Characterizing the Determinants of Curiosity

Abigail Hsiung[1], Avishek Khan[2], Brian Nieves[2], Scott A. Huettel[1], Kathryn Dickerson[1], and R. Alison Adcock[1]

[1] Center for Cognitive Neuroscience, Duke University, [2] Department of Computer Science, Duke University

GRAPHICAL ABSTRACT

DRIVERS OF CURIOSITY

TIME IN TASK · EASE IN GUESSING

C U R I O S I T Y

DELAY TO VIDEO REVEAL · PREVIOUS RATING · ACTIVE GUESSING

How curious were you about the video?
0   50   100

INTRODUCTION

What is Curiosity?
A state characterized by an intrinsic desire to seek new information

How has curiosity been measured?
Trivia paradigms: individual variations in prior knowledge
Observing paradigms: rely on secondary extrinsic incentives
Both paradigms capture static states of curiosity

What is the present goal?
(1) To ubiquitously induce curiosity without extrinsic incentives and
(2) Characterize factors that contribute to the dynamic growth and perpetuation of curiosity

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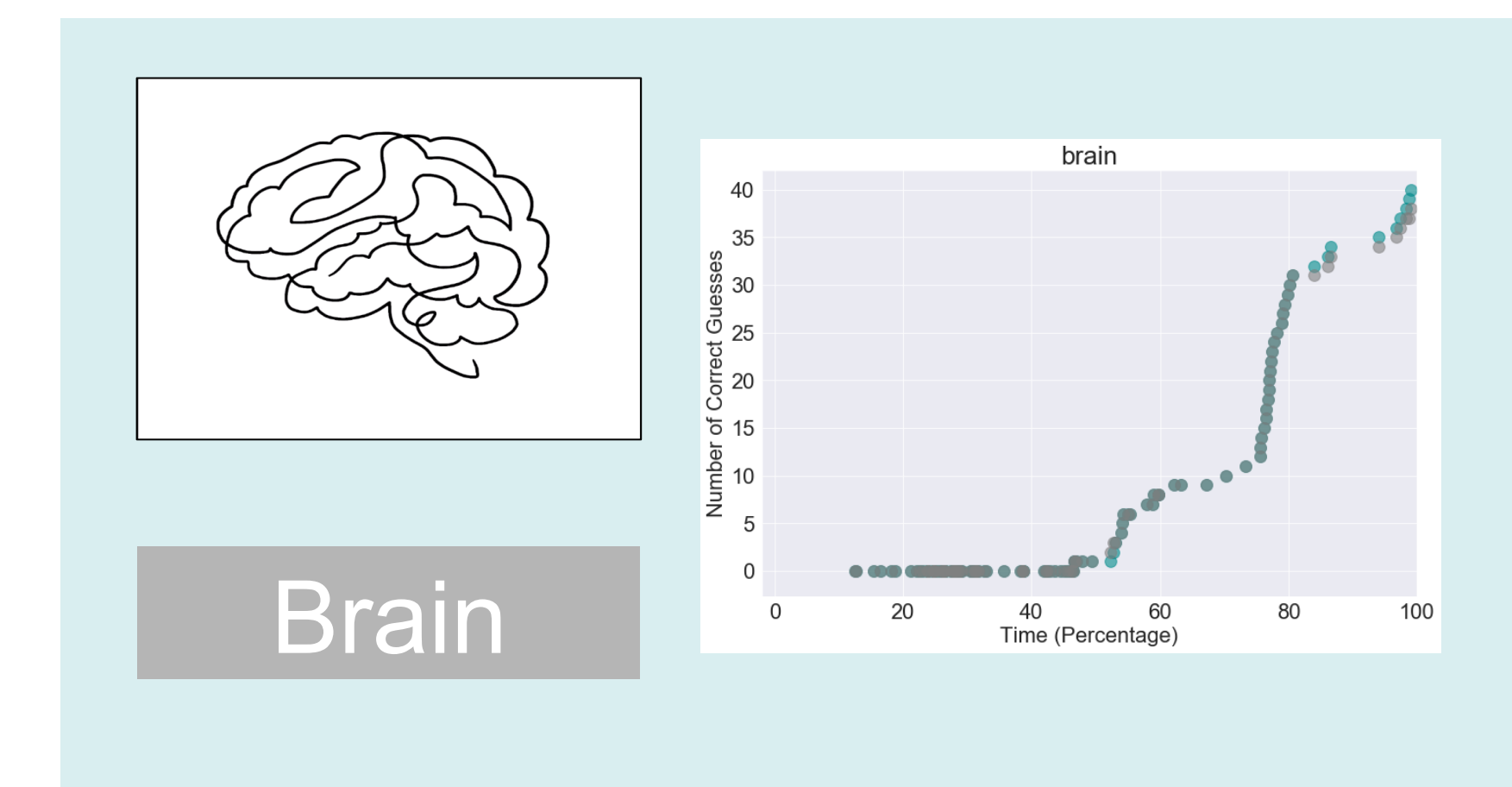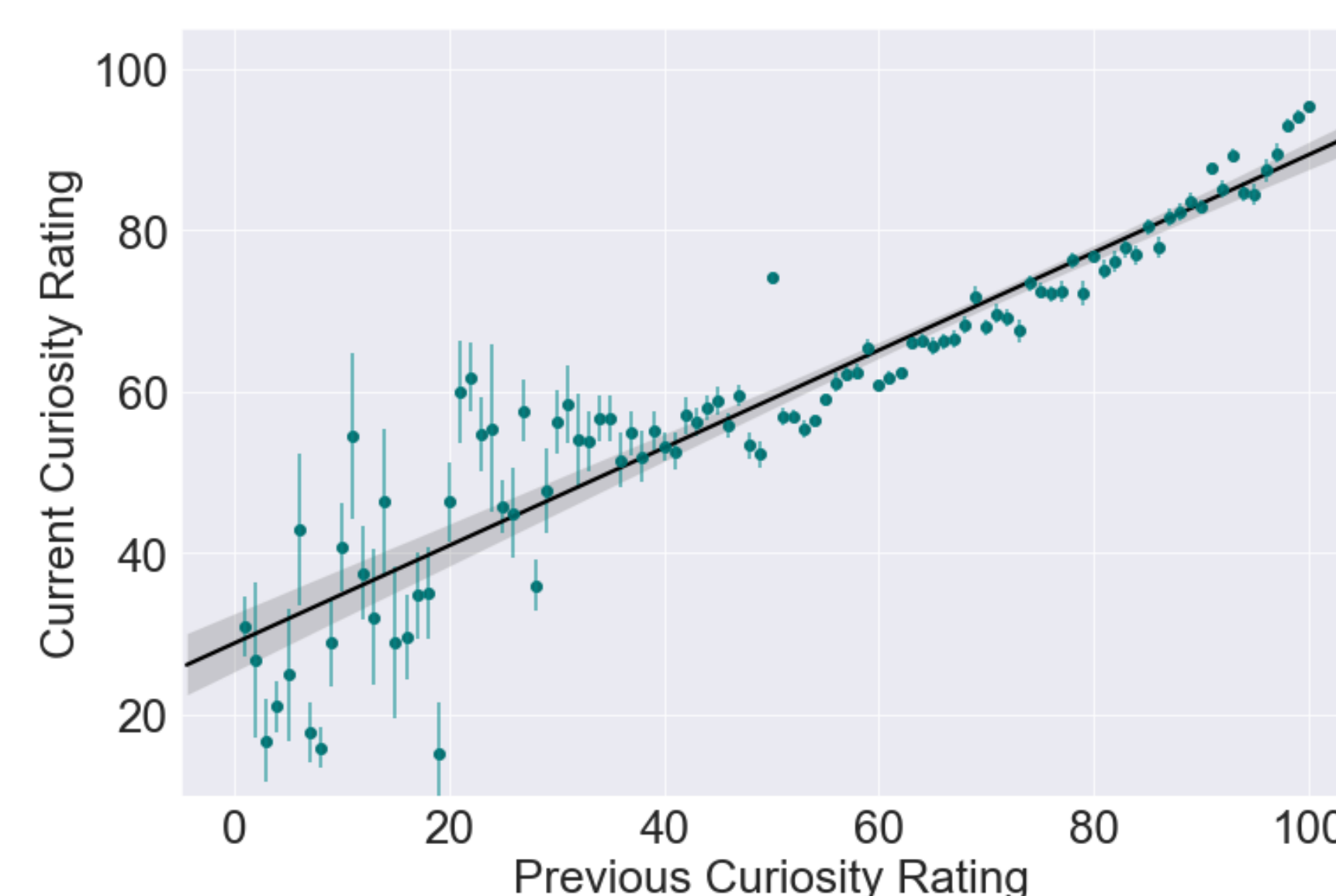
EXPERIMENTAL DESIGN

