# There are no stupid questions, only ones we think are stupid: The accuracy of self-assessed question asking ability

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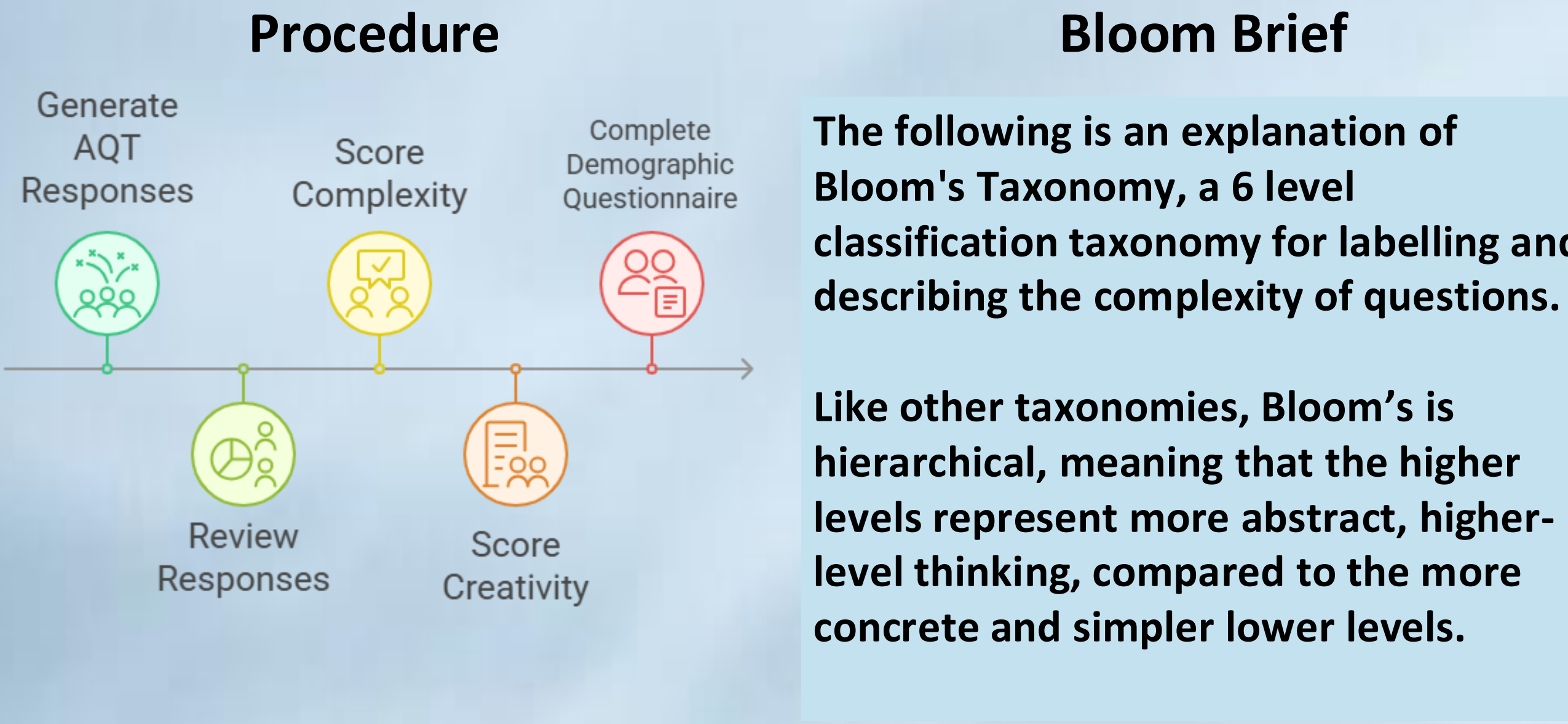
THE COGNITIVE COMPLEXITY LABORATORY

