

Communicating visually: How compelling graphic design transforms data into understanding

Has the computer replaced the drafting table? Few would argue otherwise although design fundamentals remain the same and successful design means blending time-tested principles with ever-changing technology.

At the intersection of art and science, graphic designers must implement visual solutions to illustrate complex data. Despite versatile software and the use of templates, this task remains a challenge.

How good design helps rather than hinders understanding

In his seminal work on the subject, *The Visual Display of Quantitative Information* (Graphics Press, 1983), Edward R. Tufte writes about the origins and use of graphs and data graphics.

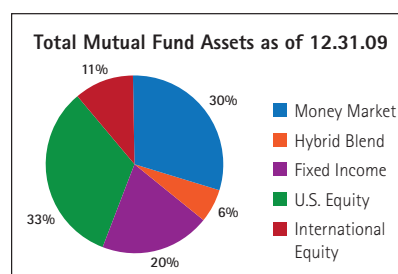
Among his legacies, Tufte uses the colorful term "chartjunk", which he describes as "conventional graphical paraphernalia ... over-busy grid lines and excess ticks, redundant representation of the simplest data, the debris of computer plotting and many of the devices generating design variation."

Here are four simple illustrations; charts our colleagues create every day for PowerPoint presentations, websites, sales literature, you name it. Edward Tufte would say that only one of these would pass muster. Can you guess which one?

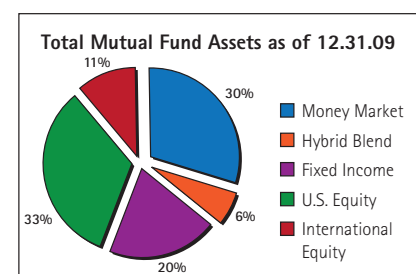
A GOOD SKETCH IS BETTER THAN A LONG SPEECH

That phrase, attributed to Napoleon, is akin to our own cliché, a picture is worth a thousand words. The idea behind the American adage is thought to have originated from a translation of a Chinese proverb.

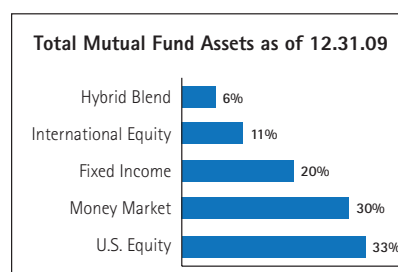
a. TWO DIMENSIONAL CHART



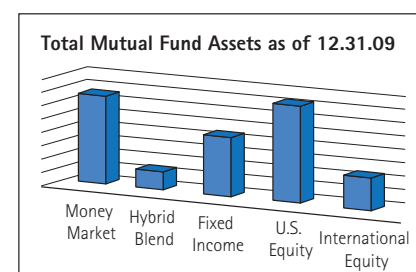
B. THREE DIMENSIONAL EXPLODED CHART



c. THE CLASSIC BAR CHART



d. THE 3-D BAR CHART



Tufte's fundamental rule of good graphical design is to minimize the ratio of ink to data. Based on his ink-to-data ratio, the classic bar chart would be chosen as the simplest way to portray the information. Further, Tufte would suggest that all extraneous lines and ink serve no purpose and, worse, make it more difficult to read and understand. He would admonish those wanting to dabble with doughnuts and shadows, colors and cones, bubble charts and all the other distortions offered by various software programs. The point is that graphic design is both art and science. When executed well, graphical information can communicate with greater efficiency, clarity and meaning than text alone.

What do the experts think?

To get a perspective on how design can transform data into understanding, we spent some time with Priscilla Blanchot, Creative Director; and Deb Hommer, Senior Designer, for Asset Communications, Inc. Priscilla and Deb are veteran designers, each having nearly two decades of design experience.

What tools does a professional designer have that "weekend warriors" lack?

A professional designer brings a trained eye and comprehensive experience, Priscilla explains. "Many young designers can think creatively, and this is important, but what matters most is to be able to think critically with an understanding of the client's goals." When working on an assignment, Priscilla wants to know as much information as possible: Who is the audience? How is the piece going to be used? What is our budget? What objectives are we trying to meet? She asks to review all current branding guidelines in order to gain an understanding of that firm's visual personality. After all that knowledge is understood, expertise comes from knowing how to maximize the use of current technology and emphasize key messages with visual elements.

