

Data Visualization

Techniques for Criminal Justice

Data visualization techniques are ways that can help you present large statistical numbers to other people, to enable them to understand the data. You can present charts, graphs, pictures, maps, scatterplots and other images that will help people to understand the data that you are presenting.

- Key: A picture is worth a thousand words.

Demonstration 1: Scatterplots

With “data visualization,” a simple picture is worth a thousand of your words. Here is a sample:

- STEP 1 – [Click here](#) and look at a scatterplot. Do you see any patterns or correlations that are meaningful to you? No, you do not!
- STEP 2 – [Click here](#) and identify meaningful correlations or patterns.

In the above example, how many words would it take you to describe the patterns that you identified? That demonstrates why a picture is worth a thousand words!

Demonstration 2: National Burglary Rates in a Line Graph

Burglaries decreased for 26 years in the United States, from 1990 to 2016. It’s hard to “visualize” that information in your mind. However, [click here](#) to see a picture that instantly makes you understand the [magnitude](#) of the issue.

Demonstration 3: Locations of City Burglaries in a Geographic Map

How can you instantly show others where most burglaries are happening in your city? For example, if you need to explain to the public or to city commissioners where most burglaries are happening, then you can instantly do that with one picture.

- COMPLEX WORDS – Most burglaries are happening in zones 4, 8 and 10. Zone 4 had a 2.9% increase. The fewest number of burglaries are happening in zones 3, 9 and 12.
 - The general public is not going to understand what “zones” are.
- SIMPLE PICTURE – You can show people a color coded map that instantly reveals where most burglaries are happening. [Click here](#) to see a sample.
 - People understand maps and images, as it relates to locations.

Demonstration 4: Vehicle Burglary Numbers in a Bar Chart

- STEP 1 – San Francisco had 31,000 vehicle burglaries, but that number alone is not meaningful because it does not tell you very much. [Click here](#) to see that number in a useless picture.
- STEP 2 – The vehicle burglary numbers become more meaningful when you add the numbers of arrests, numbers of prosecutions and the numbers of incarcerations. [Click here](#) to see a useful picture.

A picture is worth a thousand words. [Click here](#) for one more Bar Chart sample.

Demonstration 5: Incarcerated Americans in a 100 Year Span

The U.S. has a lot of people that are incarcerated, but how do you interpret that statement in a meaningful way? A chart or graph can enlighten your understanding of the issue. [Click here](#) and scroll down to see meaningful pictorial samples. A picture is worth a thousand words!

Demonstration 6: Body Cameras

Pictorial charts can make a strong case for or against something. For example, if you are trying to get your city or county commissioners to purchase body cameras for officers to wear, then you can present a picture that instantly gives commissioners numbers that they may want or need. [Click here](#) for a sample.

Demonstration 7: Humor

[Click here](#) to see an academic chart that shows the problem that a student experienced while studying for an exam.

Use Caution When Evaluating Statistics

Statistics can be manipulated to falsely infer anything. Statistics can be designed to mislead people, to achieve a desired outcome in public opinion. Therefore, you must always carefully consider the motives behind the creation of statistics that you are evaluating. Mark Twain (1835-1910) made the following statement about statistics that are used to mislead people:

- “There are three kinds of lies → lies, damned lies and statistics.”

Statistical results may be true or misleading. Be careful what you believe and [caveat emptor](#).

Now you know!

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