

CONFIDENCE IN ERRORS PREDICTS CURIOSITY ABOUT THE CORRECT ANSWERS TO GENERAL INFORMATION QUESTIONS

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INTRODUCTION

People are more likely to learn and remember the feedback to a high-confidence error than a low-confidence error¹.

This is known as the 'hypercorrection effect' - thought to be driven by surprise, increased attention, and enhanced encoding of corrective feedback².

Studies have shown that curiosity enhances learning, with information functioning as reward, independent of stimulus novelty^{3,4}.

Why do people learn better when they are incorrect, but highly confident?

Is curiosity a mechanism by which confidence in errors enhances learning?

RESEARCH QUESTION

Are curiosity and confidence in errors associated?

METHOD

Participants

44 Columbia and Barnard Students
(34 Female, 18-44 years, $M_{\text{age}} = 22.3$)

Materials

90 general information questions from the Nelson and Narens (1980) norms

Procedure

Who is known as The Father of Geometry?

Submit

How confident are you that your answer is correct?

0% Confident ————— 100% Confident

Submit

Incorrect

You will only be able to see 50% of the answers later.

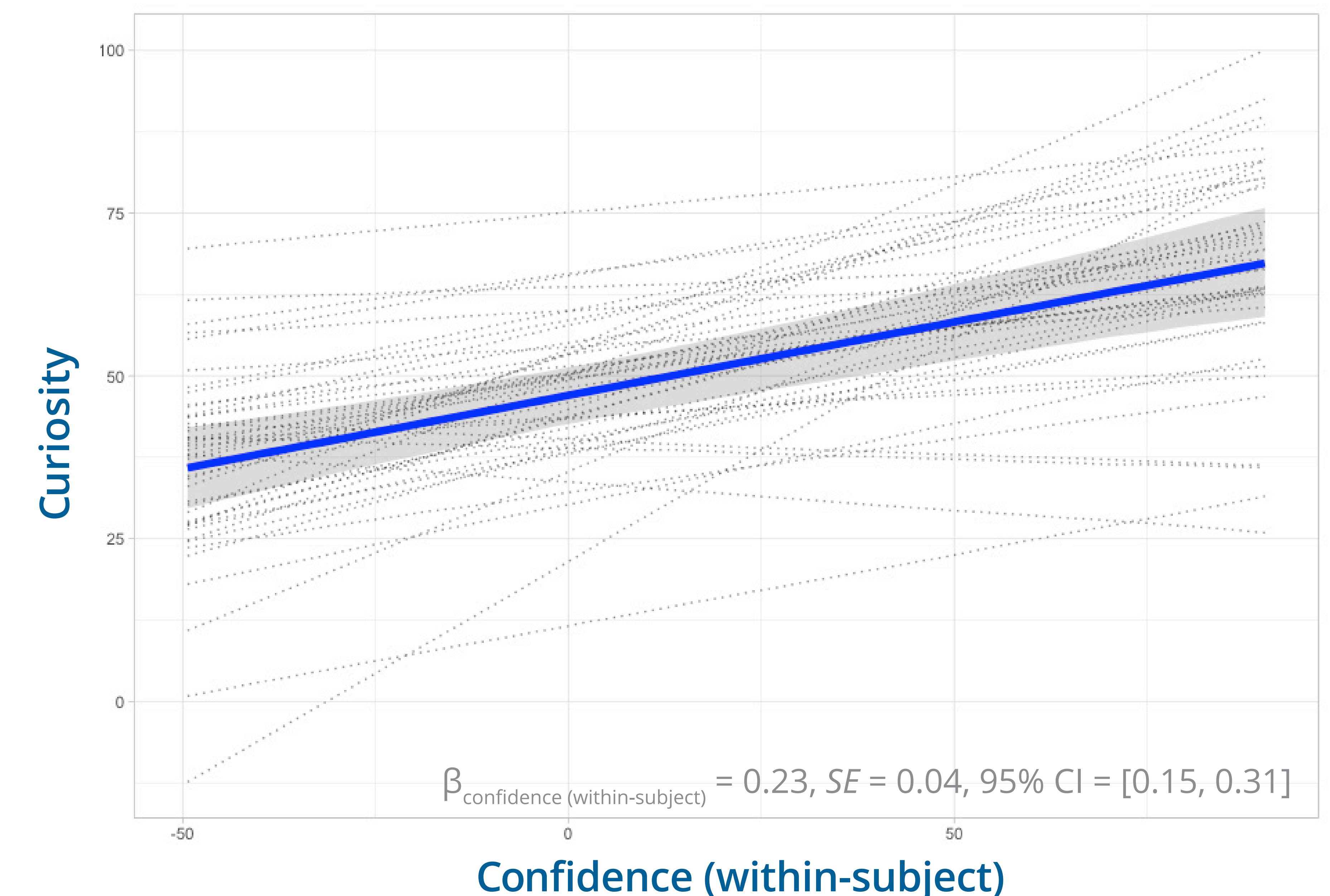
How much do you want to see this one?

Don't care ————— Very much want to see

Submit

RESULTS & DISCUSSION

Confidence and Curiosity Judgments for Errors



Confidence significantly predicted curiosity (both within and between subjects), with varying effects for subjects and items.

Higher confidence in errors was associated with greater curiosity.

IMPLICATIONS AND FUTURE DIRECTIONS

If confidence and subsequent curiosity can be manipulated in the classroom, the ability of educators to capitalize on this may have positive pedagogical ramifications.

Future directions include:

Measuring subsequent recall in order to examine whether curiosity serves as a mediator between confidence and learning.

Manipulating delivery of yes/no feedback to determine if and when discovering one's error has differential effects on subsequent curiosity and learning.

Extending this research by exploring how differences in personality, motivation and emotion regulation might contribute to curiosity, confidence, and learning.

[1] Metcalfe, J. (2017). Learning from Errors. *Annual Review of Psychology*, 68(1), 465–489.
[2] Butterfield, B., & Mangels, J. A. (2003). Neural correlates of error detection and correction in a semantic retrieval task. *Cognitive Brain Research*, 17(3), 793–817.
[3] Marvin, C. B., & Shohamy, D. (2016). Curiosity and reward: Valence predicts choice and information prediction errors enhance learning. *Journal of Experimental Psychology: General*, 145(3), 266–272.
[4] den Ouden, H. E. M., Kok, P., & de Lange, F. P. (2012). How Prediction Errors Shape Perception, Attention, and Motivation. *Frontiers in Psychology*, 3. *Thanks to Metacognition Lab