

Wait, Wait, Don't Tell Me! When Curiosity Prioritizes Process Over Outcome

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Introduction

Curiosity directs choice by assigning value to information¹.

Construction of this value centers around expected reductions in uncertainty^{2,3}.

Prior work demonstrates that curiosity predicts choices toward immediate uncertainty resolution^{4,5}.

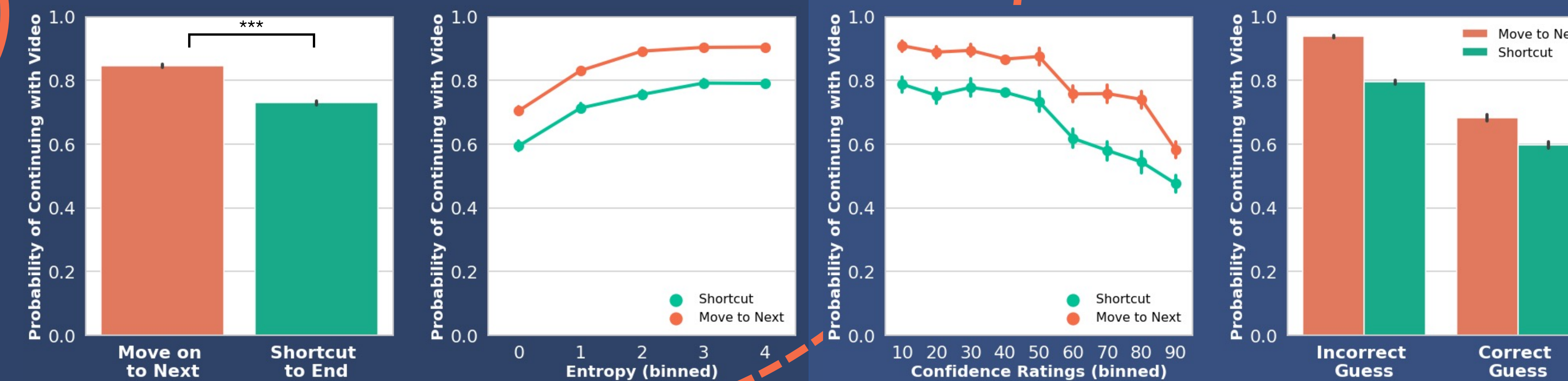
Conversely, under more dynamic environments, such as in narratives or sports, there a preference for maximizing uncertainty or suspense^{6,7}.

The process in which information is revealed could also confer value.

Is curiosity sensitive to the way in which uncertainty is resolved under continuous information gathering?

