

Effectively Communicating Numbers Summary

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Abstract

The objective of this document is to summarize the principles of crafting graphs that are presented in Effectively Communicating Numbers - Selecting the Best Means and Manner of Display.

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This article begins by introducing the reader to the concept that, in general, graphs are made incorrectly and misleadingly by those who do not understand graphic principles. The purpose of the article, therefore, is to inform those in the fields of business and technology on the proper techniques for crafting graphs.

The first important differentiation that is made focuses on tables versus graphs. Often times a table can represent data more efficiently than a graph ever could. In these cases, rather than trying to impress with graphs, one should always default to a table. Within the graphical realm, there exist three types of categorical scales. These scales, nominal, ordinal, and interval, describe the data represented by each scale. Nominal scales have no intrinsic comparative order, ordinal scales are ordered but not numeric, and interval are focused completely on numbers.

The article proceeds by describing the seven common relationships that can be found in quantitative business data. The first, time-series relationships, use time as a key metric. These relationships represent roughly 75% of business graphs; a statistic which stresses their importance. The next relationship, ranking relationships, are any which compare and sequence values from large to small. Part-to-whole are those which represent the percentage each value plays in a larger whole. Deviation relationships include the differences of values in reference to some set of values. Distribution relationships show the density of data values at various points on one of the quantitative metrics. Correlations show the relationships between fundamentally different values. Lastly, the nominal comparison relationship shows relative quantitative values as they correspond to qualitative categories.

The article continues to explain the various means by which of encoding quantitative data: the marks that most properly communicate the information. Examples of these marks are points, lines, bars, and boxes. Each serves a different purpose and offer strengths depending on the data. With this information, one can design their graph properly by determining their message and identifying their data. This includes specifying the value of a graph over a table, of deciding which relationship is most clearly relevant, and designing the aesthetics of the graph.

The aesthetics of a graph include the determination of what pieces are necessary for the quality of the graph. A legend or axis values, for example, need only be strategically designed if they add unique information to the graph in the first place. Even certain data values can often be removed from a graph without losing crucial data.