

The “me” layer

Let's talk now about what I would say is my favorite part, or my favorite layer in data visualization, particularly in interactive data visualizations. It's sort of the interactive layer, but I prefer to call it sometimes the "me" layer. Why? Because I think that any visualization can be made more interesting or more engaging if we somehow tell people why they should care about the data that we are presenting or where they are in the data that we are presenting to them. Let me give you just an example. Let's suppose that you do sort of a graphic showing the distribution of wealth in the United States. On the horizontal axis, you put the wealth ranges or the income ranges, right? Zero dollars, 1,000 dollars, 2,000 dollars and so on and so forth, up to a billion dollars a year, right? You do that on the horizontal axis, right? The wealth ranges.

And then the y axis will be sort of the number of people, or the number of families within each one of those ranges of wealth, right? The end result will be sort of a histogram, a histogram of data, right? The higher the bar, the higher the number of people who have a particular wealth. Now, usually the distribution in many countries looks like this, right?. A lot of people on the lower end of the spectrum, most people in the United States make around between 0 dollars, 1000 dollars, very poor people, obviously, up to around 100,000 dollars, that would be 120,000 dollars, that's sort of the middle class. Most people are like in that lower end of the spectrum. But then we have a very long tail, right? Much fewer people, many fewer families who make much, much less money, sorry, much more money. So we have sort of that long tail like that, poor people, middle class people, tons of people over here and then very rich people over here. Now, that's interesting per say, because that chart will show you sort of the income and wealth inequality that exists in most countries in the world. Most people are here, but then we also have very rich people on this upper end of the of the spectrum.

But what about, that will be the encodings, right? Encoding the data, that's interesting per say. But what about if before we show people the chart, we ask people how much money do you make? How much do you make every year? Let's suppose that you're making 60,000, 80,000, and you input that. "Well, I make around 80,000 dollars a year," and you input that in the chart. And then I show you the chart, I show you the distribution of families according to wealth. Remember that the height is the number of families and the horizontal axis is the wealth levels or the wealth ranges. So I show you that chart and then I add a little line, an annotation saying "you are here," that you are here, that's the "me" layer. The "me" layer is where you are in the data, and it could also add, for example, 70 percent of families make more money than you do, 30 percent of families make more money than you do. That's the "me" layer. I have to believe that when we add this layer to our visualizations, our visualizations become much more interesting and much more engaging because the data has been humanized. The data has been transformed into something almost physical, something that appeals to you, that talks about you, you in comparison to everybody else in the data.

Let's take a look at several examples of how to make data visualizations more engaging and interesting by adding sort of these "me" component to them. One way to do this is to challenge people, to basically ask people questions. What do you think about this topic? Or what do you guess that the data will look like? And then you ask them to draw something or to do something and then you show them the reality, so they can compare their own guesses and intuitions, with what the reality released.

The New York Times did this a while ago with a project titled *You Draw It: What Got Better or Worse During Obama's Presidency?*, and it's a series of line charts in which you can basically draw what you guess that, for example, the unemployment rate was during the Obama years. So, for instance, under President Obama, the unemployment rate was and you have here an empty space that you can draw on, I'm going to guess, basically trace a line. I would guess that unemployment went up very sharply. So I'm going to draw very, very sharply increasing line over here. And once I finish drawing, I'm going to click on show me how I did. Well, I didn't do that well. So, now I am comparing my own assumption and my own conjecture to the reality. And you get these sort of "oh, wow" effect. All right.

I might guess what's wrong. I think that that "oh, wow" effect can really increase understanding. It increases engagement, and it basically tells you, by telling you that you are wrong or that you are right, it's putting you inside of the data that you are that you are presenting, right? It's that element of surprise that makes the graphics so engaging and so appealing. Under Obama, the number of immigrants convicted of crimes who were deported, did it increase or decrease? All right. So I say, I would say that it increased, show me how I did. Well, I didn't do as badly as before, right? So it's a very interesting example of how to add this layer to any visualization.

Another one that I would like to show you was published recently. Sort of, it begins, it's a quiz. It begins with a quiz. Let us predict whether you are a Democrat or a Republican according to who you are, right? Let me guess whether you lean more Democrat or you lean more Republican, on the political spectrum. And if you scroll down this story, you will see that it contains tons of data visualizations and charts and graphs and maps, so you can read all these later on. But the first thing that they do is to ask about you. To ask about what you think or what you believe or who you are, etc.. Again, that is the "me" component of the story, right? So the questions are, for example, are you black, Hispanic or Asian? Well, I'm European, so I wouldn't say, I speak Spanish, obviously, but I would not call myself Hispanic. So I would say no. Is religion important in your life? Well, not that much. I'm going to click on no. Are you straight? Yes. Did you attend college? Yes. Are you Protestant? No. Are you Catholic? No. Are you female? No. Do you have a college degree? Well, yes. So people like you are democratic by a 48 percent margin. Is like a huge margin towards the Democrats, right? That's a very interesting way to percent data. And this sort of presentation prompts you to basically start over and try different things, to see how different demographic groups lean on the political spectrum, whether they lean to the right or the lean to the left. Another very compelling example of how to do it, because once you have showed all these on, you have let people play a little bit with these, then they can scroll down and read the entire story underneath and read all the details, the background information, how the data was put together and the main insights from the data. They are all presented in this story, and in the other visualizations of this project.

The third strong example that I would like to show you how to use this sort of "me" component in visualization is a simulation. Simulations can also be really powerful in communication and particularly in visualization. So this is a simulation designed by FiveThirtyEight titled *The Atlas Of Redistricting*. So you probably know that in the US we have sort of a problem with a phenomenon called gerrymandering, which is basically that politicians in many places are allowed to draw electoral districts according to their needs to favor some candidates or to disfavor other candidates, and so on and so forth. So I'm not going to get into the details of all these. But what this project lets you do is to basically redraw all the electoral districts in different ways, either to favor the Democrats, or to favor

the Republicans, or to try to balance out one party with the other, or to use a mathematical formula to create equal districts, or districts that are sort of correct quotation marks in there to let you see different possibilities. It's like we could call these "what if visualization," "what if this happened?" right? If this particular thing happened.

It's a great example of that, I think. You may see when you scroll down, it lets you first see the entire, the entire United States or you can select a particular state, for example, I'm going to select here Florida. Let's gerrymander Florida. So we, right now we have seen the current district boundaries. So, first of all, I'm going to see what happens if I am a Republican and I want to redistrict Florida to favor Republicans so the map will get redrawn. And as you can see, I have, we have redrawn the map in a way that most of these districts probably will be won by Republican candidates. But we could also gerrymander, gerrymander these districts to favor Democrats, right? To give more space, for example, to South Florida, which tends to lean more towards the Democratic Party. But then you can have other goals and you can see what would happen if we did this, "match partisan breakdown of seats to electorate", try to "promote highly competitive elections," so candidates will be very close to each other, so they need to fight, fight very hard to win votes. So, most of these counties, this aren't counties, sorry, most of these districts would be very close to each other in terms of Democratic vote and Republican vote to maximize the number of majority minority districts, so many different options that you can play with. So this is sort of a simulation, right? Doesn't show you, it showed you first the reality, what's going on, what currently exists, but then it also lets you visualize what would happen if we did these, right? And it lets people play with all these options. It's sort of like most, something like a like a video game, right. You can choose sort of the options that most appeal to you or that you might find that you may find most interesting or that you may want to explore.