Priscilla and Deb offer the following observations:

- Our knowledge of how color impacts the viewer along with an understanding of what colors work best together are learned skills, acquired over many years.
- The software tools we use distinguish our work from that of the amateur. We can take a simple, flat chart and expand on it to create a visually dynamic piece, using features not available in most applications.
- Sometimes technology can work to the detriment of design. Just because you can press a button and render your image in 3-D doesn't mean it will increase meaning and impact. Experienced designers have a sixth-sense for minimizing distraction in order to promote a powerful message.
- Perhaps our greatest contribution is a highly developed sense and passion for the visual arts. It's not something that can be learned in school, rather, it is a gift. This unique trait gives us the ability to think beyond the predictable to solve visual problems. So, for example, when creating a chart, the introduction of photography or an illustration may convey a concept that will provide more interest and draw the reader into the piece.
- The computer is simply a tool; it cannot design for you. You need a plan before you get started on the computer – technology simply helps you execute that plan and bring the idea to life.

Graphic design is like art, in that all the elements need to flow together to create a unified and cohesive piece — each balancing out the other and becoming a "trail" for the eye to follow. It is like science, in that these elements (copy, photography, charts, white space) are arranged in such a way as to truly facilitate understanding.

Deb Hommer, Senior Designer —
Asset Communications

What's wrong with this picture?

When asked about some of the biggest chart/graph eyesores she has had to work with in the financial sector, Priscilla doesn't hesitate to say, "The problem is today's computers are equipped with all sorts of fun tools that give amateurs the illusion that they are designing something creative. That is not always the case."

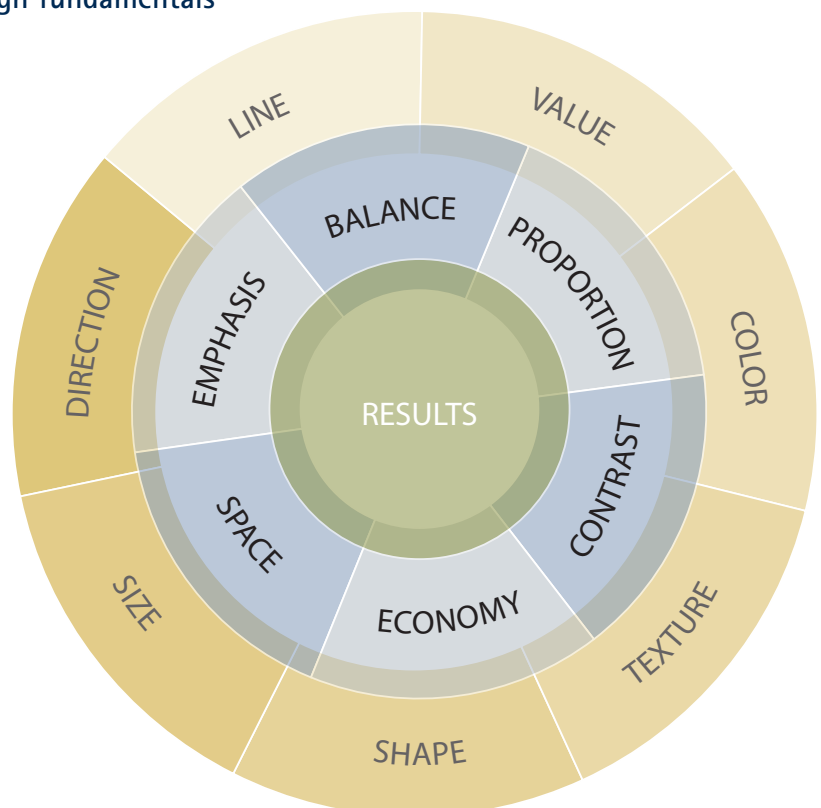
According to Deb & Priscilla, here are some of the biggest design blunders that make quantitative information hard to digest:

"Designers are the intermediaries between information and understanding," Priscilla says. "In school we were taught to think about a project conceptually and to sketch it out before we were ever allowed to get on the computer. I still follow that discipline."