"What do you think the drawing will become?"

Cloud!   Brain!

Time (seconds)
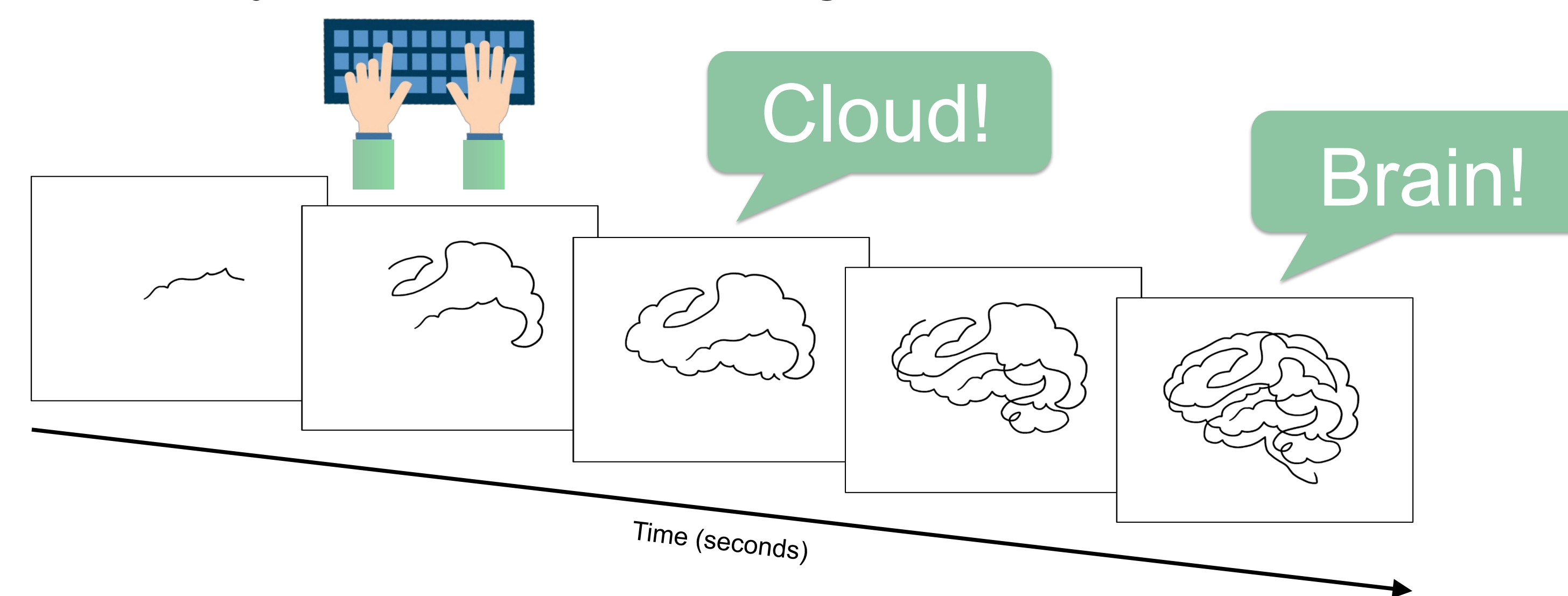
How curious were you about the outcome of this video?
0   50   100

262 (53 per video) Mturk Participants watched 27 videos

Analyses

Brain

RESULTS

Enhancing Factors

Past curiosity can carry-over to impact current curiosity
(Current Curiosity Rating vs Previous Curiosity Rating)

