

UC Merced

Proceedings of the Annual Meeting of the Cognitive Science Society

Title

Performance of drawing scatterplots based on given correlations

Permalink

<https://escholarship.org/uc/item/4zd531kk>

Authors

Cui, Lucy

Kini, Medha

Liu, Zili

Publication Date

2023

Peer reviewed

# Performance of drawing scatterplots based on given correlations

**Lucy Cui**

UCLA, Los Angeles, California, United States

**Medha Kini**

University of California, Los Angeles, Los Angeles, California, United States

**Zili Liu**

UCLA, Los Angeles, California, United States

## Abstract

Previous research assessing people's sense of correlation used scatterplots as stimuli and asked participants to estimate the correlation of said scatterplots. This method has consistently shown that people tend to underestimate the correlation of a scatterplot (e.g., guessing the correlation is 0.25 when the actual correlation is 0.5). However, it is unclear whether this underestimation is perceptual or reflective of having a poor internal representation of different correlations. We investigated this question by flipping the task: instead of estimating the correlation from a scatterplot, participants drew a scatterplot based on a given correlation. They drew 20 points to represent the correlation coefficients: 0, 0.25, 0.5, 0.75, and 1. While the drawn correlations of 0, 0.75 and 1 were quite accurate, the drawn correlations of 0.25 and 0.5 were much higher than the requested correlations. This pattern is consistent with previous research, suggesting the underestimation may not be perceptual.