Module 4: Getting Your Story Across

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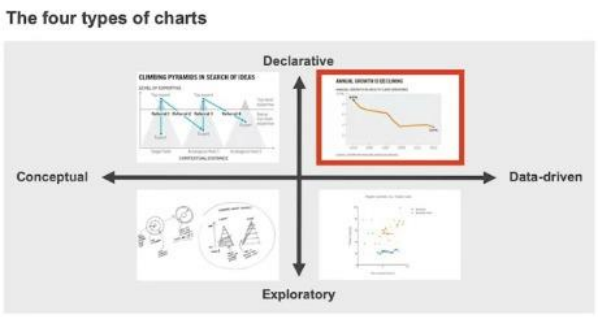
Lesson 4-0.1: Overview

Module 4. Getting your story across a number of important concepts that we're going to talk about here in this module. One of this idea of enriching content through contrast and using contrast in a way that draws our audience's attention to those elements that we want them to see and away from those distracting elements that we don't want our audience dwelling on. We'll also talk about bringing sophistication to charts through some great guidelines from Donald Wong that really applies a great deal of visual polish and takes our visual from good to great, and helps us more efficiently communicate with our audience. We will take a really pretty awful chart and improve it. So we're going to get hands-on and walk through the process of applying all of these different guidelines and frameworks that we've been talking about. Finally, we will be on our feet and present database. We have a process that will help us ensure that that's done in an impactful way that connects with our audience, and does that in a way that they will understand and we can get our meaning certainly across.

Just to root us in some of the concepts we've been talking about. We have this McCandless framework, which says, here are the four elements of good data visualization. We spent a great deal of time talking about how we collect information, build a story, identify a goal, put all those things together, and then put it into a visual form that communicates.

The problem that we ran into with that framework is that, it didn't go very deep into what good visual form was.

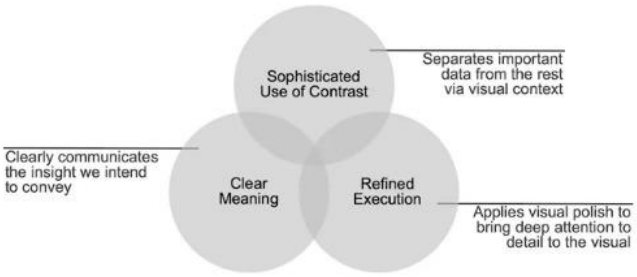
Data Storytelling Is Best Done When Charts Are Involved



Source: Adapted from Scott Berinato, "Good Charts: The HBR Guide to Making Smarter, More Per

This is important because in our process, we have been doing the visual discovery and finding the patterns in our data. We are now at a point where Berinato would call everyday database, we might call client ready database, where we want to present them with a visual that immediately communicates the insights that we've found. To do that, we need some idea of what good visual form is, and that's where this framework comes into play.

Good Visual Form Has Three Essential Elements



It's the idea of having clear meaning, the idea of featuring a sophisticated use of contrast, and then finally the idea of featuring refined execution in our visual. Talked about clear meaning

already. We're going to move into now the final two elements of this three-pronged framework, and wrap up the idea of what good database is.

Lesson 4-1: Enriching Content Through Connection

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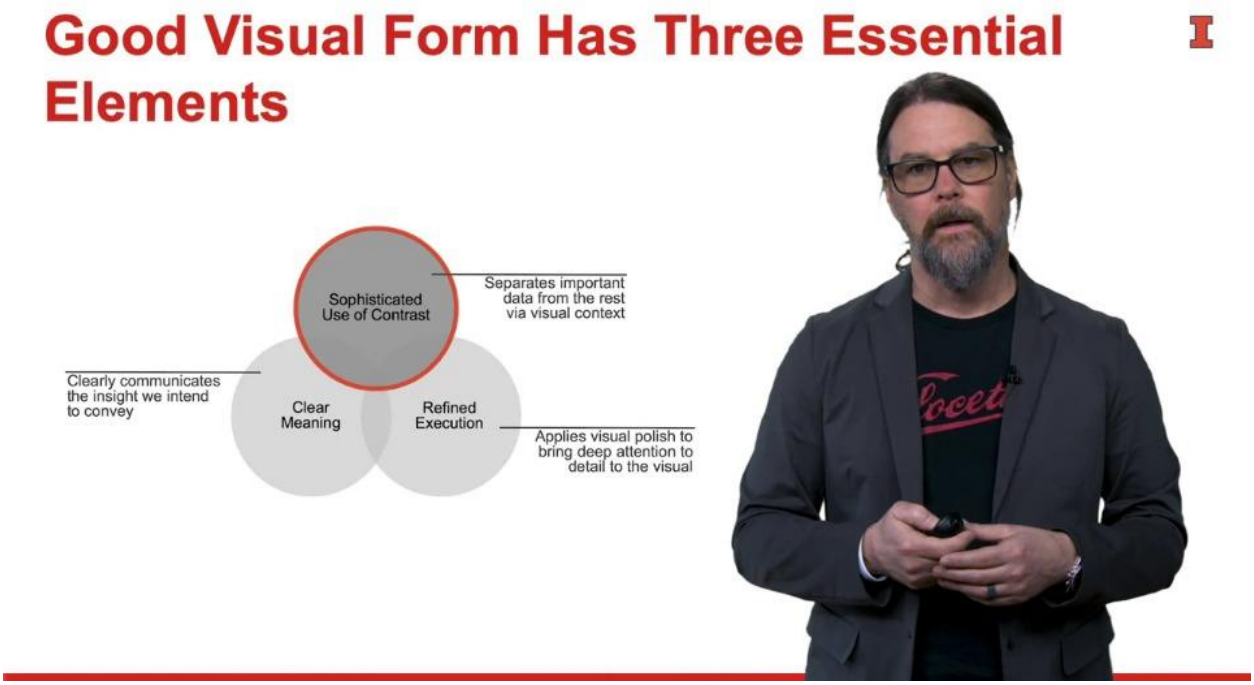
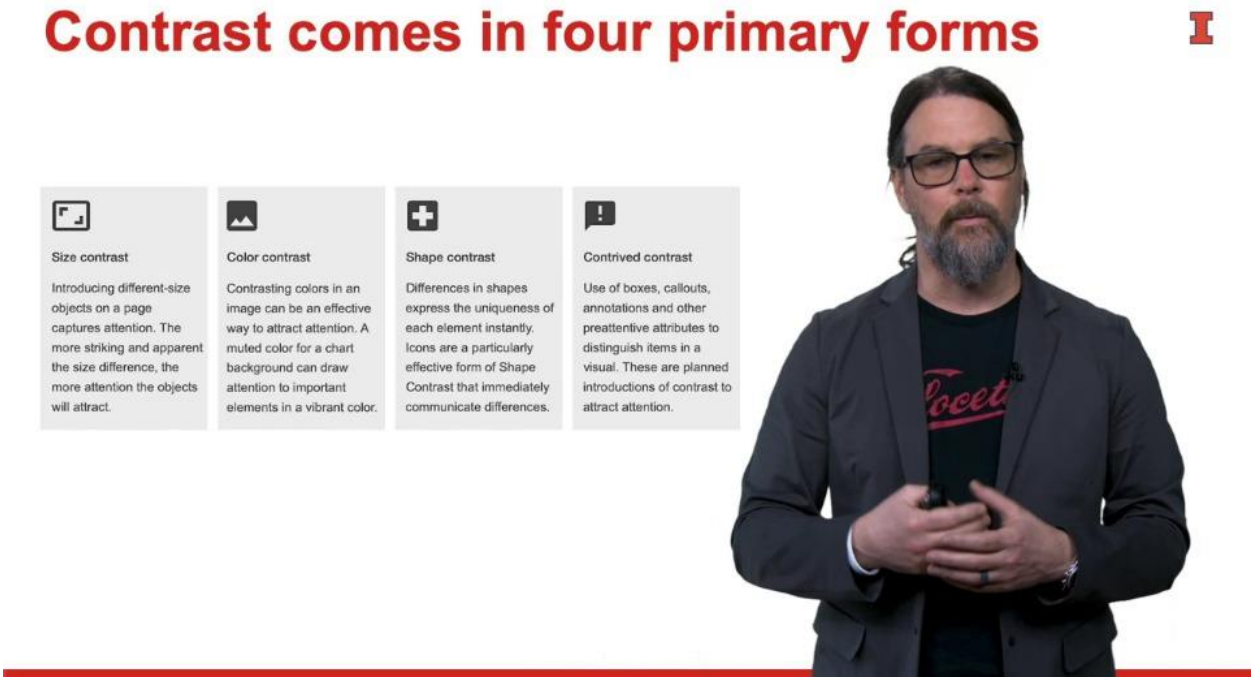
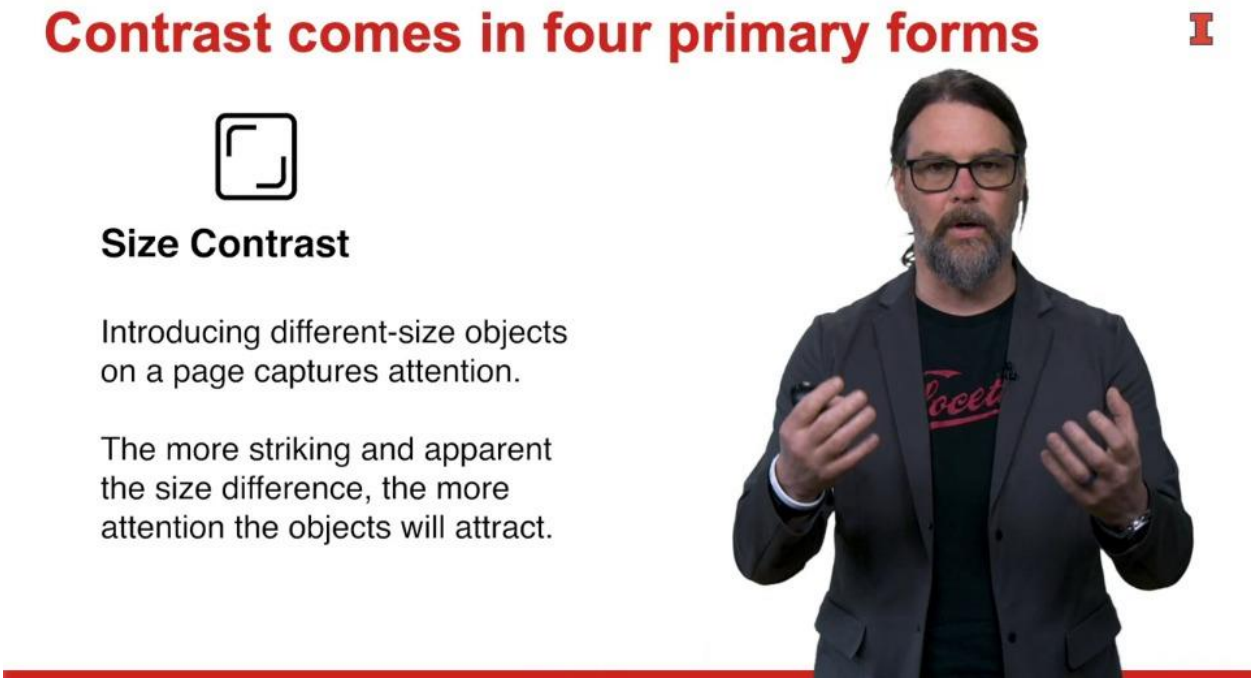
Enriching content through connection. We're going to look at ways that we can make better, more efficient, more effective connection with their audience. The key here is a sophisticated use of contrast.



