Visualization as a Reporting Tool

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Some reporters think of graphics as a separate step in the reporting process – something to be considered after the story is largely written and the rest of the art is complete. But reporting with graphics can help throughout the story. The bonus is that it will make the ending art much easier to compile and fact check.

Early Visual Exploration

Timelines, maps and "small multiples" of many similar graphics can help put your story in perspective early on and highlight subjects, programs or regions to use as examples for further reporting. The process will also point out holes or errors in your early reporting much more efficiently than staring at numbers buried in text.

Some things to keep in mind during this early exploration:

- Don't obsess over precision in the figures in these early graphics. They should be generally correct, but don't worry if you have various levels of rounding for every number, if they don't add up to exactly 100% or if you are missing one year out of 20. This is part of the exploration process – you'll still see the big trends and you'll know where you need to get more data for any final graphic you want to publish.

- Look at the pictures in many different ways, including those that some people call cheating. For example, you don't care that your news organization bans charts that don't start at zero. If it helps you see patterns, use it. Some other techniques include: Omitting scales and the labels on graphics, leaving only the general impression. Or look at figures in their raw form, as a percent of total or per capita arate, as a change or percent change or in logarithms or square roots. Each provides a different view and each can be just as illuminating as the other. You might look at geographic data by county, town, zip code or using polygons or points. You get a different impression each time.

- Use small multiples. Repeating the same image over and over on the same page or screen becomes easy to read very quickly – once you learn to read one, you've learned to read them all. This is advocated by Edward Tufte, who also came up with a variation on it that he calls sparklines: 

  Without much text, small mutliples can be very small – say, an inch tall by maybe three inches wide. (William Cleveland's experiments showed that the eye perceives change best when a graph's line segments – or the implied ones between bars -- average a slope of 45 degrees. It means that many charts will be most effective when they are shorter and wider than we usually make them.)

- Go through the entire history of your subject and begin making a document that has all of the key events. At some point, you will find a dataset that you can use as a background to this chronology. Figure out how far back you want to go. You will collect many more items than you can possibly use in a chronology, but it will help you figure out what you don't know. You will also be able to put any significant

events into context.

- Create chronologies of any significant case studies. I often do these on paper rather than by computer. I use different colors for different types of events, like convictions vs. crimes or contributions vs. lobbying. They make the writing process much easier.

- Meet with your graphics department to brainstorm about graphics you will likely want to use in the newspaper or online. It is much easier to report them out at the same as you report the story than it is to start over once you've written a draft. It also gives your artists more time to work on making them an interesting addition to the package rather than a last-minute add-on.

Interactive explorations

The difficulty of building interactive explorations stops many reporters from trying them. But interactive maps, timelines and their combinations can be among the most effective ways to visualize the story and find the best examples.

Some tools for developing interactive are:

http://manyeyes.alphaworks.ibm.com provides templates for many common visualizations, including simple maps, networks and treemaps. They are good for categorizations. The data can be copied and pasted from a spreadsheet. Like other simple tools, there is no way to drill back into very many details. But if you have many categories of information, it is a quick way to summarize the data. It also has some rudimentary text visualizations, including word clouds and text maps.

http://www.simile-widgets.org/exhibit/ is a project of MIT that lets you put together maps, timelines and details. It's a little difficult to understand and there isn't much documentation on it, but you can create some interesting visualizations. I've not used the maps, but the timelines are pretty interesting – it's something that is really difficult to do in other software.

http://code.google.com/apis/chart/types.html Google Maps, Google Charts and Google Analytics have programmable graphics that you can put on web pages. Unlike Google Maps, the charts can be used completely internally. (Google maps requires a public-facing website.) One type is a sparkline.

Lastly, if you have some programming skill, consider learning Actionscript for Flash – it's very similar to Javascript, and it does allow for some of the most sophisticated interactives that your graphics department can then take and turn into a publishable interactive online. It's not really any more difficult than any other language. Your newsroom probably already has several licenses for the very expensive development suite for your online and graphics department.