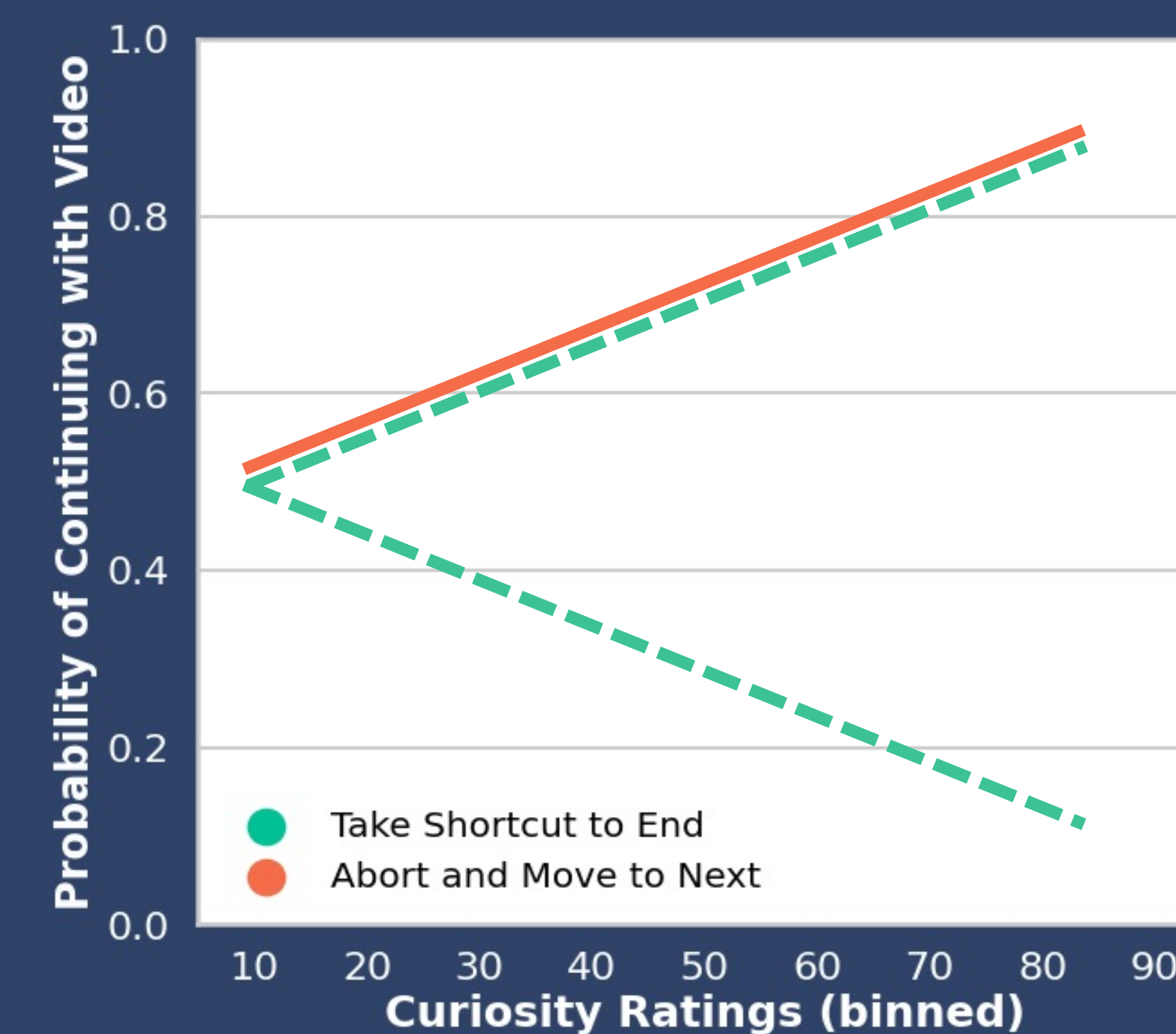
Uncertainty and Information Seeking

Information seeking is sensitive to global levels of uncertainty (entropy) and to participant's level of uncertainty (confidence, guessing accuracy).



We see increased information seeking in the Move On vs. the Shortcut Condition.

How will curiosity direct Information Seeking?



