



How does reading speed influence the long-term and short-term learning outcomes?

Cipher Seekers



# Reading speed vs. performance

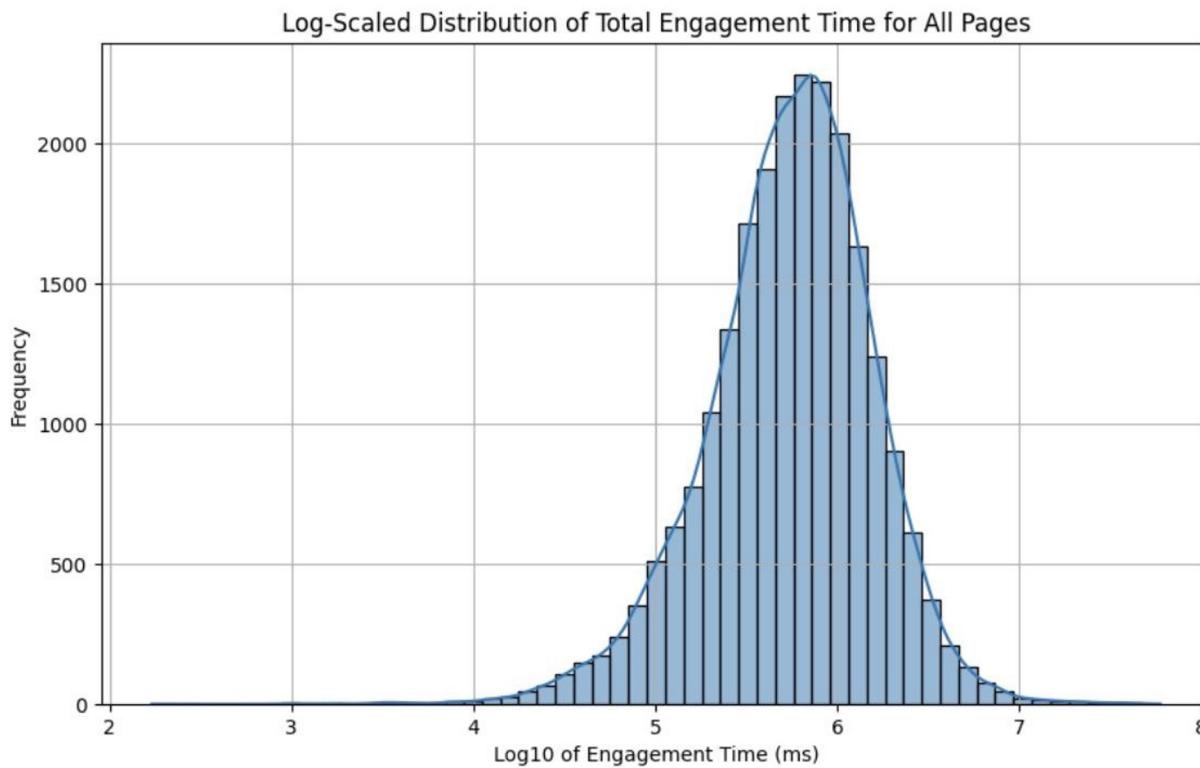
# Motivation: Students have different habits on the website

