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Live and Learn

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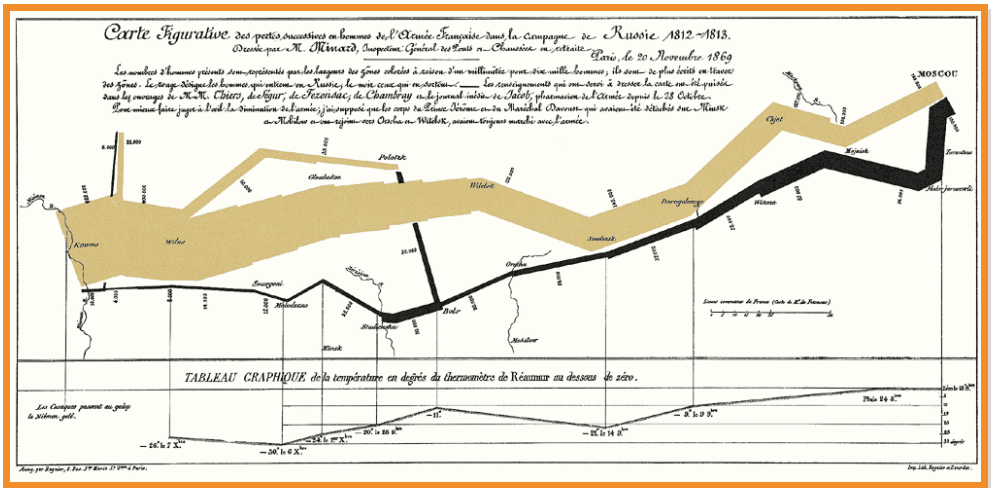
Presenting Data Visually… *Our Way, Your Way, the Tufte Way*

By Mae Prestera
Instructional Designer

Recently, several members of the eP team attended a one-day seminar presented by Edward Tufte, titled *Presenting Data and Information*. The *New York Times* has called Tufte "the Leonardo da Vinci of data." Dr. Tufte, Professor Emeritus at Yale University, has authored seven books on information and visual design, including 'The Visual Display of Quantitative Information', which Amazon called "One of the 100 greatest non-fiction books of the 20th century."

At his seminar, Tufte shared best practices for presenting visuals effectively. More often than not, we tend to rely on words, rather than pictures, to tell a story or to relay a message. As you read through this partial list, consider this. How many of these practices do you currently follow? Or perhaps more importantly, how can you make your training more visual and engaging?

Compare, compare, compare – Whenever presenting information, always show comparisons. For instance, when demonstrating an example of good performance, compare it with an example of bad performance. To reinforce this point,



Charles Minard's map of Napoleon's march to Russia in 1812.

The tan bar represents the army's march toward Moscow, beginning in June, with 422,000 men. The black line represents the army's retreat in September, beginning with 100,000 men and ending with only 10,000.

Tufte shared a copy of Charles Minard's famous map of Napoleon's march to Moscow. Using the width of the colored bars, this map compares the size of the army when it began its march (in tan) to its size upon retreat (in black). In your training, consider how you might use comparisons. For example, you might present a sample report filled out correctly, next to one that is completed incorrectly.

Show Complexity – We have a tendency to over-simplify information. Tufte recommends using visuals to show three or more dimensions of data. Minard's map not only depicts the army's size, it shows the army's location and direction as well as the declining temperature (see horizontal axis). Without relying on words, Minard succinctly demonstrated the horrific losses suffered.

Show Causality – Your visuals should tell a story of cause and effect. With Minard's map, one can readily understand just what happened to Napoleon's army, when, and why. The effects of the declining temperatures

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In This Issue:

Designer's Toolbox:
The Michalak and Yager Task Analysis Method

By Alicia Pfaff
Instructional Designer

Colleagues and clients often ask us how we analyze jobs. In this issue, I'll describe the Michalak and Yager task analysis method as well as a process and tool for applying it.

Michalak and Yager's (1979) book, *Making the Training Process Work*, describes in practical terms a method that involves identifying the major tasks comprising the worker's job. For each task, you identify the subtasks, tools, conditions, skills, and knowledge required.

The Process

The process for conducting the task analysis involves a series of meetings. Initially, you and your subject matter experts (SMEs) will brainstorm, but then you will shift towards refining and validating the tasks and fleshing out

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Design Tips

WebQuests

A WebQuest is an inquiry-based learning strategy. Instead of reading rote materials, learners receive assignments, explore the resources available on the web, and then complete the assignment.

Most, or all of the information used by learners during a WebQuest is drawn from the Internet or an organization's intranet.

WebQuests make good use of the learner's time. The focus is on the learner using information rather than just reading it and trying to memorize it.

When designed well, WebQuests also encourage the learner to analyze, synthesize, evaluate, solve problems, make decisions… in other words, it encourages them to think.