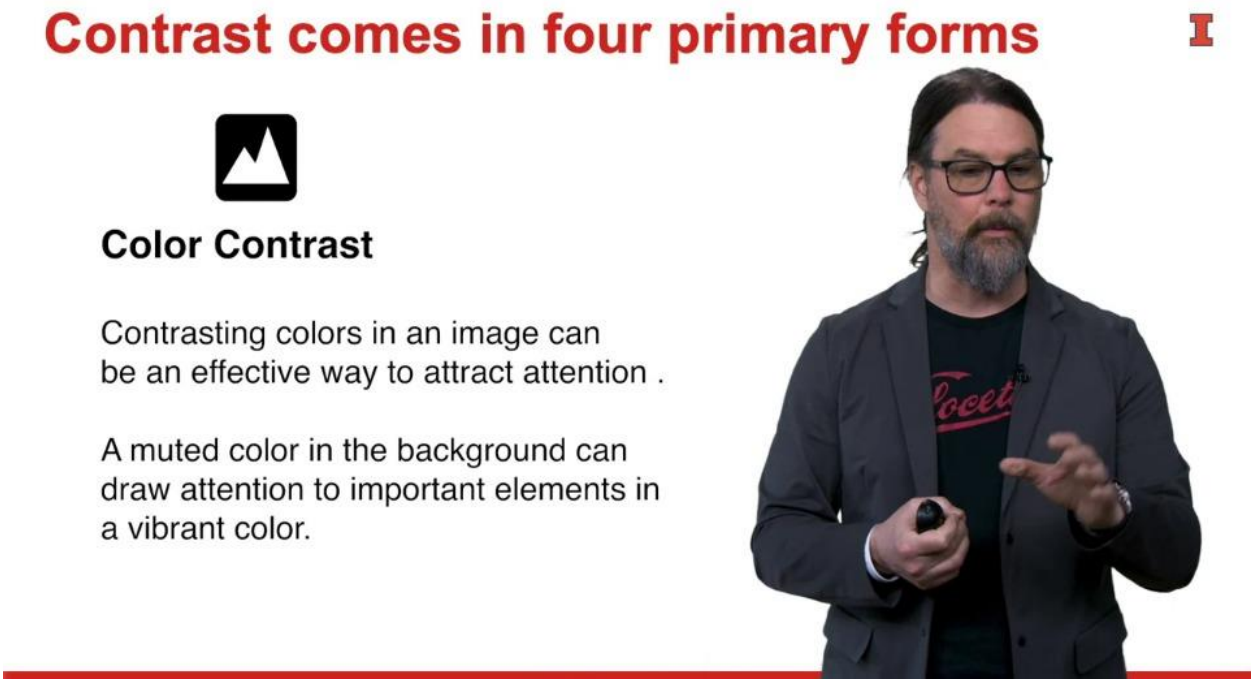
Again, we are working with a framework that helps us answer the question of what is good data visualization? We talked about clear meaning already, now we're on to the second element, this idea of sophisticated use of contrast. And contrast can be used to make quick connections with our audiences. The way our brains operate when contrast is present on a page, it is where our attention goes. Contrast can be introduced in four primary ways.



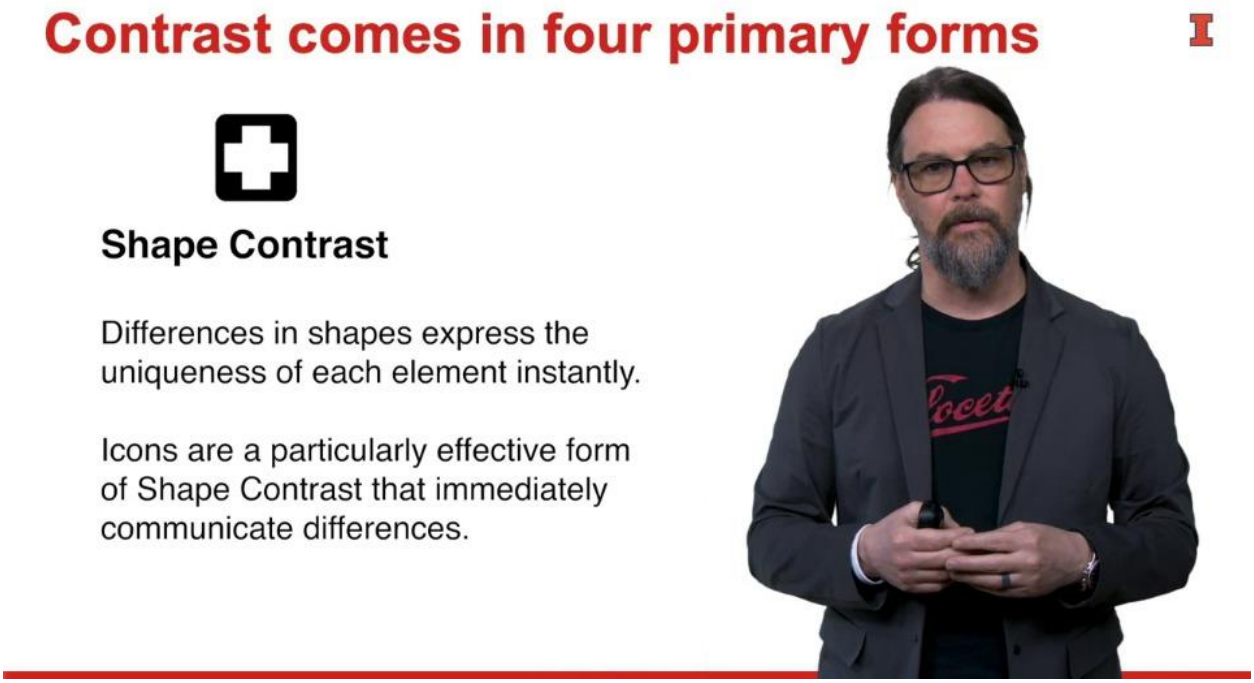
It's the idea of size contrast, color contrast, size, or shape contrast, and then what I would call contrived contrast, or sort of designed contrast size.



Contrast is pretty straightforward. It's having elements of two different size, and the difference is striking enough to attract our audience's attention.