- Skim through the page
- Do well on the questions in the first attempt



- Read slowly but engaged
- Do well on the questions in the last attempt

# How long it takes to read a page?

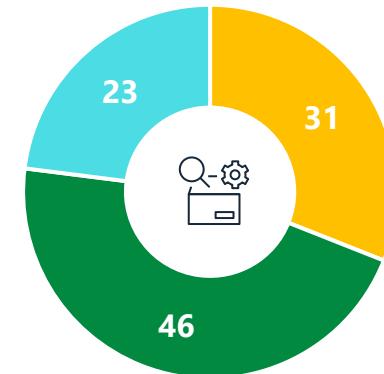
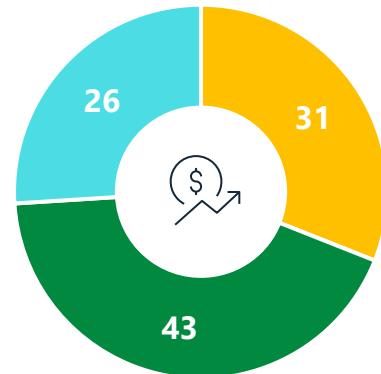
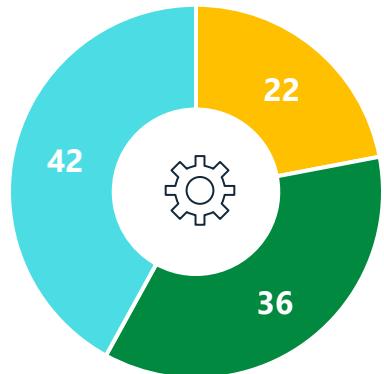
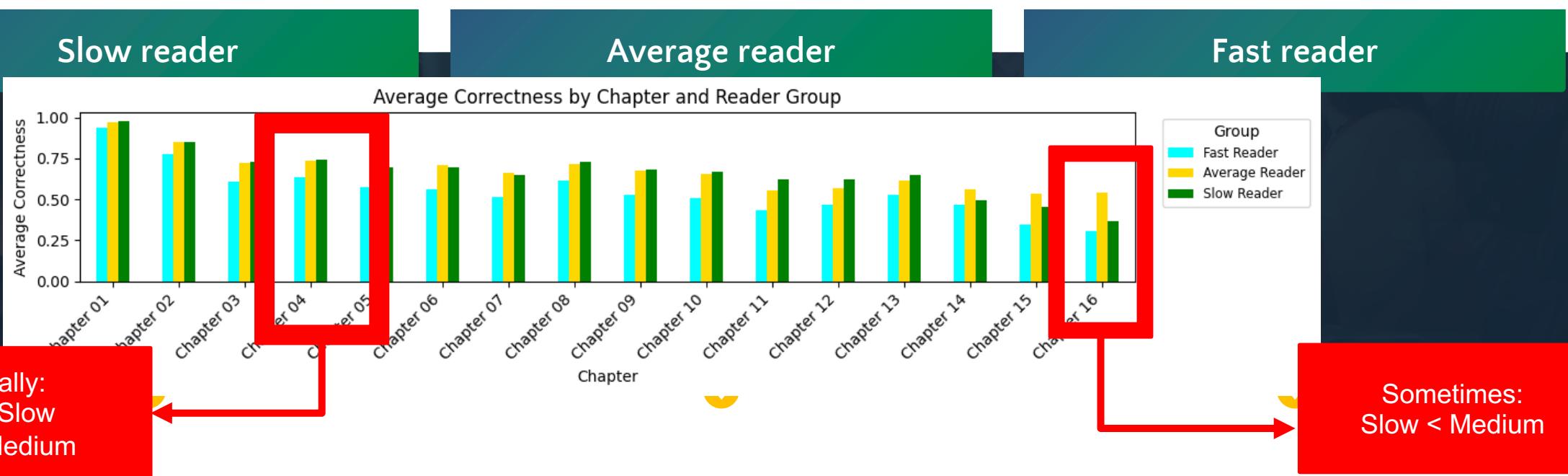


Fastest 33%  
207,925 (3.5 min)