Prolonging uncertainty enhances curiosity
(Average Curiosity Rating vs Video Reveal (Percentage of Time))
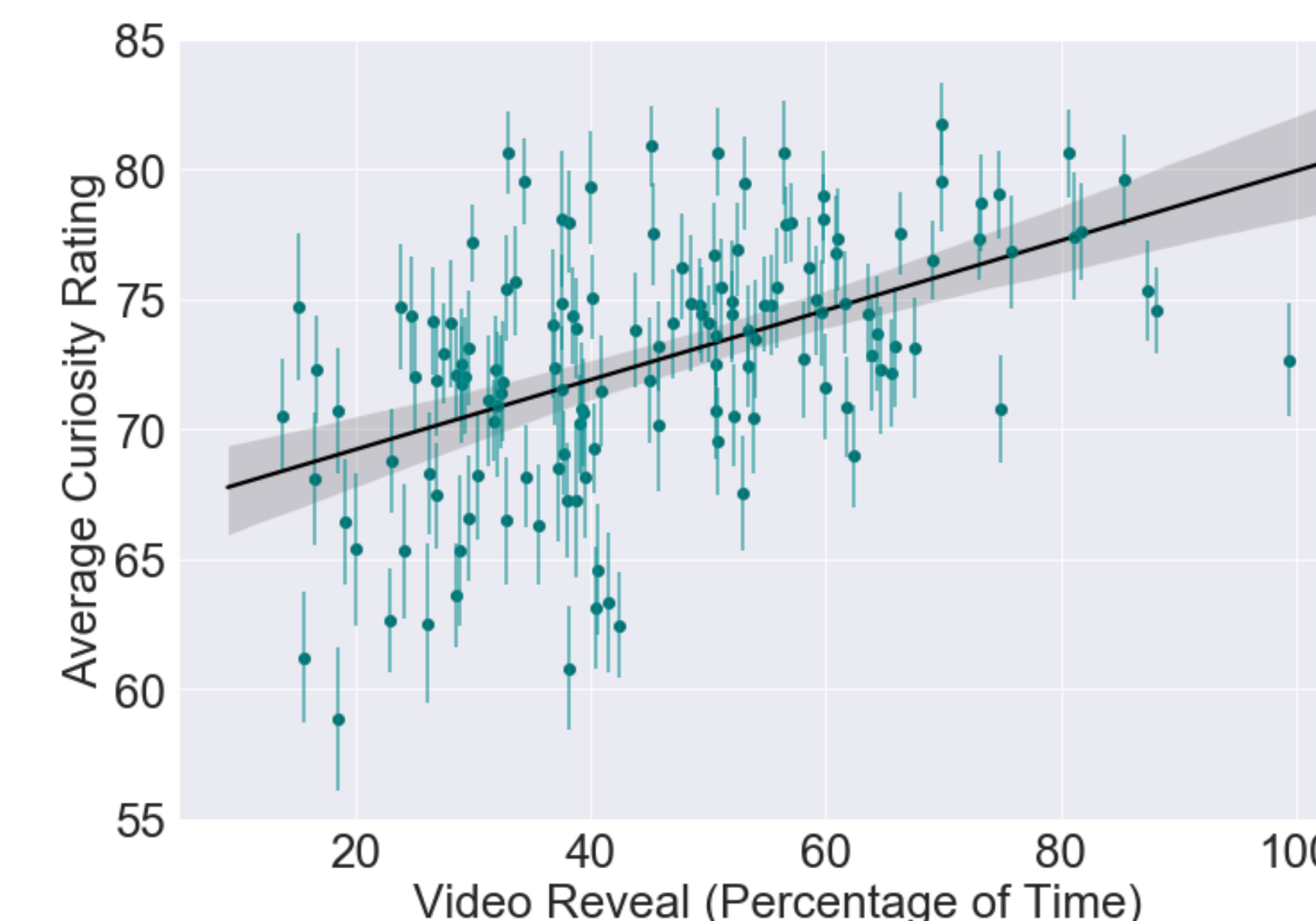
The more guesses, the more curiosity
(Average Curiosity Rating vs Number of Guesses)