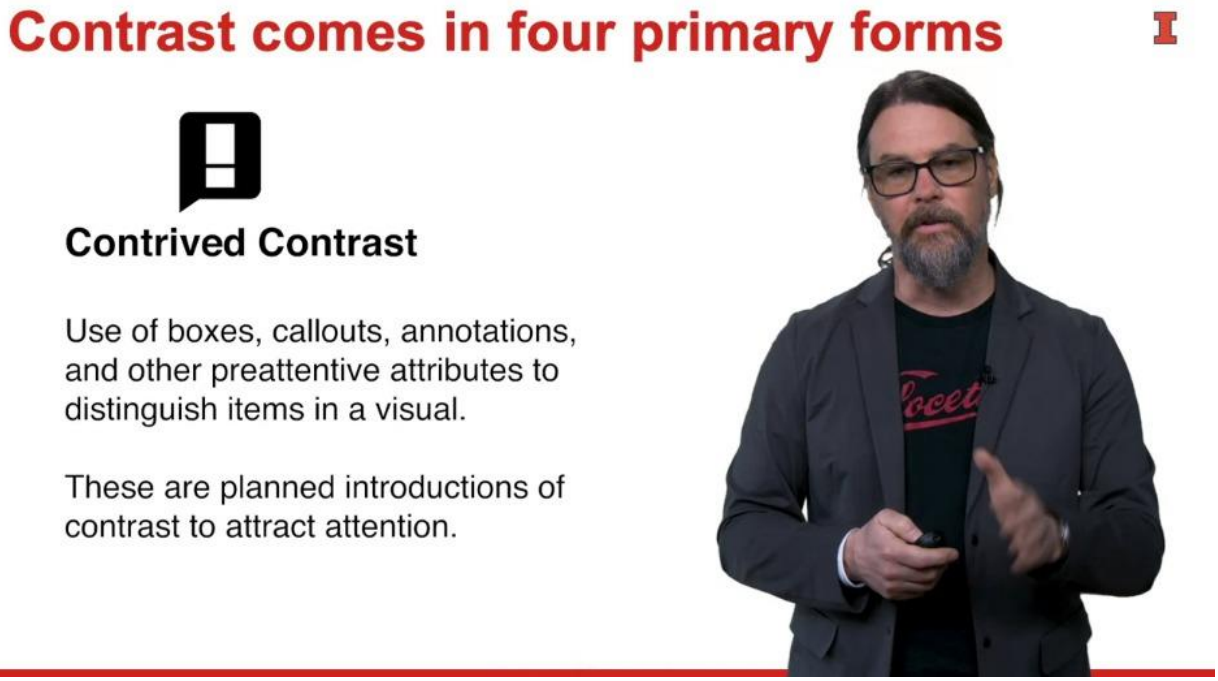


Color can be used very effectively to make elements of our chart pop. It can also be used if we're designing in a more muted color to send other elements to the background, so that our audience doesn't spend much time looking at them. And we want to do that with distracting, or the unimportant content on our page.

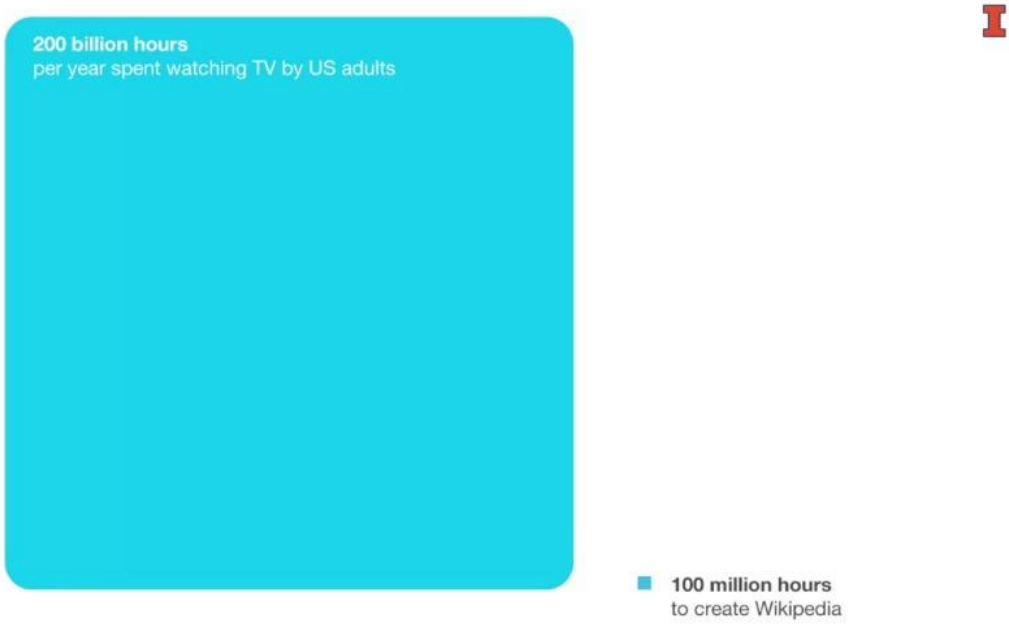


Shape contrast is another technique that will communicate meaning effectively. The best way to think of this is through iconography, right? And when an icon takes on a shape to represent

something that is different from another icon with another shape, audiences can clearly identify what the differences are there, and we can use those effectively in our presentations.



Finally is this idea of contrived contrast, and contrived contrast is planned full application of contrast. I'm talking about pre-attentive attributes like boxes, arrows, those sorts of things that we design into our chart to draw attention to certain elements that we want our audience to see. Let's look at some examples now of these types of contrast.

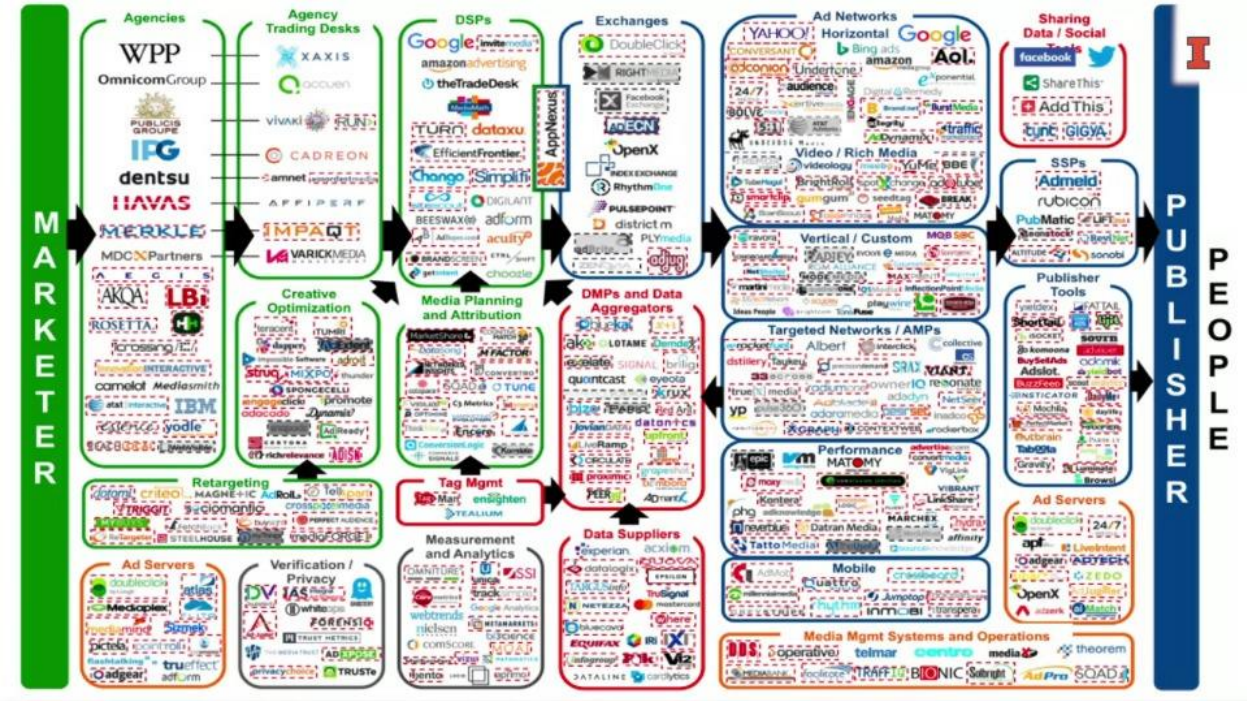


Here is a great example of size contrast. This is David McCandless's fantastic work demonstrating the difference between the amount of time US adults spend watching television

every year, 200 billion hours, to the amount of time required to create a wonderful resource like Wikipedia. The difference is startling, right? And this idea of size contrast really does communicate David's intended meaning very effectively. This is an excellent use of size contrast. Color contrast is another very obvious application of contrast, and can be used to draw our audience's attention very quickly.

If you think about a muted color, used to kind of create a sea of data, and then one bright vibrant color in an element really making that pop, that is where our audience's attention will be drawn. One word of caution here is to keep in mind that some percentage of our audience could very well suffer from color blindness. And so there are certain color combinations that are difficult for them to draw distinctions to, so we should design with that in mind. It's a large percentage of people in the world who do have this condition, and so color contrast can be a very effective way to draw attention. But we need to take elements like this idea of someone in our audience being colorblind into account, as we do that.

A third element of contrast, or application of contrast is the idea of shape contrast. And here again, icons are the best way to present this. These icons all have different meaning. The image represents some concept that I'm trying to communicate. And by changing and using the contrast of those images effectively, I can present different meanings subliminally to my audience. So that helps to reinforce messages, or to get some kind of insight across. The fourth idea is this idea that I'll call contrived contrast.



This is a pretty famous data visualization called The Lumascape from Luma, an investment bank that works in the marketing technology space. And what they've done in this famous data

visualization is categorized all the companies working in the space through their logo. Now, Luma has also applied an excellent example of contrived contrast. They place boxes around similar companies, or companies operating in the same space. And then they placed arrows around the infographic to show the flow of information, instead of a process. They didn't use any of this, that this infographic would just be a sea of icons, right? And logos, and not really present any kind of meaning. But when you build in these elements, these planful designed elements of contrast in the form here in boxes and arrows, you can introduce meaning. You can introduce differentiation, and start to build that contrast around an image that does communicate a little better.