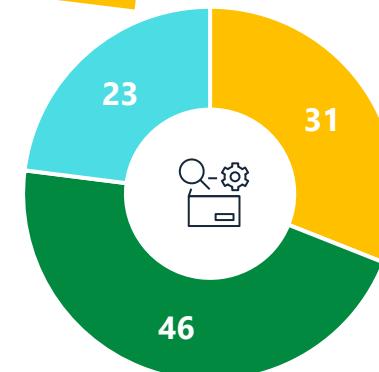
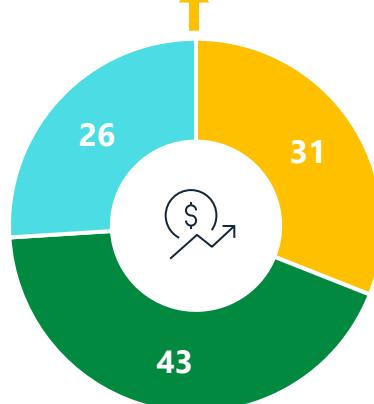
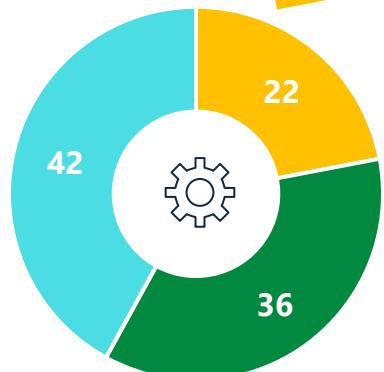
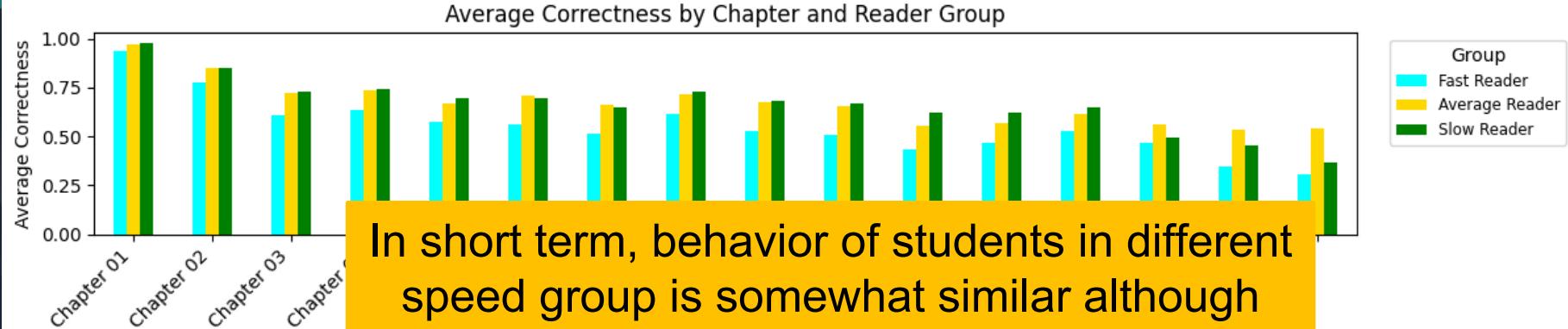
Medium 33 %  
596,531(10 min)

Slowest 33 %  
1,922,613(32 min)

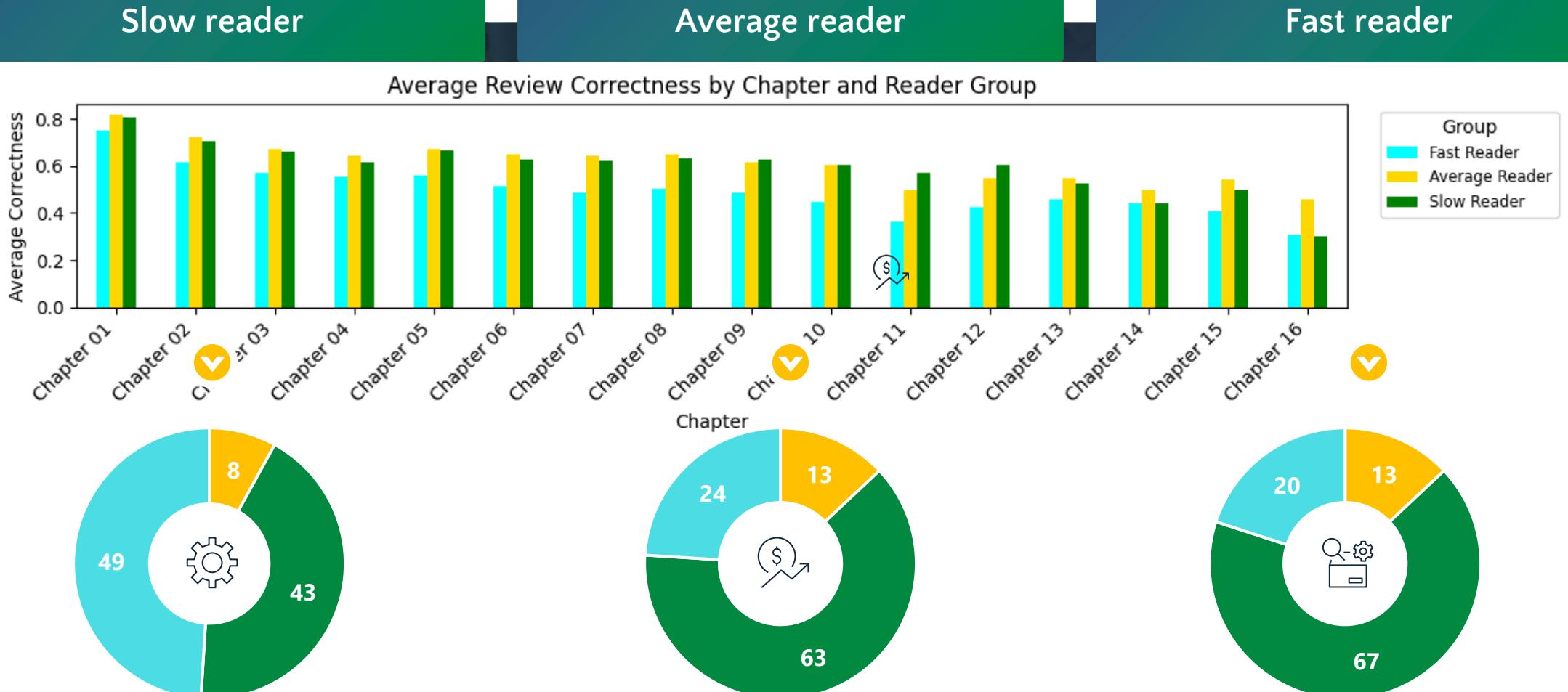
# Short term learning outcome: based on page questions



