Designing for Your Audience

Visualizations are developed to answer a question and communicate a message. On the receiving end of this message is your audience.

The audience might be you. When you're doing exploratory data analysis, you use graphical displays to help you get to know the data, to look for patterns or relationship between variables, or to make discoveries.

When the audience is someone else, visualizations are used for data presentation to share a discovery, to inform, or to persuade. The best visualization depends largely on your audience.

Consider this example. Suppose that a team is trying to improve the yield for two manufacturing processes.

You are a colleague in another department. Or perhaps you are a stakeholder or the team sponsor. The team sends you this graph. They also send you some supporting information in an email or in a report, but your eyes are naturally drawn to the visualization.

What do you learn from this graph? Is there a clear message or purpose?

You can see that the plotted values for both processes range from 91 to around 95. Because the points are connected with lines, you conclude that the data must be time ordered. You see that the values, in general, are increasing.

But without more information and context, it's difficult to tell the purpose of this graph or what you're supposed to learn from it.

What if you receive this graph from the team instead? The Y-axis label and graph title are more descriptive, and the annotation and shading provide focus.

From this graph, without any additional information, you know much more.

You know that the graph shows the average monthly percent yield, in the year 2018, for two processes over time. You know that the yield for Process 1 is usually higher than the yield for Process 2. You know that the raw material supplier was changed in July. You also know that you should be focusing on the period after switching to this new raw material supplier.

The gray shading suggests that you should contrast the yield for the two periods. The average yield for both processes is higher after the supplier change, and are more similar, than they were before the change.

Assuming that the question relates to the impact of changing the supplier, this visualization now contains everything you need to know! The graph provides a sufficient amount of information to interpret it correctly.

Note that there are other ways of improving this visualization, and you might make different design choices.

The point is, these are two slightly different representations of the same data that might be used for different purposes. The purpose of your visualization, and your intended audience, should drive your design choices.

If you are creating the visualization for your own use, then the graph can be simple, with minimal labeling or customizations. The default settings used by the software might be okay.

However, if your visualization is intended for someone else, then it should be designed to effectively communicate your message to your target audience. You might change the default settings, apply customizations, or add annotations to enhance the graph and your message.

In the next video, you learn how to design visualizations to meet the needs of your target audience.

Statistical Thinking for Industrial Problem Solving

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