## Introduction

Question-asking holds significant implications for fields such as learning, creativity, and cognitive development.
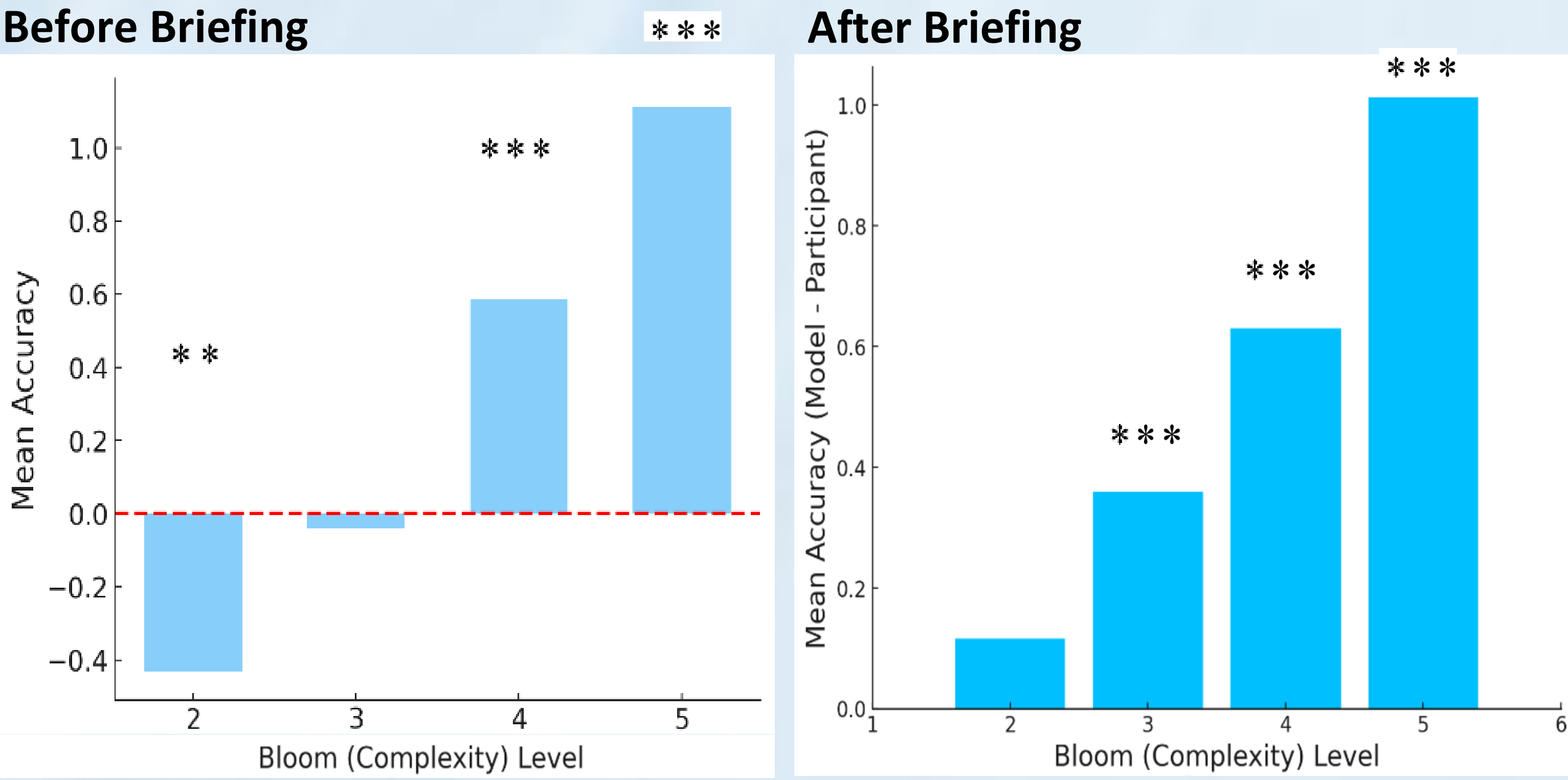
However, little is known about how accurately we assess question complexity. We address this gap by having participants self-rate their own question complexity and creativity.

## Methods

**Participants**: Total dataset consisted of 300 participants recruited from Prolific Academic ($M_{age}$ =33.7, SD =9.8) across 3 studies.

### Procedure

Generate AQT Responses

Score Complexity

Review Responses

Score Creativity

Complete Demographic Questionnaire

### Bloom Brief

The following is an explanation of Bloom's Taxonomy, a 6 level classification taxonomy for labelling and describing the complexity of questions.

Like other taxonomies, Bloom's is hierarchical, meaning that the higher levels represent more abstract, higher-level thinking, compared to the more concrete and simpler lower levels.