So here are a couple things to think of, as we're talking about enriching our content, by connecting to our audience. Contrast separates the important data from that which is unimportant, right? And we can design data in a muted color to present it as a sea of unimportant data, and use vibrant color to make those things pop, for instance. There are other elements of contrast that we can apply as well. In fact, we talked about four of them. Size is a very effective technique. Color, again, effective technique shape. And then this final idea of contrived contrast as well. Each technique is effective at drawing our audience's attention to different elements. So when we are using contrast, we need to be careful that we are truly pulling out that which is important.

We should also seek to be somewhat planful and purposeful in our use of contrast. If we are using contrast on everything on a chart, nothing is going to stand out. So using this element judiciously, and where we really do want to draw our audience's attention is a very important part of this practice.

Lesson 4-2: Bringing Sophistication To Charts

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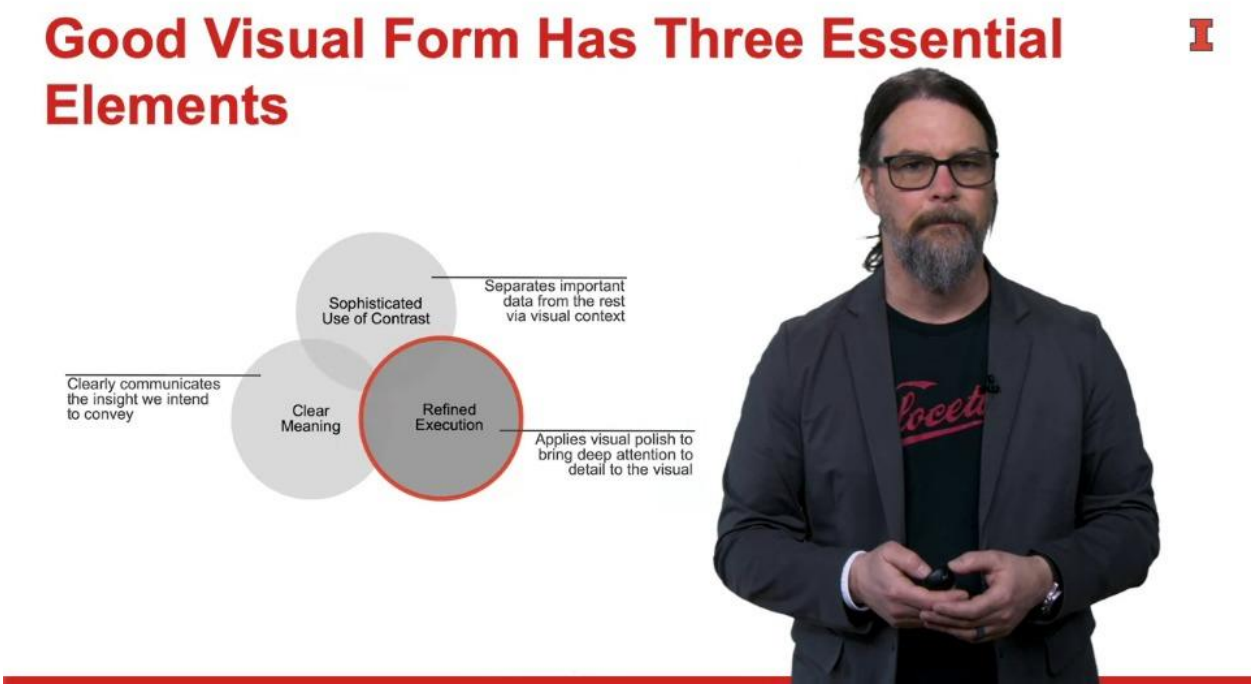
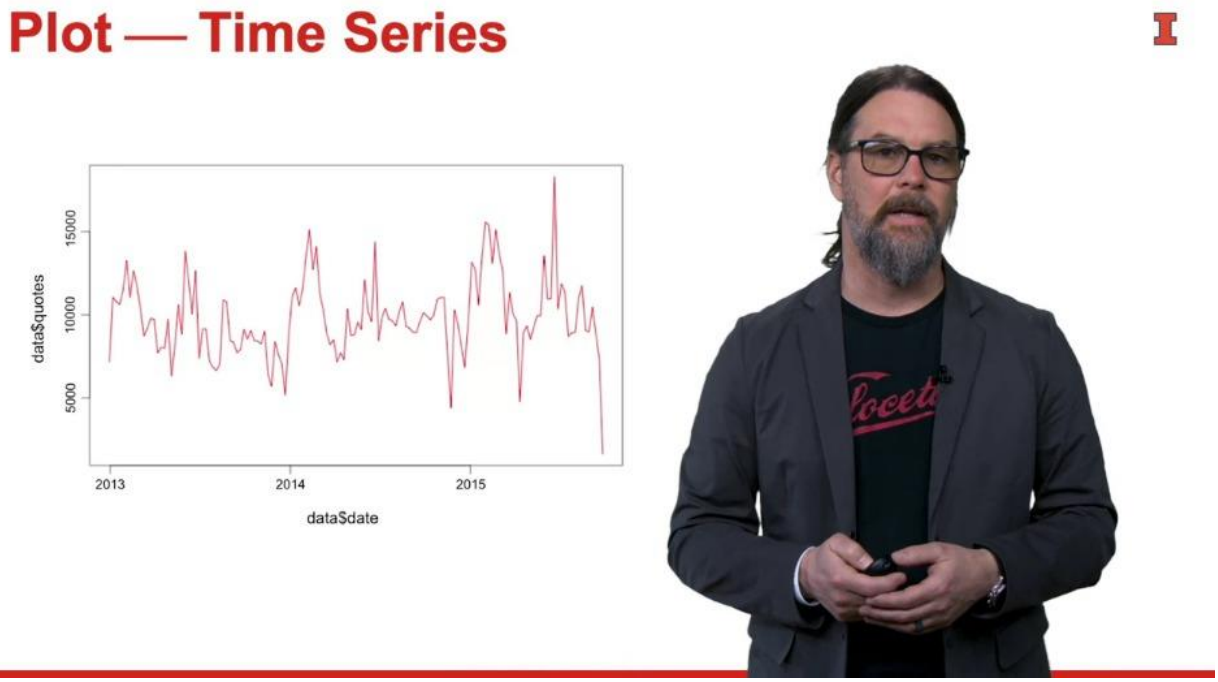
Bringing sophistication of charts we're going to talk about how the careful attention to detail will ensure database is effective and efficient and communicating our insight. We're going to really look deeper at Dona Wong's guidelines because she has put together a tremendous point of view on that sort of visual Polish in the same port.



Remembering again we are looking at the three elements of visual form that really answers for us, what does good visual form do? We have talked about clear meaning as physic ated use of contrast, we're now on to the third element, which is refined execution.



When we are building charts that are in our discovery mode and we're trying to find insights, R a fantastic tool for that. R works very quickly and efficiently chugs through tons and tons of data, and it can present those patterns that will help us find the stories. But in no way should we present a chart like the one you're seeing here that comes directly from our to clients, there's two little Polish applied. Even if the story is clear to us an audience who has not been engaged in the data collection and all the analysis that that we've done, will look at this and see nothing, see nothing but a jagged line. So we need to apply some Polish to make this as Baron Otto would call everyday database or as I'm like call client ready data visualization. And R can still be play an important role in that process, but it's typically to create visuals that look a little more like this.

So what you're looking at are cycle hire Journeys taken in London. This is when people are renting bikes from the city and using them to move across the city. The darker the line means the more travel through that route. That part of this graphic came from R, that was a simple output from R. R has the kind of power and the different packages to do that sort of really sophisticated analysis. Once that output is collected though, we then move it into a second platform, a separate program, to clean it up and add some other elements that make it a little more easy to understand. In this case we have added a map of London and place that underneath the R output of the cycle hire journeys. That now gives us context to where these journeys are actually happening before they just would have looked like a collection of squiggly lines. We've also added a subtitle, we've added a proper title. We've added some more information to this visual so that it does communicate a little more effectively.

