OFFICIAL ABSTRACT and CERTIFICATION

Changing Perspectives: A Simple Method for Improving Numerical Estimation and Reducing Overconfidence

Ava Fasciano

Paul D. Schreiber High School, Port Washington NY, US

The purpose of this study is to examine the effects of putting numbers into perspective on people's ability to estimate measurements. Past research has suggested that context surrounding numbers in news articles makes them both understand, recall in the future, and estimate. Through the use of perspectives, or additional sentences that express the value of a similarly scaled item, comprehension of large measurements or unknown quantitative units can be improved. It is hypothesized that the presence of perspectives will result in more accurate estimations. A survey was created for three different conditions where respondents were tasked to 1) estimate raw numbers, 2) provide a confidence in which the correct estimate falls, or 3) estimate a value in terms of the perspective. These three surveys were evenly distributed to 614 participants who were asked to estimate measurements. They were then randomly assigned to one of two versions: perspectives absent or present. Through T-tests, the accuracy of responses in each version were compared to find that perspectives were helpful in improving the accuracy of estimations only for certain questions. Perspectives were most helpful for the largest and most uncommon measurements, while there was typically no significance of perspectives for estimations that people commonly face. Additionally, perspectives were correlated to the size and accuracy of the confidence interval and reduced overconfidence. The applications of this study range from increasing the accuracy of project planning and budgeting to improving AI in chatbots and automated journalism.

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   ☐ vertebrate animals   ☐ microorganisms   ☐ rDNA   ☐ tissue

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