## Alternative Questions Task (AQT)

**What are all the creative questions you can ask about these objects?**

## Bloom Taxonomy



- **Create** — Produce new or original work — Design, assemble, construct, conjecture, develop, formulate, author, investigate
- **Evaluate** — Justify a stand or decision — Appraise, argue, defend, judge, select, support, value, critique, weigh
- **Analyze** — Draw connections among ideas — Differentiate, organize, relate, compare, contrast, distinguish, examine, experiment, question, test
- **Apply** — Use information in new situations — Execute, implement, solve, use, demonstrate, interpret, operate, schedule, sketch
- **Understand** — Explain ideas or concepts — Classify, describe, discuss, explain, identify, locate, recognize, report, select, translate
- **Remember** — Recall facts and basic concepts — Define, duplicate, list, memorize, repeat, state

*Higher Pyramid levels represent more complex, higher order thinking skills*

## Bloom level rating

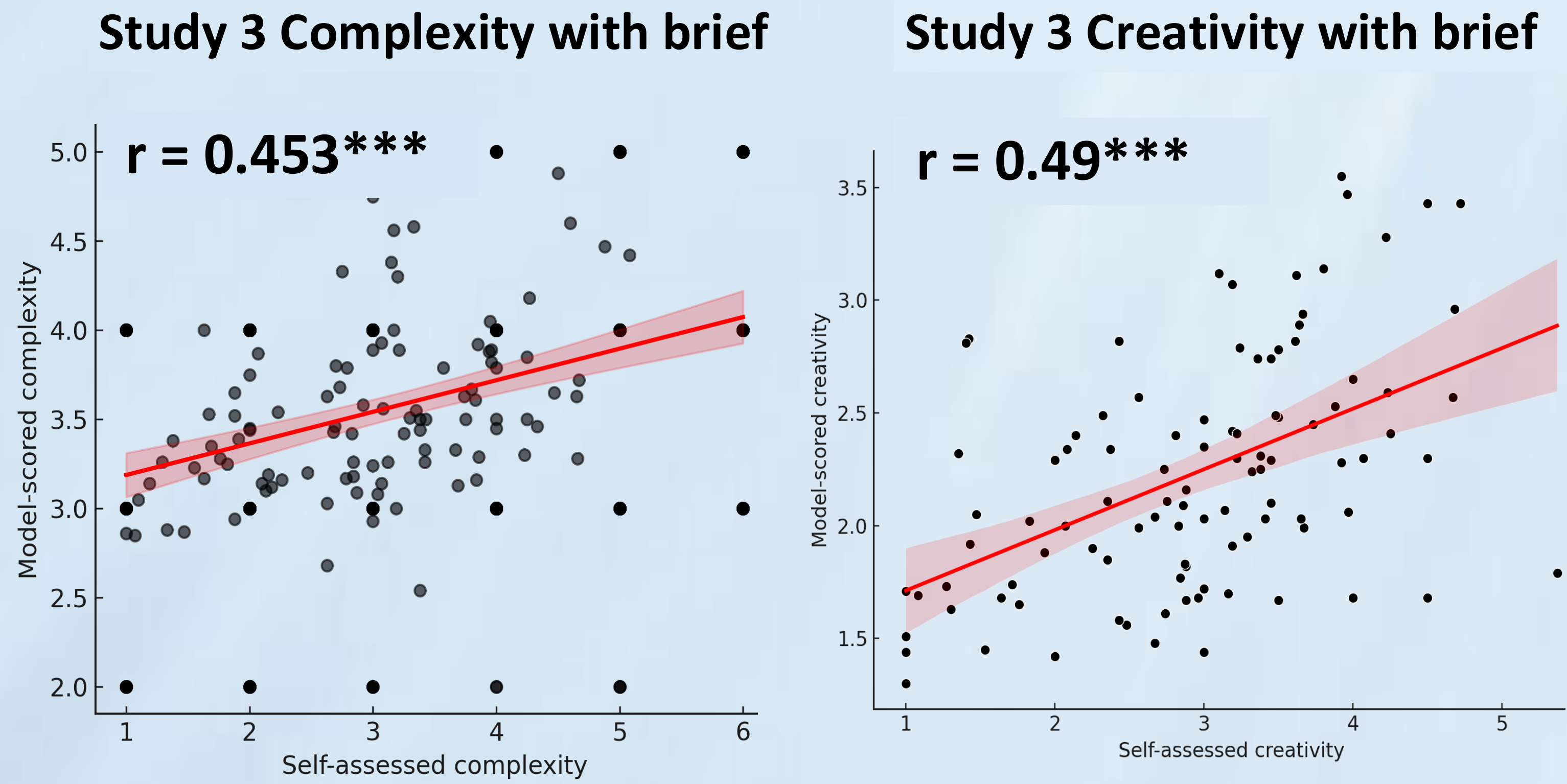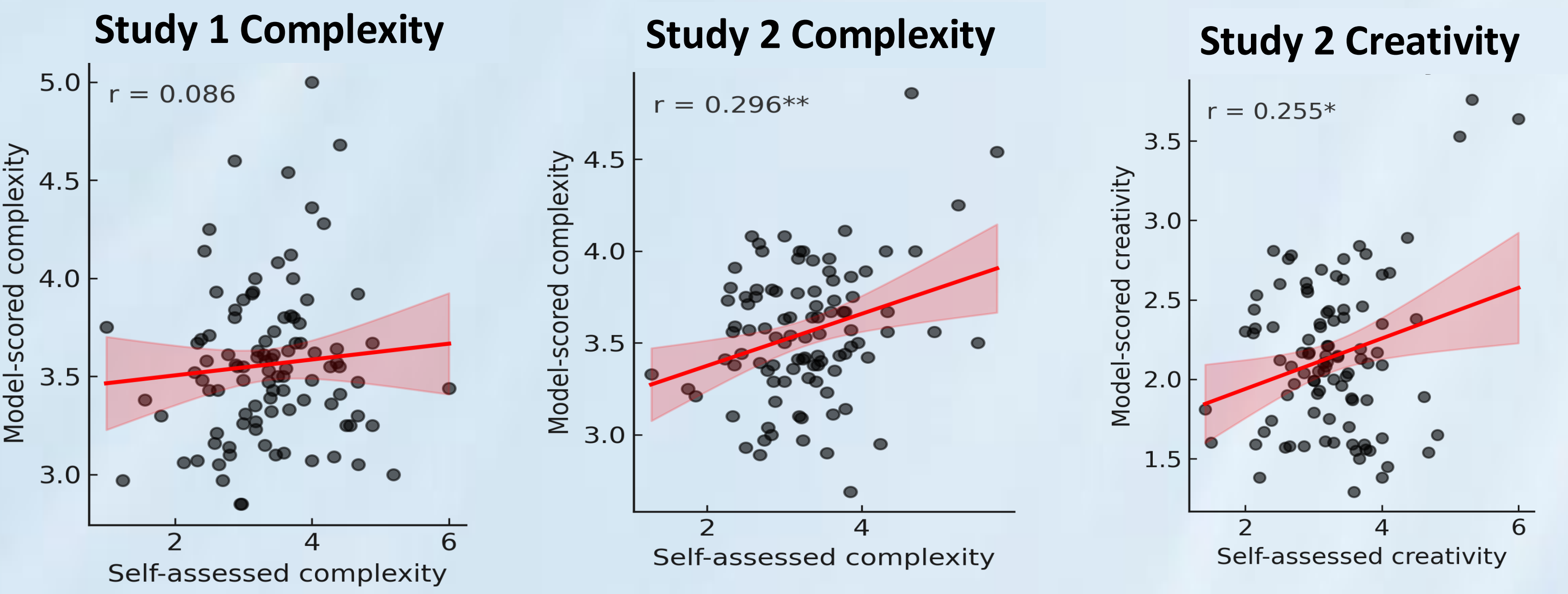| Participant Question | Self Rate | Model Rate |
|---|---|---|
| What story would a pencil write if it could write its own? | 5 | 5 |
| what magical power would a pencil ideally have | 3 | 5 |
| does a pencil get depressed when it becomes pointless | 3 | 4 |
| How long would a line be if you continuously wrote it with the pencil until it ran out? | 4 | 4 |
| How many trees does it take to make a pencil | 3 | 4 |
| What shape is it? | 1 | 2 |

