

Bright Ideas



Supporting Organizational
Excellence & Innovation

A picture's worth 1000 words... *and a few statistics*

Most people find it less overwhelming to interpret results in the form of a picture rather than as numbers. But just as certain numbers—or statistics—provide particular types of information, so too, certain types of graphic representations are better for certain types of data. Use them for the wrong purpose and you mislead your reader.

Belly up to the bar, boys

One of the most common data pictures is the bar chart. It is used to help people compare results over time or across groups, or both.

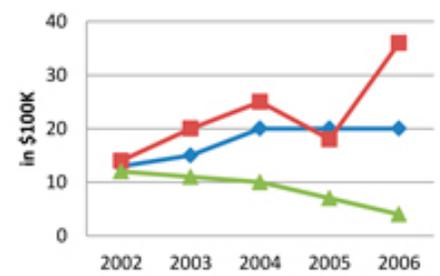
In the example at right, we look at one organization's revenue generation over time. However, we could use a stacked bar chart to be able to compare the contributions of different departments (or people, or types of projects) to the organization's revenue. Or we could use a clustered bar chart to compare one department's revenue to another, if we don't want to be able to see the organization as a whole on the same chart. There is even a type of chart (100% stacked) that converts the numbers to percentages of the whole as an alternative to using a pie chart. However, if you want to be able to see how the organization is doing from one year to another, it is totally useless.

The point is that you choose the chart that directs the reader to the information that is most important to understand.

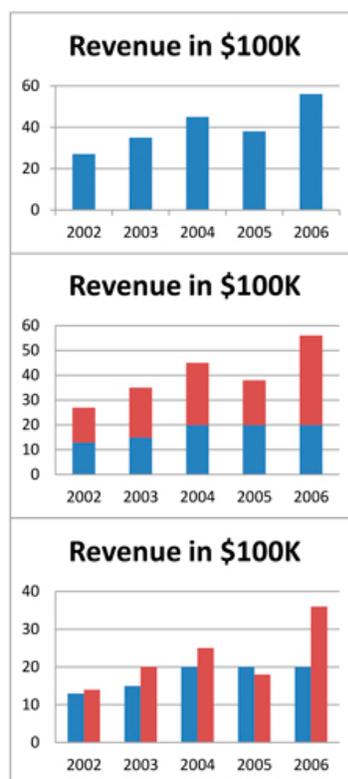
Connecting the dots

Many people prefer line graphs to bar charts. If you have more than a couple of groups to compare over time or conditions, lines make it easier to track the trends or see relationships between factors. While it is convenient to connect dots, it does suggest that the measurement

Revenue by Department



is continuous. However, were we to plot every second year, we could not treat the midway point between dots as if it reflected revenue in the intervening year. While this may seem obvious, there are other situations in which connecting the dots seems to lead people astray in this fashion.



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Previously we talked about the correlation statistic in representing the strength of relationships and the ability to use one factor to predict another. The appropriate visual representation for this situation is a scatterplot. Although you may be able to generate a line of best fit (where a straight line in a particular position and angle has the smallest average distance between the points and the line), strong relationships between the measured factors (in this case, service need and service cost) look like a line or narrow ellipse, while poor, non-predictive relationships resemble a blob.

Have a piece of pie

The other common graphic representation of numbers is the pie chart. These are used when one wants to know the proportion of the whole made up of a certain group. The *Calgary Herald* uses pie charts each day to indicate the percent of respondents who said “yes” or “no” to their question of the day. Pie charts are used in survey reports, financial reporting and any number of reports talking about how the numbers are divided which make up the whole. As with the 100% stacked bar chart, you

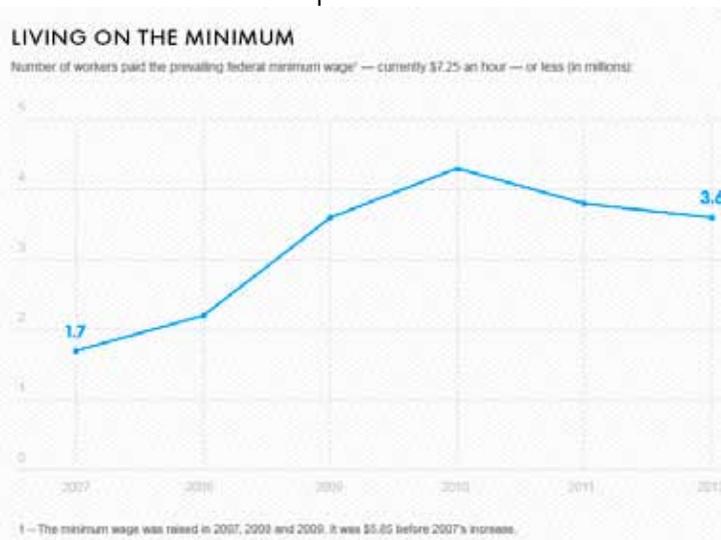
lose information about how many people (or dollars) are contributing to the whole, unless the pieces of pie are labeled with numbers and you bother to add them up.

Use common sense

Use common sense when you choose a method of representing numeric results. And recognize that pictures may make information easier to understand, but can't replace explanatory text in most cases.

I read an article in USA Today about the number of US workers paid the minimum wage or less between 2007 and 2012. This graph was included. While a rapid rise in

Americans living on the minimum wage is obvious from 2007 – 2010, the note below the graph says the minimum wage was increased in 2007, 2008 and 2009. Using common sense in combining the words and picture, it becomes obvious that the increase in minimum wage earners is partly the result of people who earned a bit above the minimum wage not getting a raise when the minimum wage was increased. Once the federal government stopped having annual increases to the minimum wage, the number of people earning at or below minimum wage started to fall off.



While I would certainly argue that there are too many Americans earning less than a living wage, common sense helps me understand why. Don't leave home without it.

<http://www.usatoday.com/story/money/business/2013/08/28/low-wage-workers/2711379/>

From Where I Sit

Celebrate and be thankful



As we approach the festive season, we are inundated with extra tasks. It is hard to keep up and many people become depressed or more than a bit frazzled.

This year, set aside a few minutes with your equally frazzled friends or colleagues to celebrate the big or little accomplishments. Be thankful for all the things that

could have gone wrong this year (or this week, for those of us with short memories) but didn't. No matter how bad life gets, it could be worse.

If we were all perfect, we would have no room for improvement and life would be pretty boring. And while we sometimes crave a little boredom when things are too hectic or go wrong, too much of a good thing would still be too much.



K. K. Biersdorff Consulting supports organizational excellence and innovation through an array of planning, research, communication and training services that take projects seamlessly from start to finish.