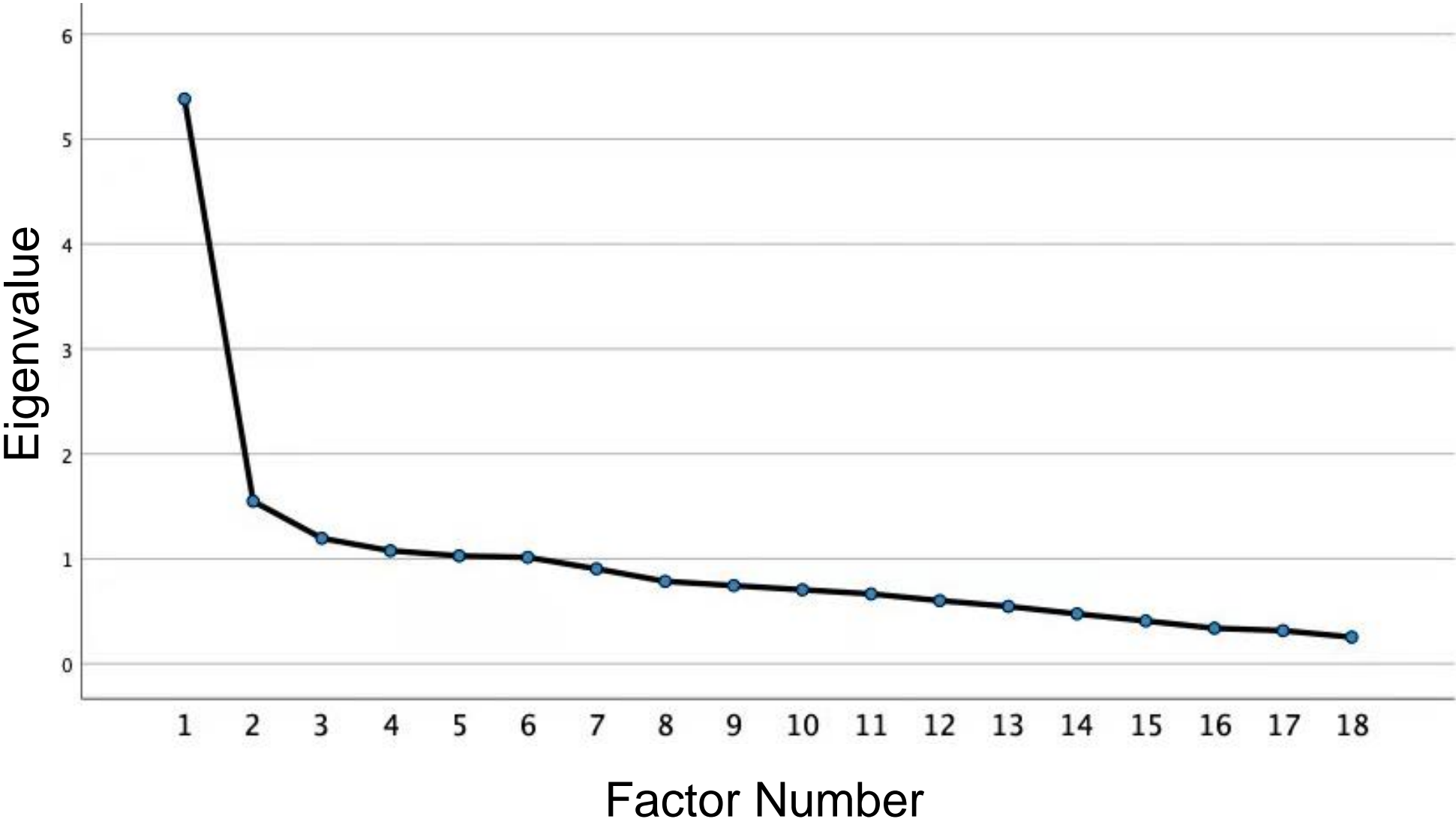


Thank you!

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Appendix: Factor Loadings



Appendix: Factor Loadings

	PC1	PC2	PC3	PC4	PC5
SS loadings	4.99	1.57	1.24	1.17	1.08
Proportion Var	0.28	0.09	0.07	0.07	0.06
Cumulative Var	0.28	0.36	0.43	0.50	0.56