# Short term learning outcome: based on page questions



# Long term learning outcome: based on review questions

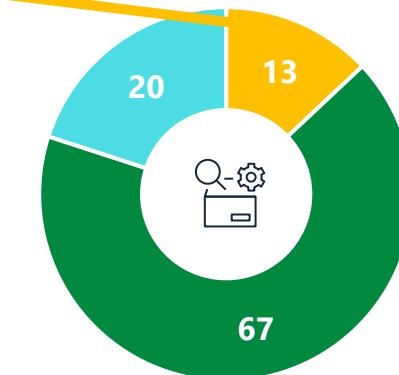
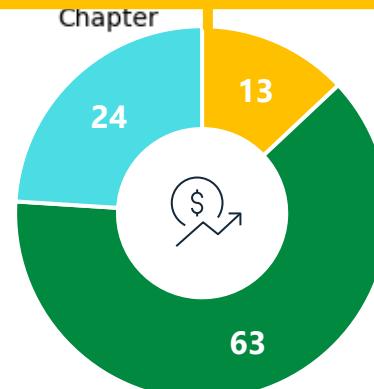
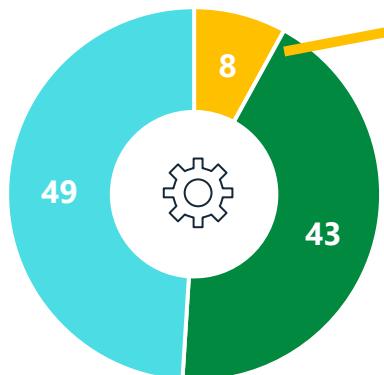
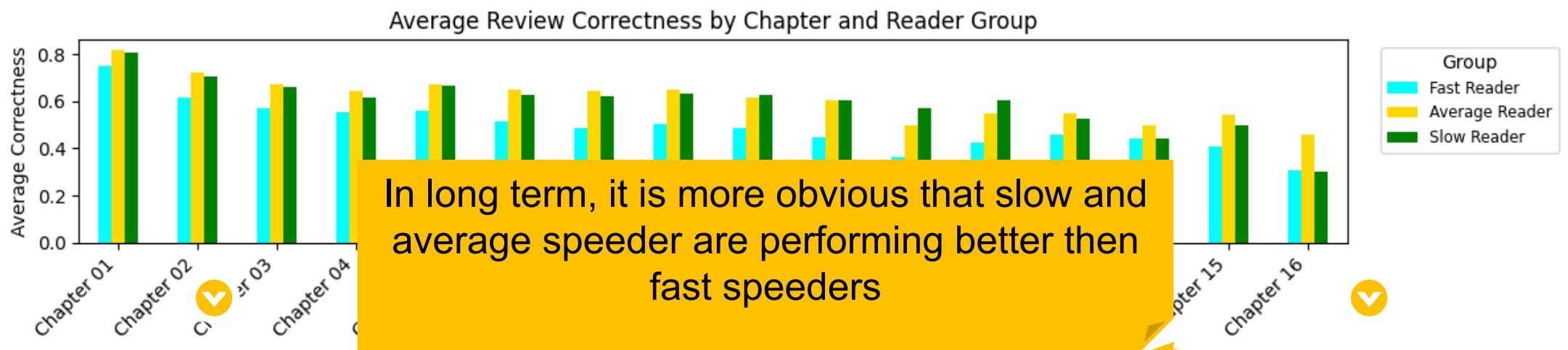