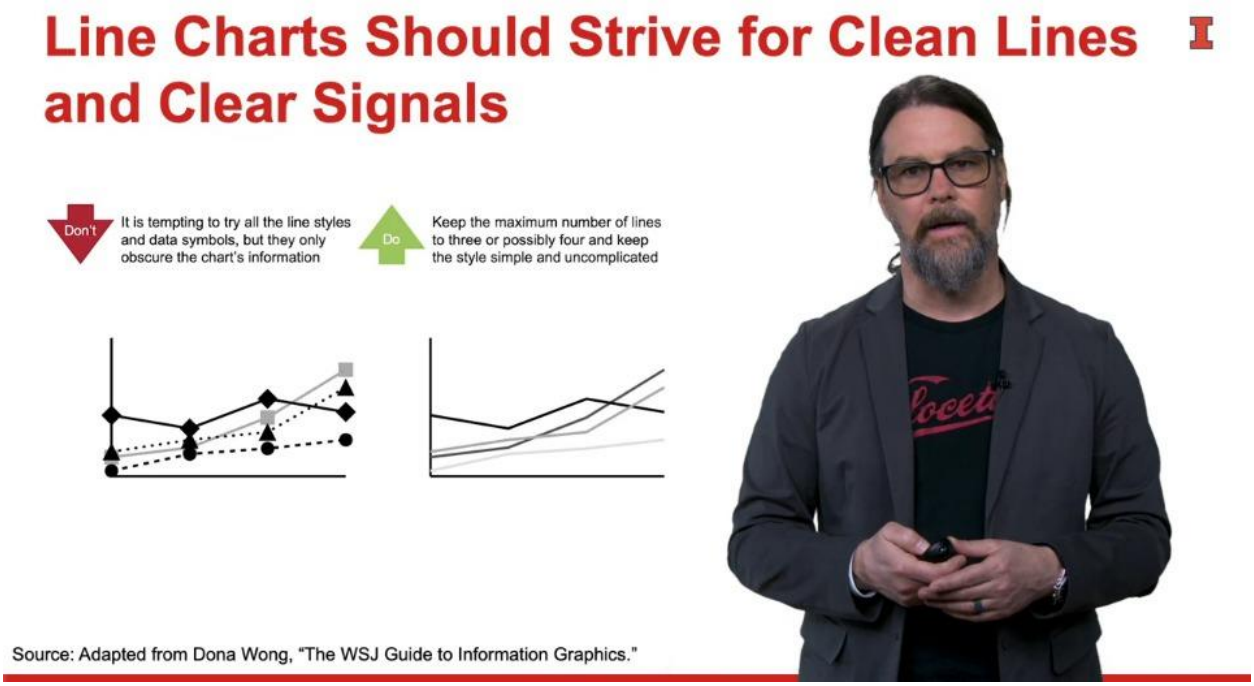
> We don't all start out writing editorials. We start by learning the alphabet
>
> — Dona Wong

These elements though are certainly things we learn over time. Look Donna Wong said it best. She said we don't start out writing editorials, we start by learning the alphabet. We should take the same approach as we think about applying some of these guidelines. Because the guidelines had Dona Wong talks about that truly do separate good visuals from great visuals are complex, there are many of them. Some of them will certainly fly right in the face of habits that you have been building for your entire career in the way that you create charts. But I'm here to tell you that if you do adopt the practices that Dona Wong talks about, you will be creating great data visuals.

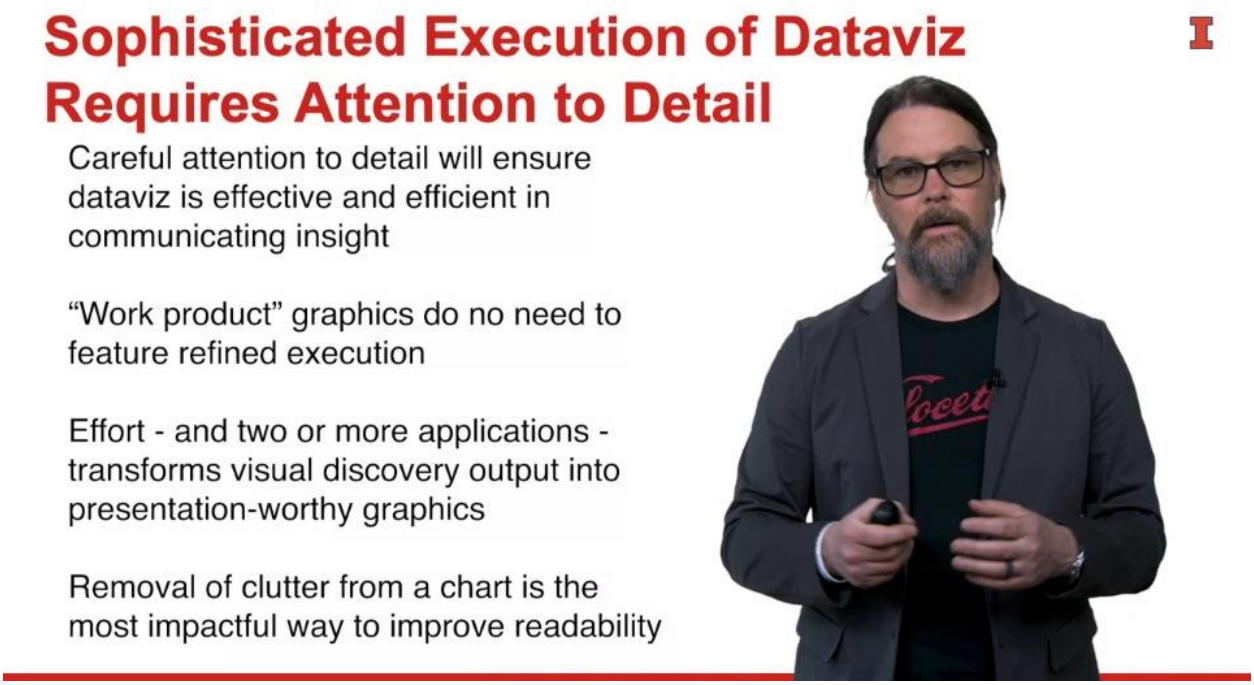
Follow a Few Basic Rules to Ensure Type Legibility in Charts

Source: Adapted from Dona Wong, "The WSJ Guide to Information Graphics."

Every single thing that Dona talks about is helping to improve the legibility of the charts we create. From the idea of font choice to the way that we present font on present text on a page. From those ideas of direct labeling that we talked about before, the idea of creating very unadorned line charts, right? Not using data markers or never ever creating a dotted line, right? Just using different elements of color to bring contrast and striving for clean lines with clear signals in our visuals.



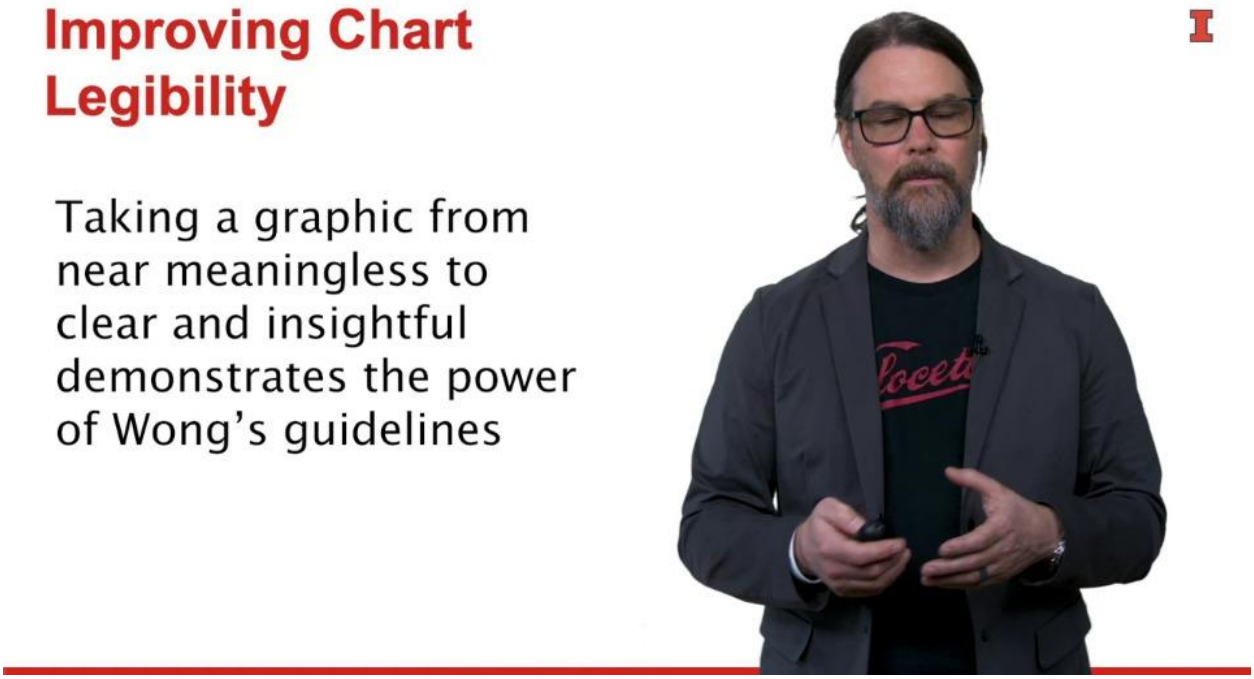
These are the things that Dona talks about. As I've said her list is long, some of it may feel a little wonky at first as you try to apply them. But the more we can build the habits that Dona talks about, the better our graphics will be. And that is the power of this refined execution in the Polish that we can place on our visuals.



