

## **Integrity and Values in the Presentation of Outcomes**

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Edward Tufte has published two excellent books on the visual display of information (1983, 1997) in which he shows how the graphical presentation of data can either enlighten or mislead the intended audience. As a simple case, the range of numbers chosen for the vertical axis of a graph can distort the size of effect for a given data set. For example, when success rates of 72% and 76% are compared, graphically displaying these numbers using a zero to 100% range would result in a graph with a visually small difference. However, displaying the same numbers using a range from say, 70% to 80% would result in a graph with a much larger visual difference. Tufte proposed a formula for calculating the “lie factor” of a graphical presentation. A lie factor greater than 1.05 would indicate substantial distortion. In the case presented here, the lie factor for the second graph would be 10, indicating a quite substantial distortion of the data. To avoid distortion, Tufte recommends that:

*The graphical representation of the data, as physically measured on the surface of the graphic itself, should be directly proportional to the numerical quantities represented. Clear, detailed and thorough labeling should be used to defeat graphical distortion and ambiguity. Write out explanations of the data on the graphic itself. Label important events in the graph. (Tufte, 1983.)*

Tufte’s two books provide many excellent examples of how to visually represent data while maintaining the integrity of the data. Not only does he cover traditional charting styles, but he includes the historical evolution of visual displays and offers some advice on creating visual explanations using pictures and clip art for data points.

A visual display not only can maintain the integrity of the data, but also can communicate the author’s values. I have been involved in an ongoing program evaluation project in which a set of outcomes was repeatedly measured each year. At first it seemed to make sense to present each year’s outcomes by themselves. For example, using data collected for the year in question, we would develop graphs showing the percent of former teenage clients who earned high school diplomas versus dropped out of school. Then, as the project continued over the years we began reporting the trend in kids earning diplomas from year to year. One of our catch phrases for what we valued was the Ford Motor Company slogan, “anything we can do, we can do better.” When we presented our trends to different stakeholders, they incidentally told us that they could see that we did indeed appear committed to ‘doing better’ because we were willing to publicly present our trends showing whether we were in fact doing better over the years. We presented all of the data, not just the positive data.

As another example, when we tried to collect data on all of our kids rather than just a sample, we treated kids we could not find as if they were “worst case scenarios,” thereby biasing our data in a conservative direction. This strategy may not have made us look as positive as we might have been, but it indicated that we were willing to look seriously at our outcomes.

When we presented satisfaction data we chose not to group all of the “somewhat to completely

satisfied” responses together as a way to get as large a positive percentage as possible. In fact, we made a point of indicating how many kids and families were ‘very’ or ‘completely’ *dissatisfied* and tried to highlight the implications of those failures, no matter how few they were. In addition, we included a category of “no response” to show the proportion of people who did not respond, and suggested that a conservative interpretation would be that these were dissatisfied people (one side effect of this strategy was that we subsequently worked harder to guarantee respondent confidentiality as a way to increase response rate and minimize the need for interpretation).

How we present our outcomes can -- in subtle ways -- communicate our values. Rather than focusing on how to make our outcomes look positive -- and maybe even misleading (Tufte, 1983) -- we ought to look carefully at what we value, and present our outcomes in ways that are compatible with our values.

#### References

- Tufte, E. R. (1983). The Visual Display of Quantitative Information. Graphics Press, Cheshire, Connecticut.
- Tufte, E. R. (1997). Visual Explanations: Images and Quantities, Evidence and Narrative. Graphics Press, Cheshire, Connecticut.