INTRODUCTION TO GRAPHIC PRESENTATIONS

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I. ABSTRACT

This paper contains introductory suggestions for graphic materials used to support both tutorial and technical presentations. All of us have heard the Chinese proverb, "A picture is worth a thousand words." There is a less familiar proverb, "The tongue can paint what the eye cannot see." If that seems inconsistent, consider this: the most successful presentations use visual aids, but sometimes so do the most boring.

This paper explains how important visuals are to a presentation, and the effects of not using any visuals or using the wrong ones. Also discussed are: text, tabular, bar, 3D and pie charts, as well as color psychology.

II. INTRODUCTION

This paper has been designed as a working guideline for all who are concerned with the clear presentation and interpretation of statistical data in graphic form. As a performance analyst, my job centers around analyzing data and conveying my findings to others. The techniques I use are usually verbal descriptions of text, tabular, and graphic. Each of these techniques is useful where appropriate. Verbal descriptions can explain, interpret, and express conclusions. Tables present exact information in a concise manner to allow flexible comparisons. Pictures are powerful ways to communicate comparisons and relationships. Increasingly, in data processing and business in general, graphics are being used in management level presentations and reporting systems.

It is hoped that this paper will provide some helpful suggestions for the solutions of many graphic presentation problems.

Forty years ago the directions for emergency airline procedures, found in the seat pockets of planes, were 90 percent words and 10 percent pictures. Today they're 95 percent pictures. Why? Research showed that with pictures the passenger could very easily understand the message and remember it longer. I assume you want the same for your presentations.

Visuals sensationally increase retention. It's estimated that we remember only about 10 percent of what we hear. Visual reinforcement of a message pushes the retention rate well over 50 percent.

Probably the most important thing to keep in mind when preparing graphic presentations is to KEEP IT SIMPLE!!

The content of your visuals should be simple and uncluttered, with each visual addressing a single topic directly and concisely. The style of your visuals should also be simple. Remember: SIMPLICITY = IMPACT!!

III. BACKGROUND

The origin of statistical charting techniques, as we think of them today, dates back to 1786, when William Playfair published his famous work entitled "The Commercial and Political Atlas." Playfair not only devised a new and creative technique for analyzing and portraying data, but also delineated the charts themselves in such expert fashion as to compare favorably with the highest standards of modern graphic presentation. Playfair's contributions include various forms of the rectilinear coordinate graph, areal circle graph, pie diagram, and bar chart.

IV. BASIC PRINCIPLES

A good presentation can be ruined if you use bad visuals, or if the visuals aren't ready when you need them. Here are seven rules to follow in choosing good visuals:

A. Make them readable. You control readability by the size of lettering. The rule is: Make your lettering no less than three percent of the height of the visual.

B. Keep word charts very brief. When you first show a visual with words, the audience will read and not listen. Only when they finish reading will their attention return. If you have been speaking while they were reading, they will have missed part of your presentation. With fewer words, the slides will not control the speech. You will.

C. Use colors only to support your presentation. A presentation is not an art contest. Pretty, multi-color pie charts and bar graphs usually make it harder for the audience to understand the speaker's main points, because they are distracted by the artistry.

D. Select an appropriate chart format. A chart by itself can make one of your key points memorable, can be a place holder, or at worst, can cause an audience to disbelieve what you are saying.

E. Select content carefully. An eight-point checklist that can help you decide how a visual should be used follows:

1. Does this visual help my presentation objective?
2. Is there good continuity between this visual and the previous one?
3. Does this visual focus attention on one main idea, and is that idea clear?
4. Does this visual add to my audience's knowledge of the subject?
5. Have I taken out all unneeded components without ruining the one main thought in the visual?
6. Have I presented the information on the visual in the most effective manner?
7. Are the titles legible and short enough to be read in the time they will be shown?
8. Does a commentary add anything to this visual, or does it take away?

F. Tell the truth with your charts. You are expected to use visuals that emphasize key points. But some speakers go beyond that and use graphic techniques to mislead an audience.

So AVOID the following tricks:

- A vertical scale that does not start at zero, as a trick to overemphasize variation.
- Data with a logarithmic axis in order to hide variation.
- Expanding two-dimensional figures (pictograms) that imply more variation than is present.
- A vertical scale that changes in the middle of a chart to confuse, overemphasize or hide data.
G. Don't skimp on quality. When you show a visual, you are displaying a sample of your work. Audiences will evaluate your presentation by how professional your visuals look. Hand-drawn charts, typewriter slides, and hand smudges draw the audience's attention away from major points.

V. COLOR

A. USE OF COLOR

The use of color can be a double-edged sword. If you have access to color graphics, color can be used to avoid the Moiré effect caused by hatching. Whereas, the nonessential use of color can make a praise-worthy graphic unclear. That doesn't mean you should avoid color entirely. Audiences pay more attention to color graphics than to those in black-and-white. When used effectively, color is an extremely powerful tool. Experience has shown that the best color schemes are based on three or four carefully selected colors used consistently throughout the presentation.