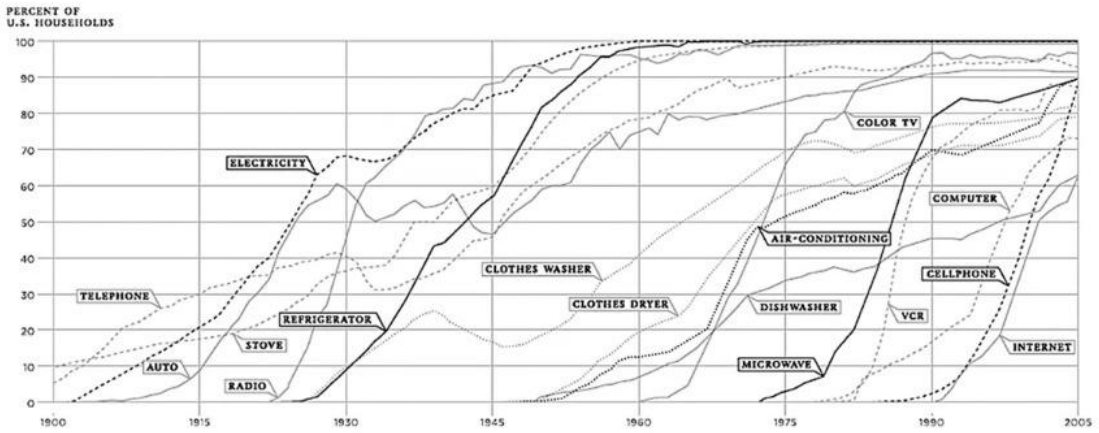
A couple of things to think about then. Sophisticated execution of Dataviz really does require great attention to detail. This careful attention to detail will ensure that our Dataviz is effective and efficient and communicating to our insight, which is exactly what we want, as we don't want our audience having to think too much about the visual that were placing in front of them. These work product graphics, these visuals that were using to just discover the the patterns in our data and really find stories, they don't have to have refined execution. Look, these things are for our our eyes only. At this point we just want to create them as quickly and efficiently as we can so that we can get to that story. After that will bring effort and often two or more applications to transform those visuals into something that is presentation worthy. What Baron Otto again would call everyday dataviz, or we would call client ready dataviz. Something that we could trot out to an audience and used to confidently indicate some kind of insight. Most importantly of the guidelines that Dona Wong has given us is this idea just removing clutter from a chart, it's the most impactful way that we can improve readability. Removing that clutter keeps elements that will distract our audience from our main point away. It helps to really center us on the few important elements of our chart that we want to communicate. And in that way clearly communicate the insights to our audience.

Lesson 4-3: Improving Chart Legibility

Lesson 4-3.1: Improving Chart Legibility

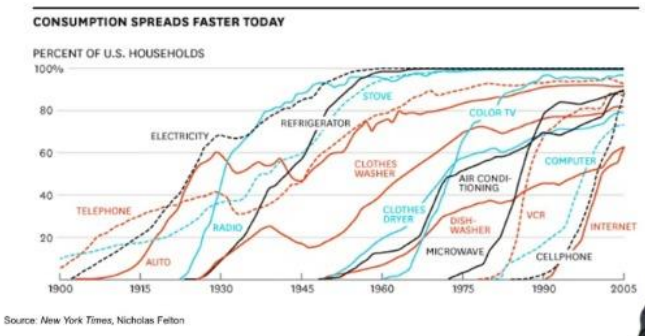


Improving Chart Legibility, and we're going to take all these great ideas that we've been talking about here in the last couple lessons, and apply them to really an awful chart and see if through the power of Wong's guidelines in the other kind of guides guidelines that we've been discussing we can improve its legibility. So, we're going to go back to our bellabeat case studying the experience there.



Source: *New York Times*, Nicholas Felton

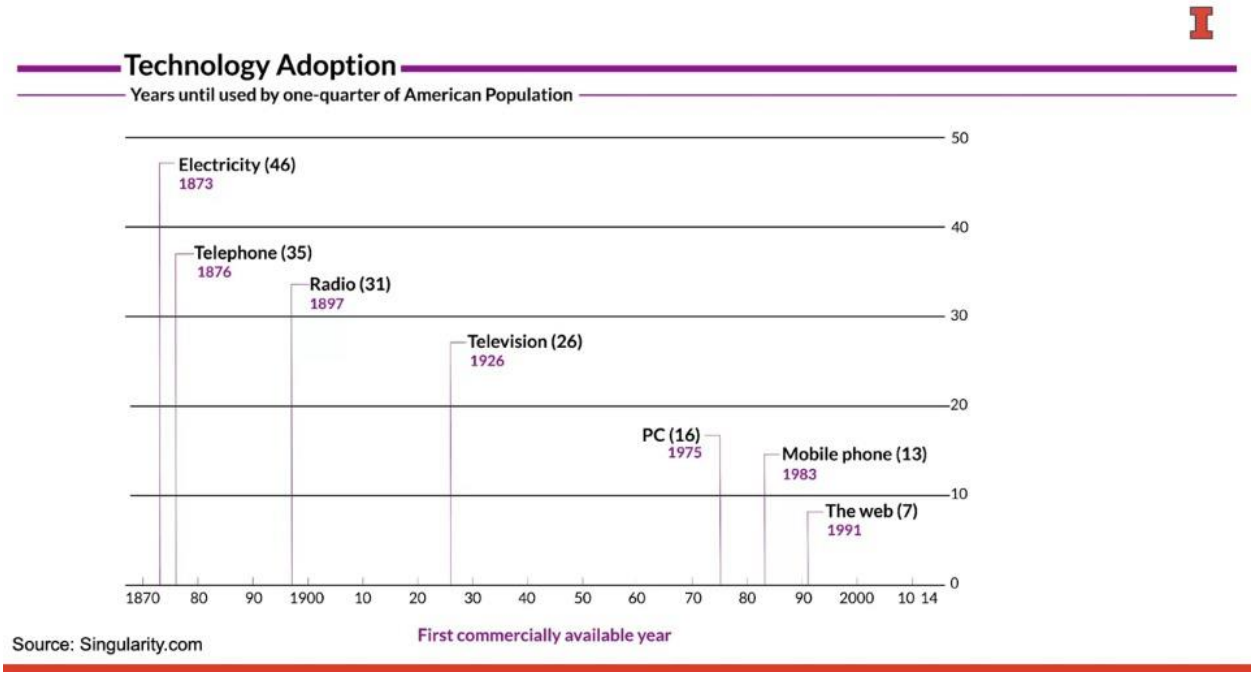
We have created a chart that is for all intents and purposes. Really ugly, right. This might be just a chart that comes out of our or Excel or some package that we've been using for analysis to help us find some kind of story now. Hopefully, after we've done that we've done a little bit of sketching right? We've drawn out some various ideas, on how we might communicate that data more effectively, and now we've started to to create them and iterate them.



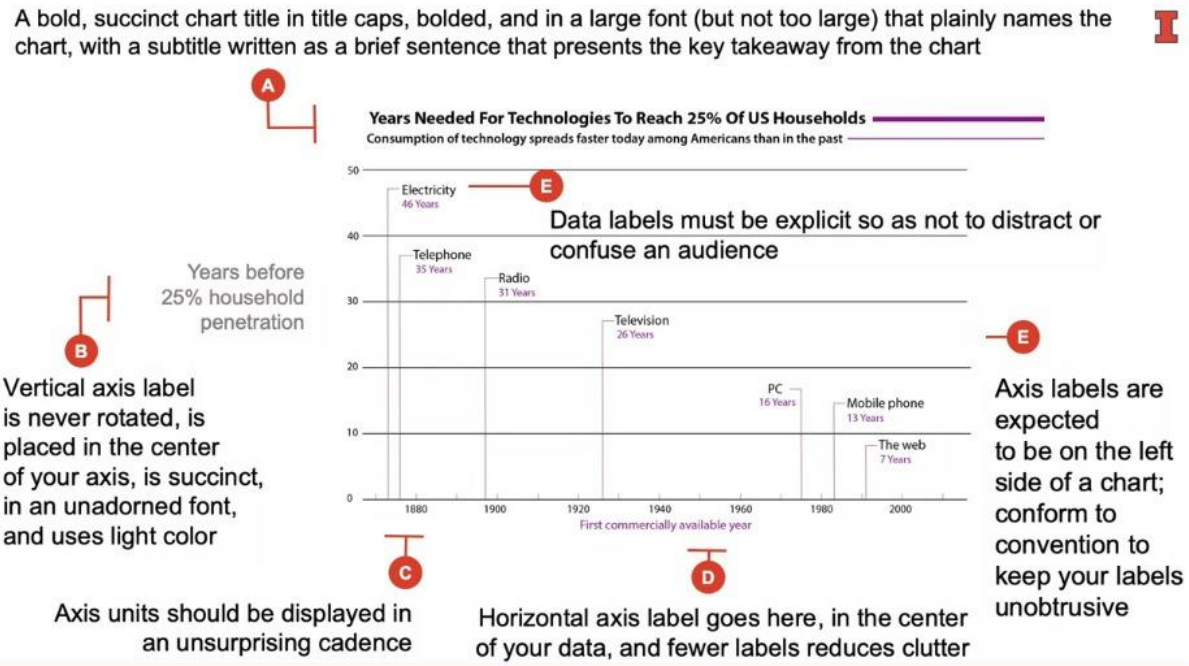
Source: New York Times, Nicholas Felton

We can start by adding important elements like a headline, right we'll get in reduce some color changes some of this stuff, would go quite a ways and improving the legibility of this chart. But,

still there's too much even in this improved form that does not conform to, what Donna Wong would want to see and this I think will really illustrate how Donna's insights can take this from a pretty good chart. That's certainly better than where we started, do something that is truly great and communicates more.



And done a number of other things kind of clean up that graphic, but still, we're probably not to the point that Donna would want to see and if we go deep into the guidelines, Donna Wong has identified. We would probably wind up with a chart that looks more like this. Let me show you kind of walk you through some of the things that we've done now to go from that chart that was really bad to something that was better to something that now truly is free of clutter and communicates much more efficiently.



We have added a headline that in plain English says to our audience. Here's what you're looking at, right? It keeps them from having to wonder about what we're seeing. It's not cute. There's no jargon up there. It's just straightforward and it answers that question in fatica. Lie. We've added a more detailed subtitle that gives away the Insight. So, now our audience knows not only what they're looking at, but they also know what they should think or at least that idea is being planted in their mind.