Complexity, past curiosity, and active search enhance current curiosity

Diminishing Factors
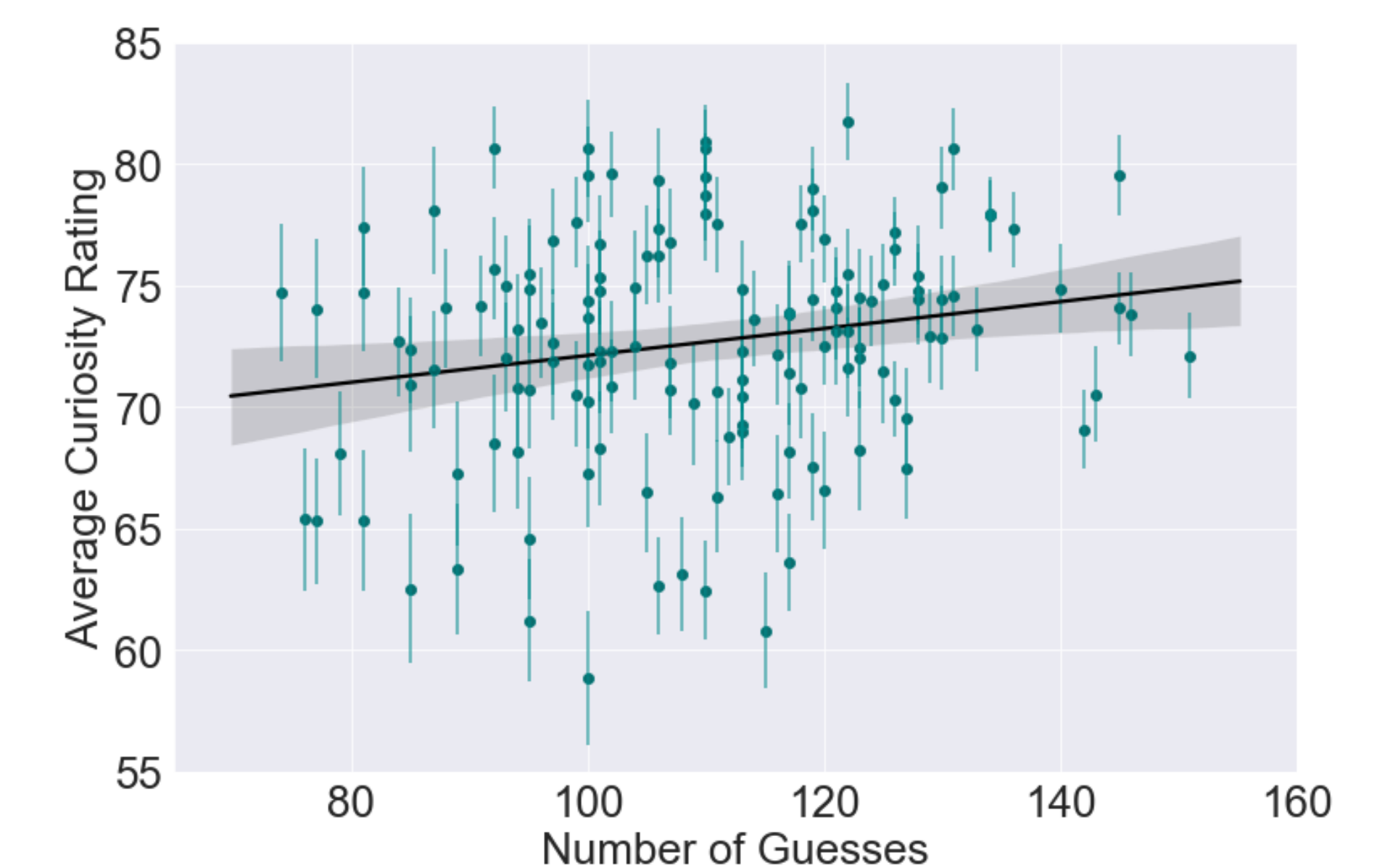
Easily identifiable drawings result in less curiosity
(Average Curiosity Rating vs Video Identification Accuracy)
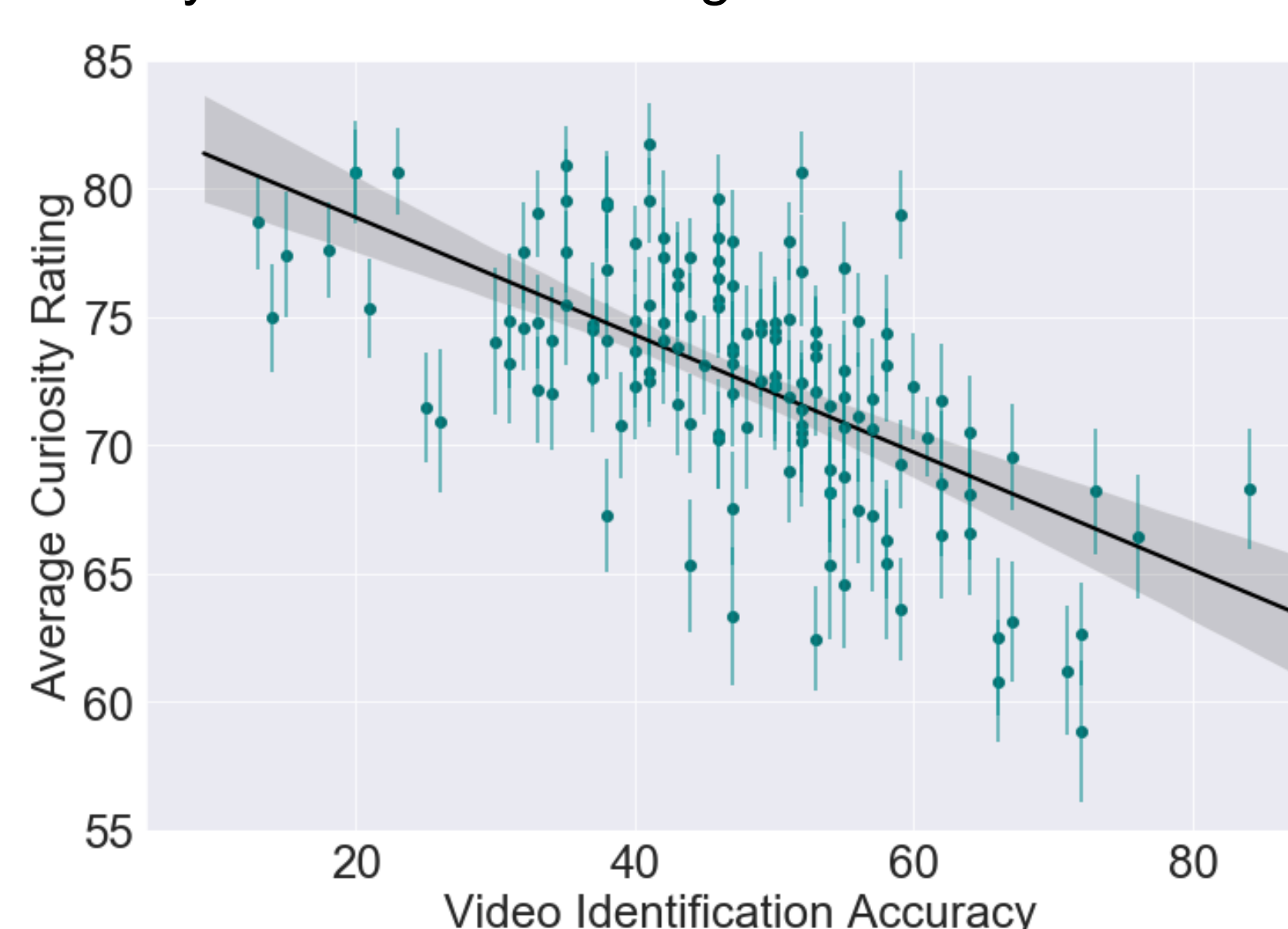
Curiosity decreases with time in the task
