

Project Description

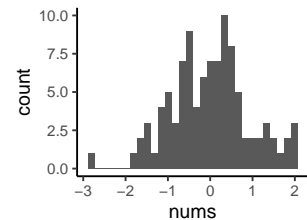
1 Objectives

2 Research Plan

2.1 Background Information

Statistical graphics are a primary way scientists communicate results to other scientists as well as the general public, but we have been arguing about best practices for the visual display of data almost since these graphical forms were created [1]–[3]. Different individuals and organizations have released guidelines for graphical design [4]–[7], but many of these are based on aesthetic preferences, individual experience, or extrapolation from limited empirical studies. Even when there are empirical studies to support guidelines for choosing one graphical form over another to increase perceptual accuracy and decrease viewer effort [8]–[10] (See [11] for a review), these studies measure different quantities (estimation accuracy vs. ability to perceive a departure from a null model) in different ways (direct numerical estimation vs. comparative estimation of proportions) that have a potentially large effect on the generalizability of the results.

There are relatively few studies which directly compare the effect of different methods for testing graphics, but minor changes to the data collection method can impact accuracy of even simple numerical estimation tasks [12]; it is reasonable to expect that the specifics of the graphical testing procedure used may impact the results, potentially explaining conflicting empirically driven recommendations [2], [3], [10].



2.2 Preliminary Data

2.3 Methods

2.4 Alternative Approaches

2.5 Evaluation

2.6 Future Steps

3 Education Plan

3.1 Overview

3.2 Design and methods

3.3 Evaluation

3.4 Integration of research and Education

4 Broader Impacts

5 Timeline

6 Results from Prior NSF Support

References

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