We have moved the axis label from the right side of the chart where it doesn't really belong over to the left side. We have printed it in a way that is horizontal the way that people write and people should expect to read and that becomes very clear. We have used axis labels in a way that sets a year Cadence, that someone would understand. This is every 20 years. No reason for us to print every single year of that axis. And as long as it's in a consistent Cadence, then it won't cause any confusion for our audience. We have also importantly then labeled what that axis is, and this does a couple things for us clearly anyone could look at this and surmise that those are years down there. But really, what we are trying to communicate is the first year that this technology became commercially available. Why not say that? Why not put that on the chart? Because otherwise, we would expect our audience to sort of divine that or we would have to explain it as such and without it being written our audience would forget it as soon as they had heard it. There are a couple tests that you can apply to really advance your data visualizations, and help you make charts that are much better that do include things like direct labeling and annotations to do, to make them much more effective.

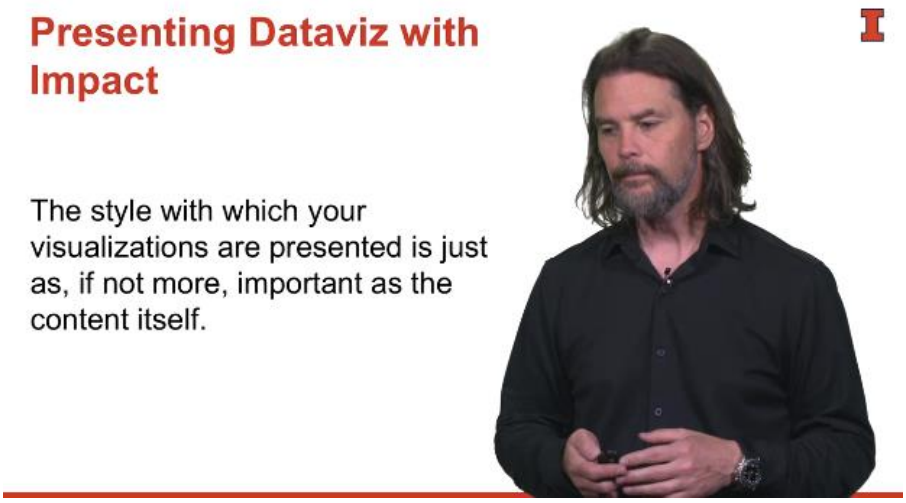
Those tests are presented here one is called the Spartan test. The the idea of the Spartan test is that, we would take every single element on our chart and start to remove them one by one and after we remove them see does my chart change in meeting. If it doesn't if that element didn't have much impact on the meaning we should leave it off entirely, and we can go through that process of interrogating every single element of our chart to make sure that we're only including things that are important and communicate some kind of meaning on the chart.

Second test is something that we call Peek test. We can print out our visual, flip it over face down on a desk for a while. Leave it there for a bit, and then flip it back and we can see where

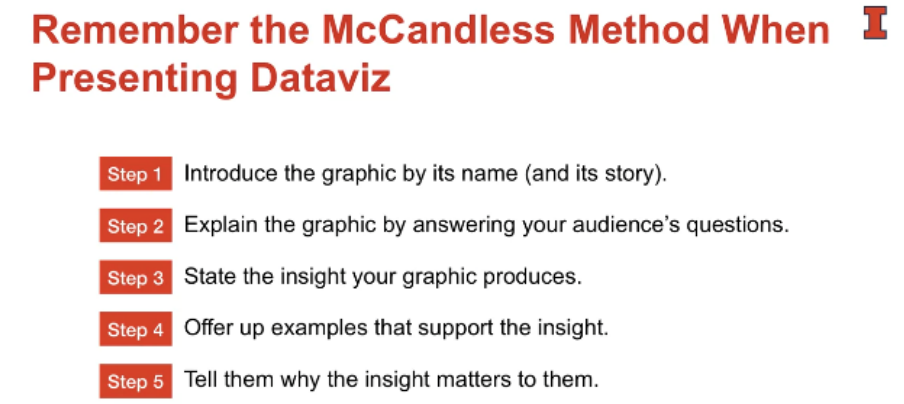
our eye is drawn and wherever our eye goes on that page, is most likely where our audiences I will be drawn. Is that where you want them to look? If not, rethink your use of contrast that draws attention. Into the elements that you really want them to see rather than where they are. If your eyes though in this peek test go to exactly where you want them to be. You're probably in a good place, the third test in probably the most important test is this idea called the colleague test. Now here, we take our visual and we walk it down the hall to someone we work with who has had no exposure to the data. We've been collecting or the It problem we've been trying to solve and we show them our visual and we asked them plainly. What does it say? Now, if that colleague who has not had the benefit of any of the background any of the context any of the understanding that we've been working in, can tell us the story that we want to hear from that visual then we're in a good place. But more often than not there are some elements that we're just not seeing because we've been too immersed in the data or we taken too much for granted. and so this test can really help us ensure, that we're not falling victim to any of those traps.

Lesson 4-4: Presenting Dataviz with Impact

Lesson 4-4.1: Presenting Dataviz with Impact



Presenting Dataviz is with Impact. We come to the final step in our communication journey. We have done all the data collection and we've identified our objective, we've stitched together our story, we have patterns that we found in our visualizations and we put all sorts of polish on them so that they are client ready. The last bit now is for us to stand on our feet and present that visualization out and communicate it effectively to our audience. There is a process that can help it's here.



Something that I call the McCandless method, named after David McCandless and the way he's presented his data visualization. There are five easy steps to this. The first step is introducing the graphic by name, giving it a story that has one, allowing your audience to focus on that graphic as the point of their attention rather than you. Second step, is to explain the graphic by answering the questions, your audience will have. Take the questions that will immediately pop into their mind, right off the table, address them proactively. You gain a lot of perspective as you present the visual more and more you'll see what kind of questions pop up and sure that those are the questions that you address immediately proactively. The third step is stating the insight

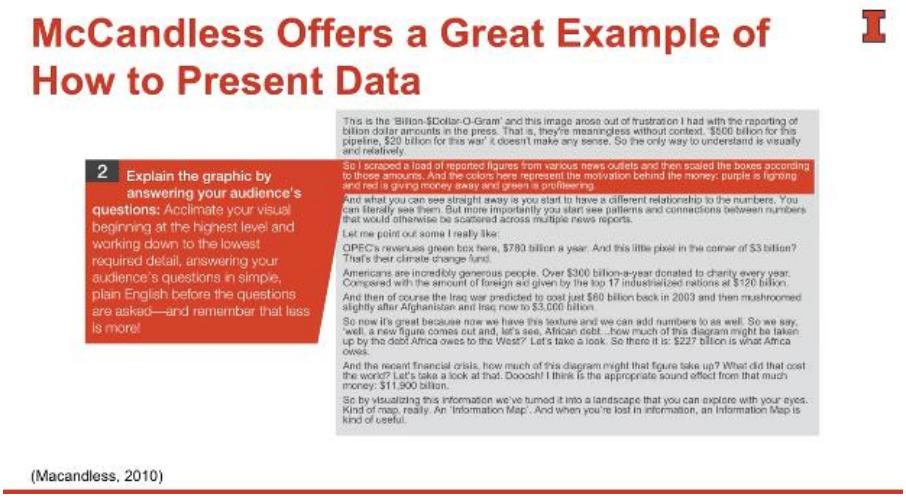
from your graphic. Give the story away, tell them what they will feel or what they will see, before you provide this substantiation. Giving that up front, then sets your audience in a mode of substantiating, looking to support the work that you're doing. You do that next by giving examples. I for the longest time, I had those two steps reversed. I would build this great story through my insights and my facts and then gave the great reveal, what I hadn't realized that I had lost much of my audience, along that story. Reverse those two. Give your insight first, then provide the substantiation. Finally, you can bring this graphic home by telling them why it's important, why it matters to them, making it much more personal for for your audience. You can see this demonstrated time and time again, by David McCandless. I think the best illustration that I saw was from a Ted talk of his where, he was presenting what he calls the billion clicker Graham, a visual that we've used a couple times or a concept in this in this course.

(Macandless, 2010)

Here's the way, McCandless did that. This is the actual narrative that he used in presenting that visual and you can see clearly each of these steps utilized effectively.

(Macandless, 2010)

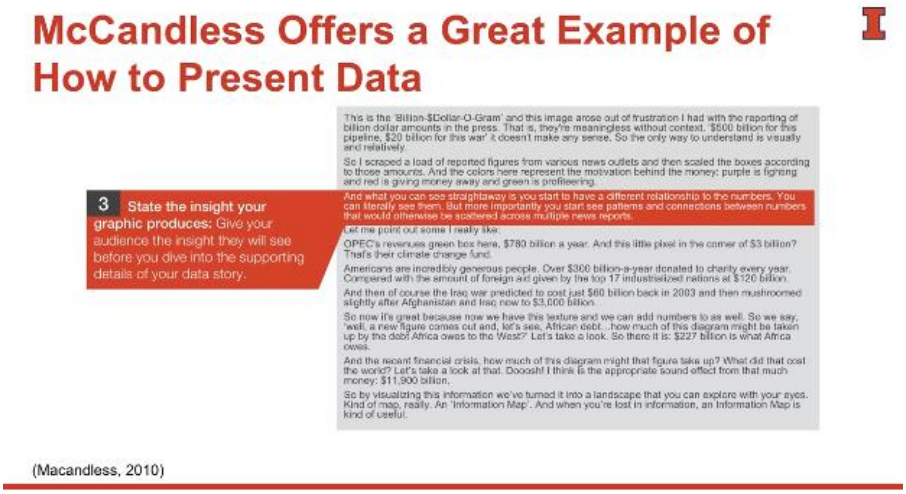
He begins by giving the graphic the name, now the audience understands what it is, it has some kind of association with the graph and now their attention is on the graphic not on David McCandless.