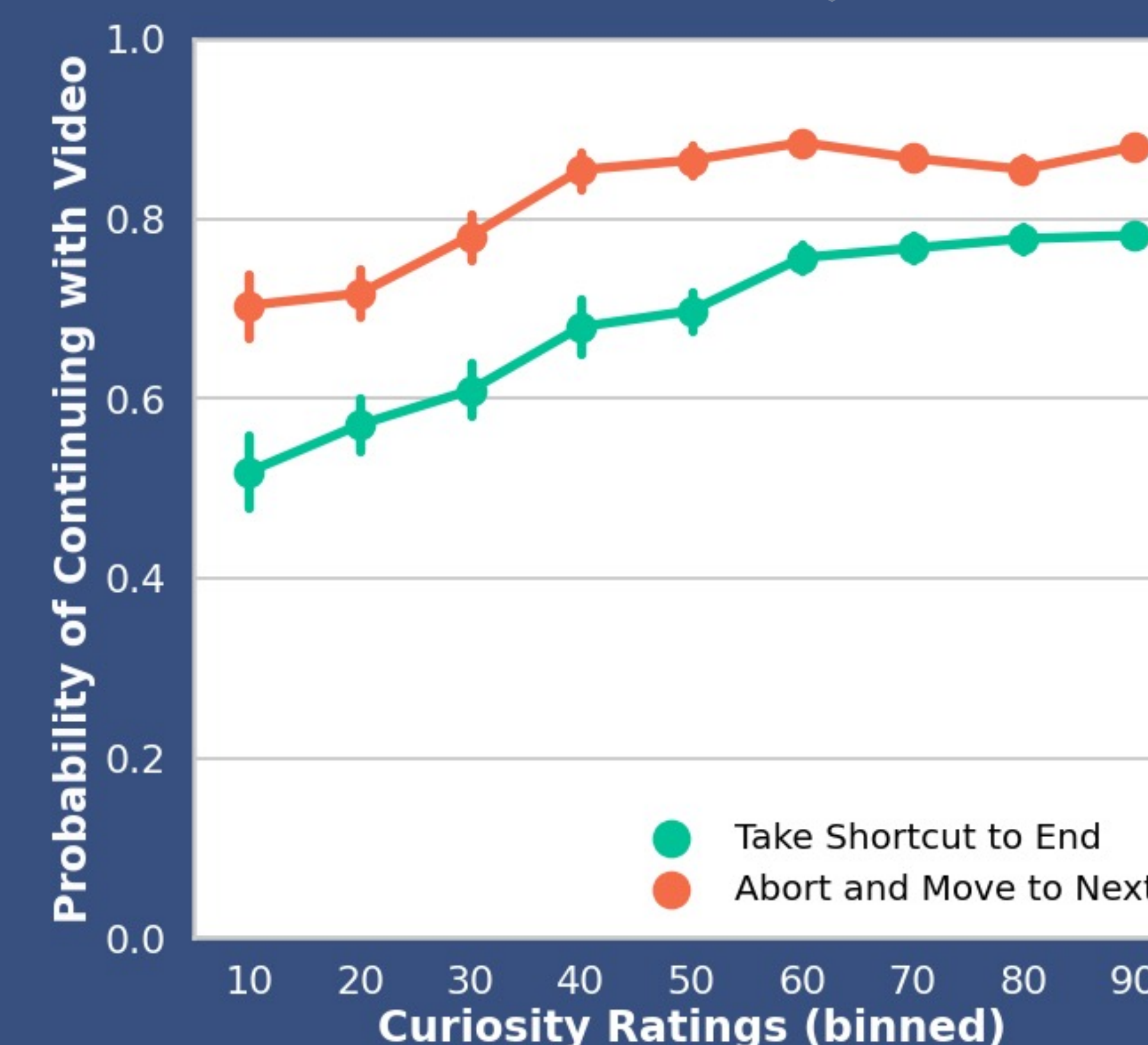
Predictions:

- When the alternative cuts off information seeking, curiosity will predict increased probability of continuing to watch the videos.
- When the alternative provides immediate resolution to the drawing's identity...
 - If curiosity is purely focused on outcome resolution, curiosity will decrease the probability of continuing to watch.
 - If curiosity values the process of information seeking, curiosity will increase the probability of continuing to watch.

Curiosity predicts Suspending Uncertainty?

Curiosity tracks with continuing to watch across both conditions, even when the alternative reveals the drawing immediately.