# Long term learning outcome: based on review questions

Slow reader

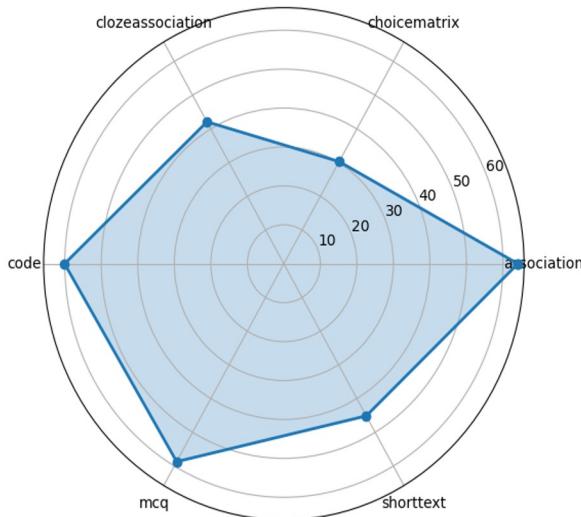
Average reader

Fast reader

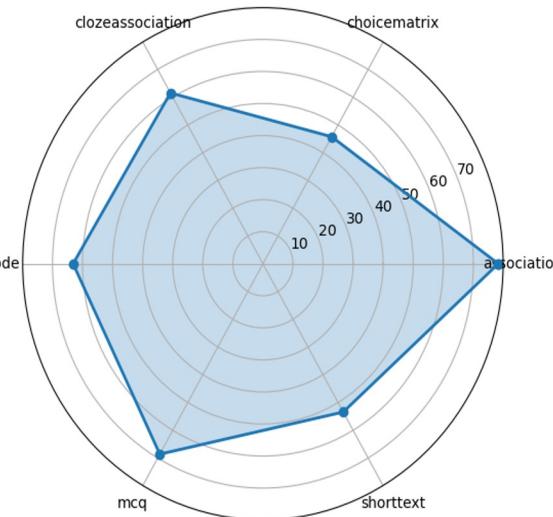


# Question type vs reading speed?

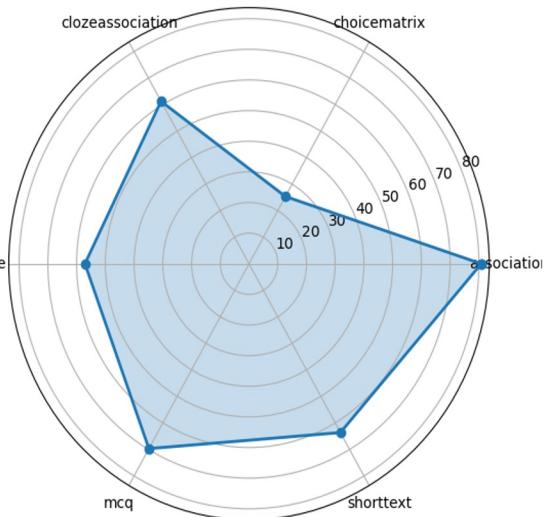
Fast Reading Correct Rates



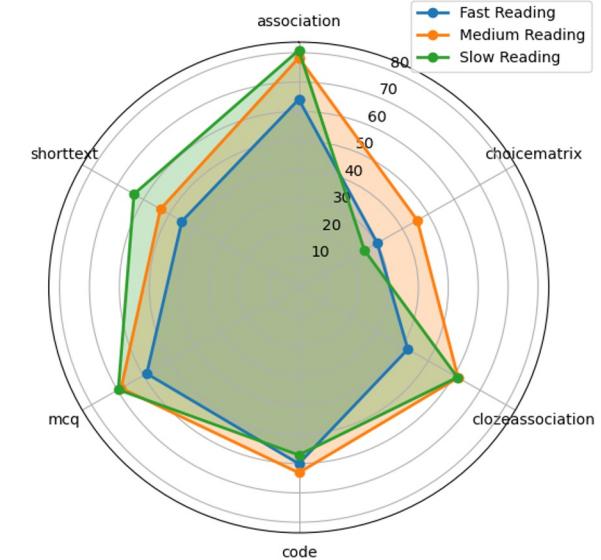
Medium Reading Correct Rates



Slow Reading Correct Rates



Correct Rates by Category and Reading Speed



Fast

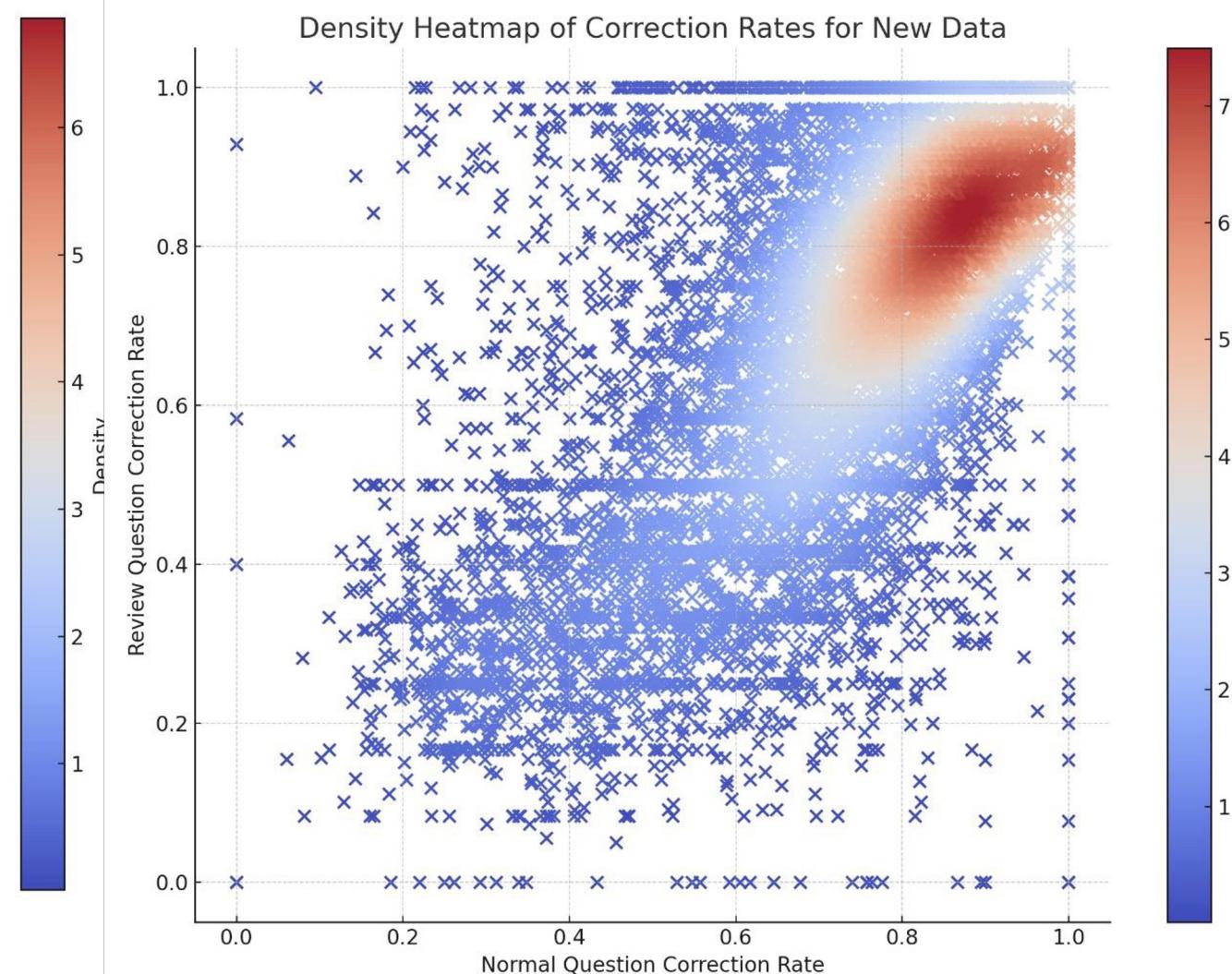
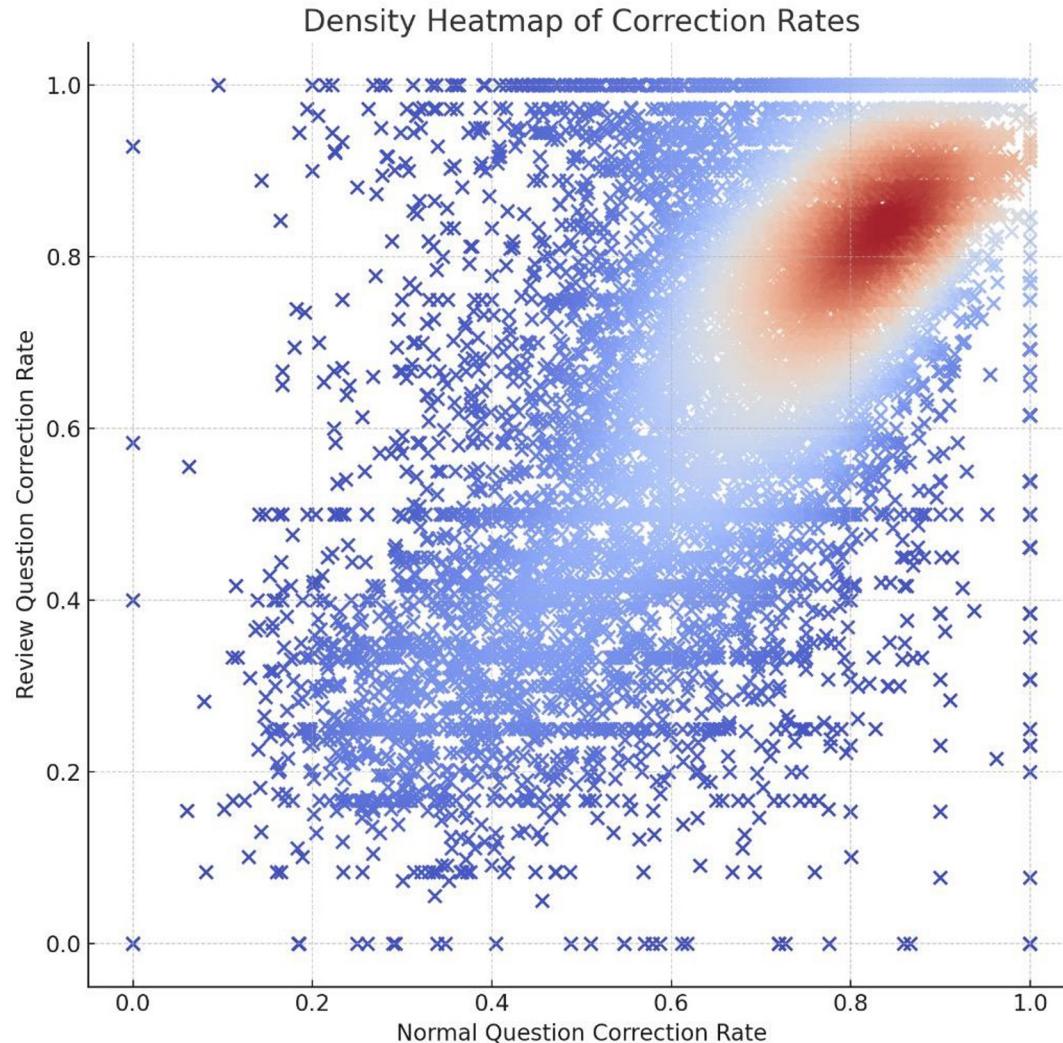


Medium



Slow

# Does correction rate in page questions affect correction rate in review questions? First attempt? Last attempt?



# Suggestions:

01 | self-evaluation after each chapter



02 | Add more images in between text



03 | Estimate time needed for each question



04 | Practice quality is important



01

increase the engage time of a student on a page; motivation\*

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02

Images decrease reading speed and help improve performance\*

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03

Time the student on questions base on question type, or calculate the estimate time needed for a question on tests

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04

Give access to review questions after the correction rate of page question is over 74%

# References

**The Explanatory and Predictive Scope of Self-Efficacy Theory:** <https://doi.org/10.1521/jscp.1986.4.3.359>

**The effects of reading speed and reading patterns on the understanding of text read from screen:** <https://doi.org/10.1111/1467-9817.00115>