(Macandless, 2010)

He next goes in and gives away where he got the data source from, the data from, what the different colors mean, what the different sizes mean, we know that in our understanding of pre-attentive attributes, these are things that are going to jump right off the screen at the audience. Give them the answer to what those changes are. If you start into your story when your audience still has questions, they will not be there with you, they will be thinking about the questions that they're hoping to get answered. Ensure that your audience stays with you by answering those questions right away.

He begins by giving the graphic the name, now the audience understands what it is, it has some kind of association with the graph and now their attention is on the graphic not on David McCandless.



(Macandless, 2010)

The next thing that McCandless does is he gives away the insight. He says, "This is why I am showing this to you. This is what you will see in the data." Right. He has now established for them in their minds, a statement of fact that they want to substantiate, it's human nature for them now to seek justification for that.

McCandless Offers a Great Example of How to Present Data

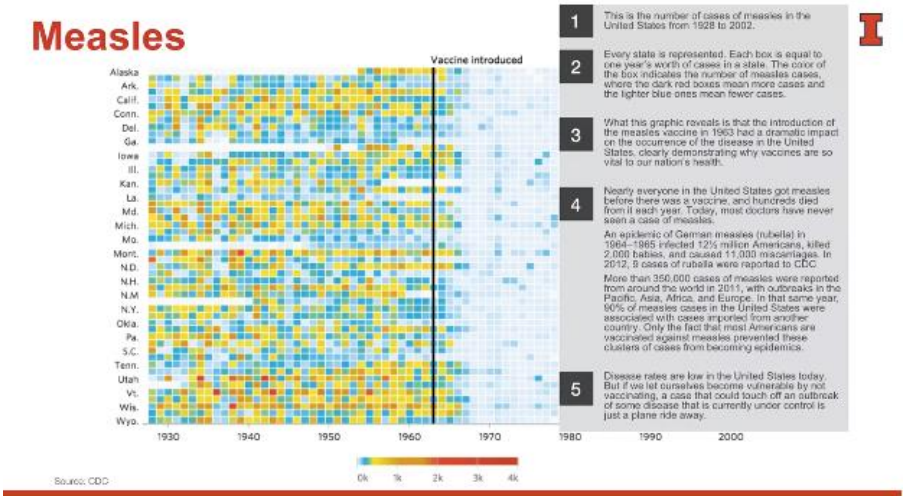
(Macandless, 2010)

He then goes into a couple of examples that clearly illustrate and substantiate that insight. Now, if he had flipped these again, he could've told a masterful story but the audience either would have gotten lost on where he was going or might have not understood how everything related together. By giving the insight first and then following with substantiation, you've done that in a way that your audience will better receive.

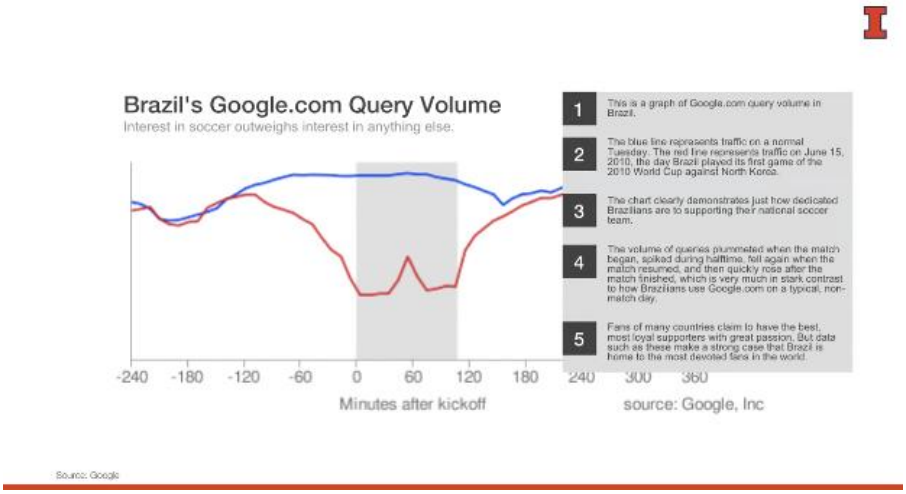
McCandless Offers a Great Example of How to Present Data

(Macandless, 2010)

Finally, McCandless takes this graphic and makes it much more personal for them, tells them why this is important to them, bringing the whole thing to a close.



You can do this method on any graphic at all. Here's a graphic that I showed earlier, this is the way that I would use the five-step process to explain it. This is the number of cases of measles in the United States from 1928 to 2002. Now, you as the audience know what this is. Right? Go in and answer the questions. What does the color mean? These are things that you would be interested in knowing, because that's going to pop right off the screen for you. Then, I tell you what it says, then I go in and show you cases that substantiate that before finally talking about why this is important.



Another graphic that I showed earlier in the class, as well. Here's how you would apply that in the five-step process. This is a graph of google.com query volume in Brazil. You now know what this is, I take away the questions. What does the blue line mean? What does the red line mean? What does the gray mean? Right. These are things that you know your audience will want to know. Take those away. Give them insight, follow-up with examples and close the presentation by saying, "This is why this is important or what this means to you."

Remember the McCandless Method When Presenting Dataviz

Step 1 Introduce the graphic by its name (and its story).

Step 2 Explain the graphic by answering your audience's questions.

Step 3 State the insight your graphic produces.

Step 4 Offer up examples that support the insight.

Step 5 Tell them why the insight matters to them.

Those five steps will really help you take a graphic and ensure your audience understands it. It would be such a shame to put so much effort into the polish and visual, that we are creating in the story that we want to tell and then lose your audience in those last five yards. Right? Ensure that they are with you, that they understand what you're communicating by following this McCandless method when you are presenting your graphics.

Ensure the Impact of Your Dataviz Through Careful Presentation

The style with which you present your dataviz can have just as much impact as the graphic itself

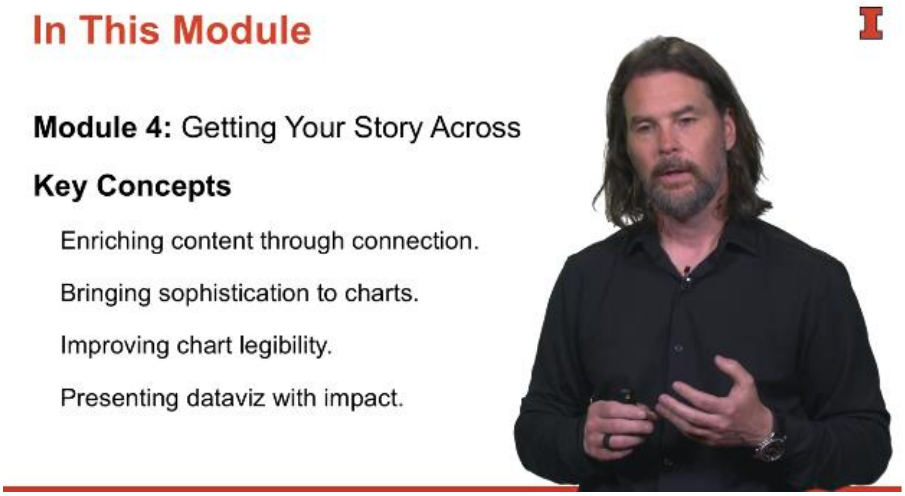
Questions in your audience's mind distract from your presentation—eliminate them before they are asked

Insights should precede substantiating facts—eliminate tension from your story, as drama can distract

Five-step McCandless Method helps ensure your dataviz is presented the right way

It's important for us understand that this style, the way that we do stand on our feet and present these visuals, that last five yards of our communication journey are very important. We run the risk of losing our audience and losing all the work that we've done to that point, if we can't do this effectively. The questions that will pop into our audiences' minds when they see our visual, will serve to distract them or keep them from us, as we're moving through the narrative. Ensure that you take those questions off the table and particularly off their minds by giving them the answers right away. The insight should precede this substantiating facts. Give the inside away, tell them this is what you will feel, here are the reasons why and build the case afterwards, not the other way around. Don't feel like you need to lead your audience through this story that, there's a great reveal for dramatic sake. You run the risk of losing them and that is a very real and great risk. Finally, this McCandless method is a five-step approach. Well, ensure that you are presenting data is the right way, build that into your practice, build that habit. Do on graphics, that you see all over the place. If you can do it on a graphic, that you're not so close to

and haven't been working on, then you can clearly apply this method and clearly communicate to work that is your own that you have put effort into.



So in this module, we've talked about a lot of things. We've talked about how we can ensure enrich content through emotional connection. We talked about the need to bring sophistication to our charts and how we do that. We talked about improving legibility by great attention to detail as Wong is introduced. Finally, here at the end, that final step in our communication journey, we have displayed the right way, the five-step McCandless method in presenting and communicating verbally data visualization.