Priscilla Blanchot, Creative Director —
Asset Communications

- The most common elements that distract readers are heavy graph and plot lines; colors that are either too bold or that don't combine well with others; poor font choices; and too much text.
- A lot of what we see in pitch books, sales presentations and even printed collateral is very mainstream; poor imitations based on mediocre templates. More thought should be given to how these illustrations reflect (or don't) on a company's brand. Remember: a visual statement is a powerful way to express who/what you are.
- Another mistake with charts is the lack of key information or a clear point. As a viewer, it's easy to forget data that may come as second nature to the author. You (the author), know the returns are in percentages or that the numbers presented are in millions of dollars; but if the information isn't spelled out, your meaning is lost.
- The best chart designs are those that can stand alone visually without lengthy explanations. For the professional designer, it's critical he or she understand the data, but also the key point of the chart and how best to convey and simplify the information.

Design fundamentals



CREATING EFFECTIVE INFORMATION GRAPHICS

Graphics that help viewers think about substance should follow Tufte's principles:

- *Show the data*
- *Maximize the datalink ratio (remove non-data information and reduce redundant data information)*
- *Avoid perceptual junk (moiré patterns, grids, outlines)*
- *Make elements multi-functioning (e.g., labels and grid lines should be data-dependent)*
- *Maximize data shown (show more data)*
- *Increase data density by shrinking the area used for the graphic*
- *Use multiple instances of graphics to facilitate visual comparisons*
- *Use words, numbers and graphics together*
- *Provide a narrative quality*
- *Use words in full with standard orientation*
- *Avoid legends by placing labels directly on graphic*
- *Use color carefully (to highlight most important information and separate different classes; also, avoid common color blindness combinations)*
- *Separate different classes of information into layers (e.g., figure-ground: data foreground against structural background)*

So what makes a good chart?

Once again, Deb and Priscilla offer the following guidelines:

- An effective quantitative chart should draw you into the content and, very quickly, give an understanding of what is being conveyed.
- Information should be laid out simply and attractively, and should never be over-designed.
- Graphs are meant to be understood at a glance. If the content is complex, we may recommend it be broken into smaller bits. There's nothing wrong with letting pictures tell more of a story. Overlaying too much information can become confusing. Mixing styles can further complicate things for the viewer beyond his or her interest to investigate.

Think outside the chart: Tackling quantitative content

Priscilla says she often thinks of herself as a visual psychologist. "Our clients come to us with visual problems to solve. I spend most of my time listening, asking questions and processing the client's feedback. That's the way I work. Of course there is the whole issue of subjectivity; a good designer has to adapt to the client's style and solve the problem for him or her within that context." Deb agrees that good client communications make all the difference. "I think effectual design takes and organizes complex information into an easy-to-understand piece. I also have to understand my audience. I like to form a mental picture of the end user. For example, is the reader new to the product or idea? If so, then simplicity and a visually pleasing design is the goal. If the audience is using the piece to sell, then a design that organizes the facts quickly is best."

A special offer for Asset Communications clients and friends

If you have a chart or graph that needs a makeover, why not hand it off to Asset Communications? We're offering a special summer discount on updates of all charts and graphs – even if we didn't design the original.

But wait! There's more. Be the first person to engage our designers in a chart makeover, and we'll send you a copy of *The Wall Street Journal Guide to Information Graphics: The Dos and Don'ts of Presenting Data, Facts, and Figures*, by Dona M. Wong (W. W. Norton & Company, 2010). The author is the former graphics director for *The Wall Street Journal*, where she established the graphics standard for the newspaper, making visual sense of complex data for readers. She completed an MFA degree at Yale University, where, coincidentally, she studied under Edward Tufte.

For more information, contact your Asset Communications account executive, or email us at cshiebler@assetcommunications.com.

Want to learn more about the subject?

Check out these links for more insights about information design:

- www.informationisbeautiful.net
- www.edwardtufte.com
- www.junkcharts.typepad.com
- www.wmueller.com/design/graphic1.html

¹ <http://www.phrases.org.uk/meanings/a-picture-is-worth-a-thousand-words.html>

² Tufte, *The Visual Display of Quantitative Information* (p. 107)

³ Strunk, William Jr., and E.B. White, *The Elements of Style*, 3rd Edition (MacMillan publishing, 1979), p. 23.