## Accuracy Biases



Before Briefing

After Briefing

Negative Score = Overestimation

Positive Score = Underestimation

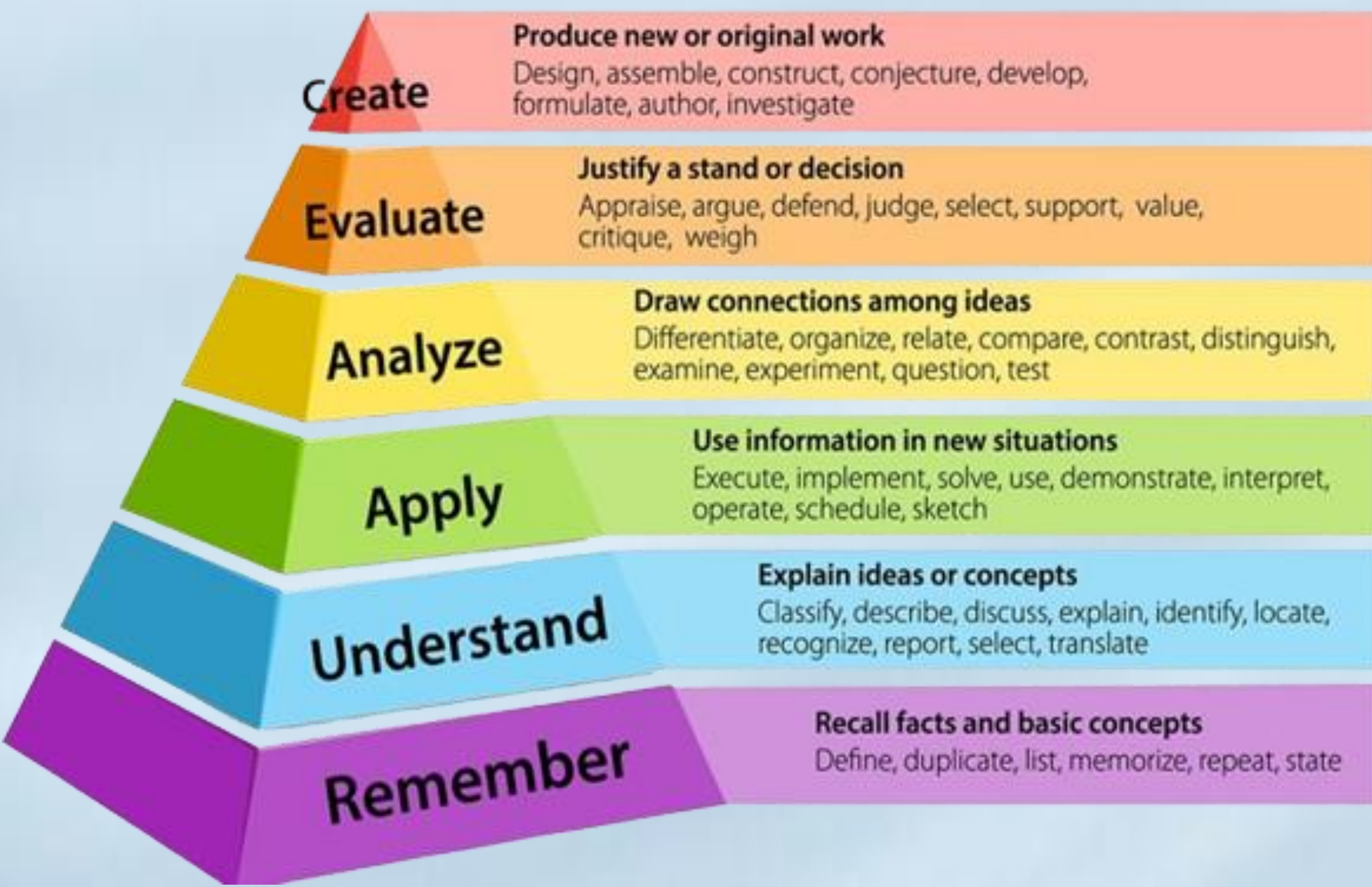Briefing reduces overestimation and induces underestimation

## Self-Assessed Accuracy



Study 1 Complexity — r = 0.086

Study 2 Complexity — r = 0.296**

Study 2 Creativity — r = 0.255*

Study 3 Complexity with brief — r = 0.453***

Study 3 Creativity with brief — r = 0.49***

## Practical Uses

Question Enhancement

Improving Learning

Psychological Studies

## Conclusion

Overall, this study advances our understanding of the accuracy of self-assessed question-asking ability

Our work highlights the biases that hinder accurate self-perception and the potential of targeted and relevant information for its enhancement

## Contact

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