(Average Curiosity Ratings vs Trial Number)
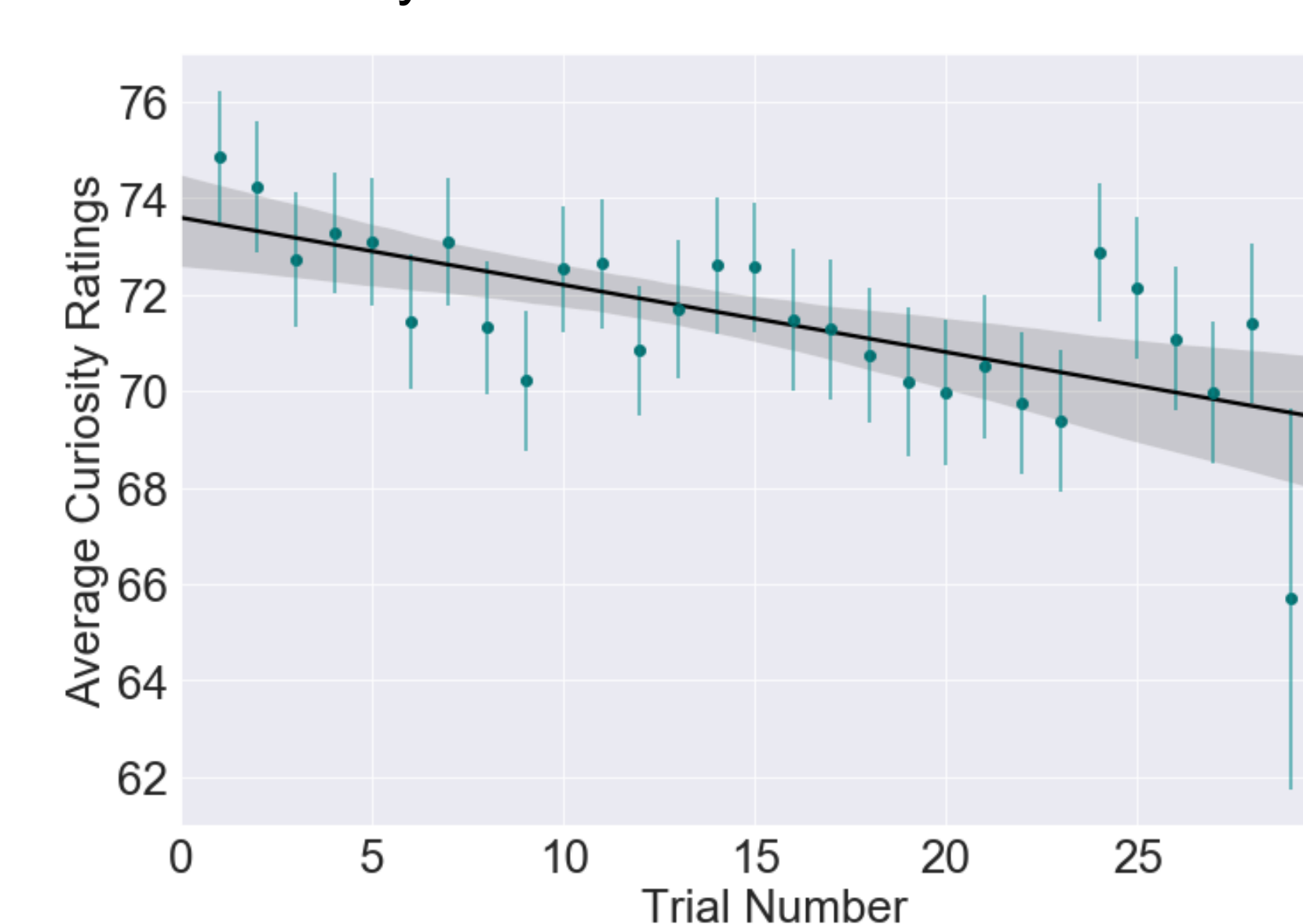
Repetition and ease reduce current curiosity

Linear regression performed on raw data, results grouped for visual purposes

DISCUSSION

We created an innovative task to induce curiosity in a ubiquitous and dynamic way

Curiosity is evoked during the active process of hypothesis generation and testing and problems that prolong this experience induce more curiosity

Future Questions

Does the shape of "reveal" contribute to the growth and sustainment of curiosity?

How do these determinants impact our choices and memory?

Brain
(Real-Time Curiosity Rating vs Time (Percentage))