Special care needs to be made with graphics using a dark background, such as when you are attempting to simulate the appearance of a color graphics terminal. Among the worst colors to use for text are the dark colors, like a deep red or blue, which do not project well. Instead use the light pastels to be sure that the picture can be read. Since one male in eight has some degree of color blindness, the colors green and red should be avoided for important contrasts in the graphics themselves.

B. COLOR PSYCHOLOGY

Most colors can be characterized as falling into three main categories: warm (red, orange, and yellow), cool (blue, green, and cyan), and neutral (black, white, gray, and some browns). Warm colors are generally thought of as being exciting, vibrant, and seem to influence the viewer. Cool colors, on the other hand, are seen as calm and tranquil, and seem to diminish. Neutrals have no such general characteristics but may prompt a range of responses depending on their use and combination with other colors.

In addition to these general characteristics, many colors have gotten specific inferences. For instance, red is sometimes associated with negatives, like stop lights, danger warnings, and negative financial figures; and green is often related to money and growth. Our disciplined responses to colors are constantly developing, being influenced by current styles, fashions, and our environment. One factor that needs special attention by the business presenter is the role of "corporate colors." In spite of any rules to the contrary, you can expect that an audience will respond positively to the primary colors in their logo and other elements of their corporate identity.

C. CONTRAST

In order to be readable, there must be strong light-dark contrast between the background color and text colors. Using two colors of the same value (lightness or darkness) can be very hard to read, and may even be invisible to someone who is color blind.

A white (or light-colored) background with black (or dark-colored) text is easiest to read on a printed page. Just the opposite is true when your image is projected. Visuals that are projected require special attention when choosing colors.

In a darkened room, the eye is attracted to the brightest area of a projected image. So, if your text is light on a dark background, your audience will be drawn to, and concentrate on, your message. Besides, too much bright, projected light, such as a light background, is glaring, stressful, and uncomfortable to look at.

Of course, the maximum contrast is between black and white. Therefore, this is the best combination to use in a bad viewing situation. But this extreme contrast is often not required and is usually too harsh and boring. Adding color to the background and text will soften the effect and add interest, in addition to allowing you to use the large demonstrative impact of color to your advantage.

D. CHOOSING COLORS

Ideally, you will select three colors to use when creating visuals: the background color, text color, and highlight color. In addition, you may want a separate color for heads; and one to use to subdue necessary, but less important, items like footnotes, column or axis labels.

Typically, the most important item in a visual has the most "important" color. "Important" colors are those with the highest intensity and the greatest contrast with the background. Yellow is often the most "important" color, since it is both a bright vivid color, and light enough to contrast strongly with a dark background. A dark, rich blue or red would serve the same purpose on a light background.

The second level of color "importance" is usually one that will offer a like-level of contrast with the background, but be less of a brilliant color.

VI. VISUALS

A. TEXT

Text visuals are the most widely used, and misused, form of visuals. They can announce topics, reinforce major topics, enumerate significant facts, explain statistics, present supporting information, or present a table of data. However, they should NOT restate, sentence by sentence, everything you say.

- Good text visuals are SIMPLE!! Keep them short and concise. Try not to use more than 25 words or 5 lines. Effective highway signs use only 5 words (remember Burma-Shave?).

- Reword your thoughts, using the same general terminology throughout your presentation.

- Use phrases instead of complete sentences

B. TABULAR

Tabular visuals are text and numeric information arranged in columns and rows and are used to present financial data. They are often very detailed. Putting so much copy on a single visual will make the type very small and difficult to read. A better technique is to make several smaller tables, each addressing an individual topic. Try not to exceed six to eight lines by three columns. You can include the full table in a handout for reference, if necessary.

C. CHARTS AND GRAPHS

Charts and graphs are wonderful presentation tools. They instantly illustrate relationships, or trends and patterns that can remain buried in tables of numbers. As with text visuals, charts and graphs perform best when they are kept simple.

Don't try to illustrate all the complex inter-relationships of your data in a single graph. Isolate one signifi-
cants trend, series of data, or relationship at a time and produce a graph that will make it crystal clear to your audience.

1. Bar charts
   Bar charts are used to compare magnitude or size, to emphasize differences between related items, or to illustrate the relationship between variables. Simple bar charts compare two variables, typically the performance of one item over a period of time (e.g., percent CPU utilization by month).

2. Three-Dimensional Bar graphs
   3D effects can add style and the illusion of depth to a bar chart. But use discretion, 3D can sometimes make an already complex graph look too busy, hampering its potency.

3. Line graphs
   Line graphs indicate continuous data and are best suited to showing trends rather than exact values. They can illustrate a long series of data, interpolate and extrapolate. Multiple lines (separate variables) can be plotted and compared.

4. Pie charts
   Pie charts show parts of the whole, and are used to illustrate percentages. An individual segment can be separated from the rest of the pie for emphasis.

VII. CONCLUSION

In summary, visuals are so important in selling to a group that I hope you will review these main points:

- A presentation without visuals must be brief, persuasively organized, and delivered with plenty of enthusiasm.
- Word/number visuals dull the senses, dilute main ideas, and are quickly forgotten.
- Pictorial visuals emphasize major ideas and help listeners retain key information.
- Data are for handouts; ideas are for presentations.