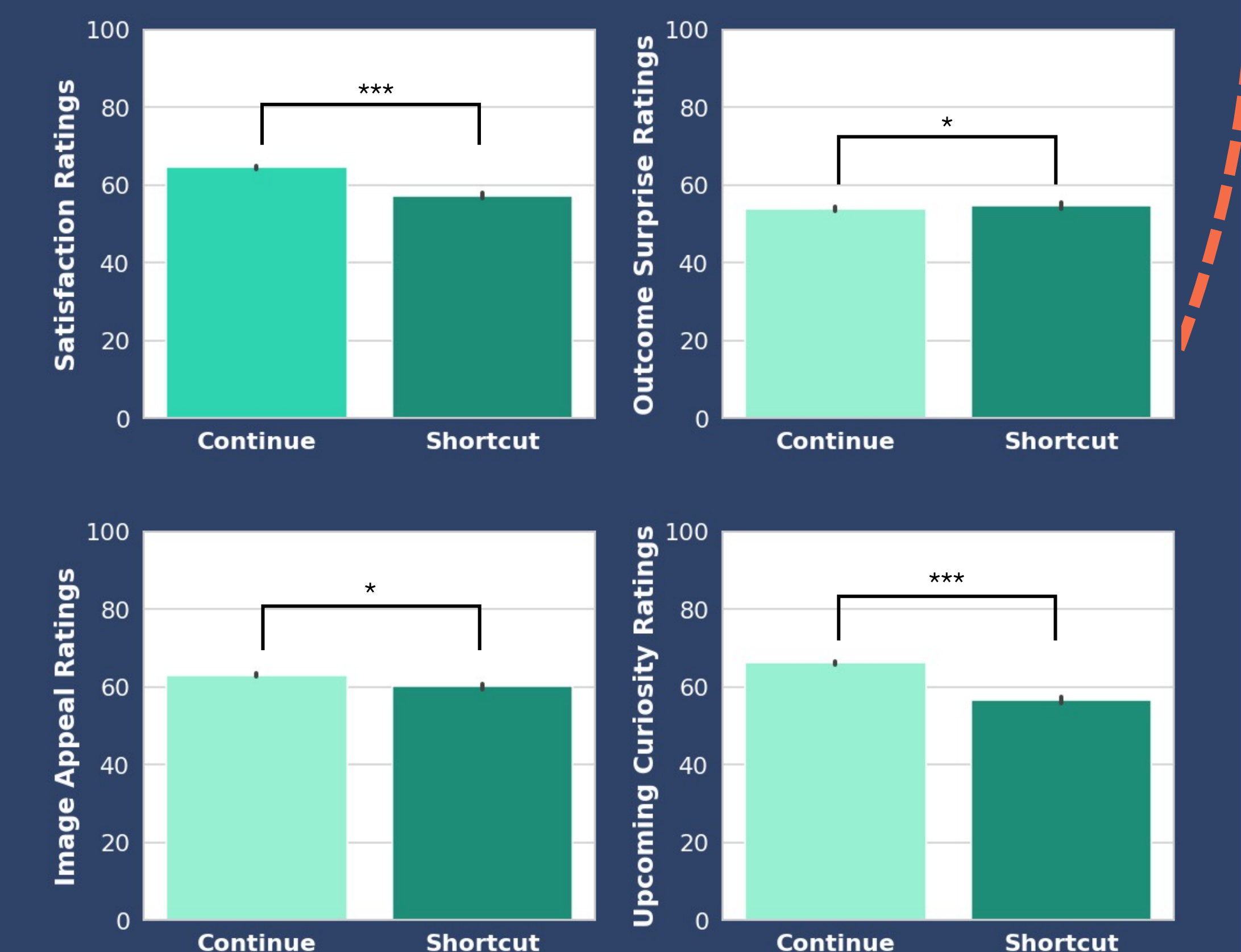
Our results here demonstrate that curiosity is valuing the process of information gathering over just the outcome.



These results persist when controlling for other factors including entropy, confidence, guessing accuracy, and time.

Why might Process Matter?

Exploratory analyses in the **Shortcut Condition** suggest that continuing to watch increases satisfaction, image appeal, and perpetuates curiosity for the next video but results in less outcome surprise.



Discussion

Under continuous information gathering, curiosity predicted sustaining rather than resolving ambiguity sooner.

Curiosity not only confers value to information itself, but also influences preferences for how one arrives at that information.

There could be limits on the idea that curiosity drives immediate uncertainty reduction, and points to reward value inherent in the process of discovery⁸ as an important factor.

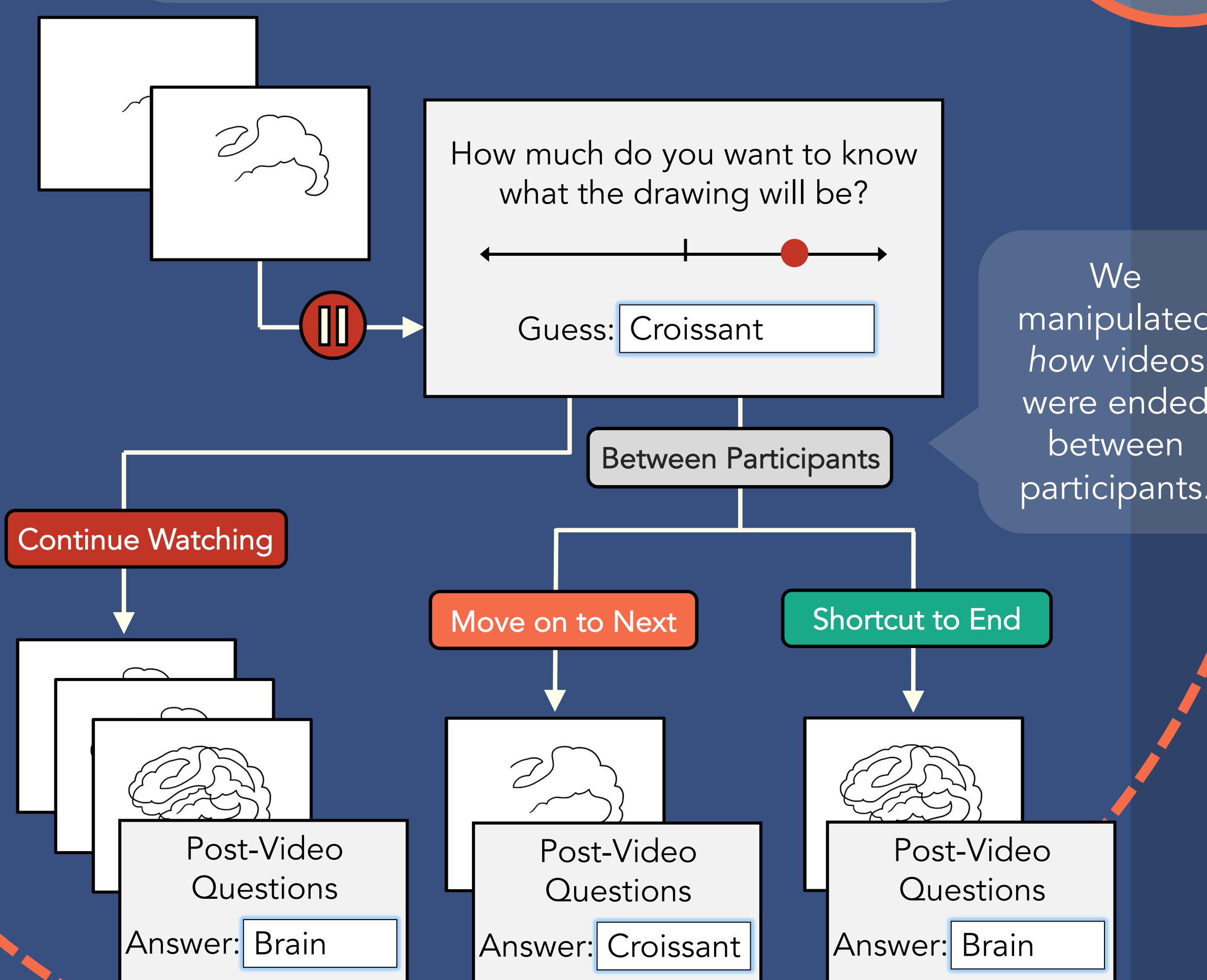
Future Directions

What makes up the value of the process? Are some information seeking trajectories more "valuable" than others?

Why does the process of information gathering confer value? Does it benefit learning and memory for sought after information?

Methods

Participants (N = 1593, Prolific) watched single line drawings (~30 sec, 25 videos) unfold over time. Periodically, they reported on their curiosity and confidence, then guessed what the drawing would turn into. They were then given the choice to continue watching or move to the next trial.



We manipulated how videos were ended between participants.