The WebQuest model was formally developed in 1995 at San Diego State University by Bernie Dodge with Tom March, and described in *Some Thoughts About WebQuests*.

For more information about WebQuests, visit http://webquest.sdsu.edu/.

Tale From the Trenches:
It's All About Context, *Grasshopper*

By Gus Prestera
Instructional Designer

Stacie Comolli is an effectPerformance Instructional Designer working on a sales training course for one of our financial services clients. The client asked us to redesign a suite of online sales training courses, because as he succinctly put it: "The courses are @#$@#!" In other words, one could say that the current courses did not engage learners with relevant content or provide meaningful opportunities for practice and feedback.

Stacie's dilemma: *How do you make content relevant and meaningful?*

"It's all about the context, grasshopper," I told her, "go out and learn what it's like to be salesperson in this organization."

With that, Stacie scheduled visits to a sales office as well as meetings with sales people, sales trainers, sales managers, and regional managers. She met with salespeople and observed them in their natural habitat, like an anthropologist studying the Bushmen of the Kalahari.

When Stacie met with her SMEs, she peppered them with requests for information. "Can you give me real life examples of that best practice you just mentioned? What's an example of a bad closing statement? Do you have an example of that confirmation letter that I could use? Could we write a script together of what a salesperson would say in this situation?"

You get the picture. Stacie was as persistent as a beaver in a petrified forest. Time and again, they would claim to be too busy to provide her what she needed, but she dug her heels in and reminded them that in order to make the course better, we needed better content from them. When guilt didn't work, she bribed them with sweets and positive reinforcement. If that didn't work, she just kept hounding them with calls and emails. However, she did it in a way that they didn't mind. You'll need to ask her how she is able to do that, because I haven't figured it out yet.

After many weeks of prodding and coddling, Stacie got what she needed. The course was dripping with context. Examples, non-examples, scenario-based exercises, mini-cases, and job aids containing tools as well as sample scripts and letters. She even included *Dis-guy* anecdotes. (I call them that because her SMEs often start them off with "This guy I knew one time….")

As you might imagine, the client and the SMEs were all very impressed when they saw the course. The SMEs even started calling her "Holy Comolli," because in their eyes, she walked on water. The

She met with salespeople and observed them in their natural habitat, like an anthropologist studying the Bushmen of the Kalahari.

course contained content that was relevant to the salespeople in this organization; relevant to the challenges they face; and relevant to the tactics that their top performers employ. It's all about the context, grasshopper.

It was easy for me to ask Stacie to go out and get the context. It's easy for all of us to talk about making courses more relevant and more meaningful. However, the truth is that it's tough work to gather the contextual details needed to build good courses. Thankfully, Stacie is more determined than most of us.

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and the difficult terrain resulted in tremendous losses. If you are going to show your learners a report that is completed incorrectly, tell them how the inaccurate information affects the rest of the organization.

Completely Integrate the Words, Numbers, and Images – Keep all critical data together to maximize its effectiveness. For example, in a recent task analysis document, we organized all of the information related to a task (e.g., steps, best practices, tips) on one page. This enabled the subject matter experts to review each task as a discrete unit without having to flip pages. It also helped them to easily verify that all the relevant information was captured. Ask yourself, how much impact would Minard's map have, if it were on three pages?

Document Everything and Tell People About It – All the information you present comes from somewhere. Give your learners the background, the statistics, and the lessons learned. This lends greater credibility to the training, and helps transform it from being merely words on paper. Learners should always be skeptical of a presenter who can't back up what they are saying. Minard's map provides a great amount of detail to support what happened.

The Content and Nothing but the Content – A deep knowledge of the content and a passion for that content are critical to the success or failure of any training. Investing the time to understand your content at a deep level, whether through interviews, observations, or focus groups, will make your training as relevant and meaningful as possible. Remember… good design cannot fix bad content. Minard created his map to depict the futility of war… it was an anti-war poster. His passion for the subject is clearly evident in his attention to detail, and makes the map all the more compelling.

For Mass Consumption – A learner's ability to consume and understand the data is almost as important as the content and design itself. Any charts, graphics, or other visuals that you use should be easily understood. The less time a learner spends trying to figure out what a graph *says*, the more they spend figuring out what it *means*. Tufte's tips to make this "encoding" process easier include:

- Use small, multiple comparison charts
- Make analysis and comparisons adjacent in space so learners don't need to flip pages

> The less time a learner spends trying to figure out what a graph *says*, the more they spend figuring out what it *means*.

- Borrow from strength… For example, if you need to present sample stock data, why not use the same format as the Wall Street Journal? Millions of people read it every day. In other words, don't reinvent the wheel when you don't need to do so.

After attending his seminar, we were pleased to discover that Tufte had many of the same recommendations that we discuss with our clients and colleagues every day. By following these few, simple practices, you can ensure that your visuals are as effective as possible.

For more information on the work of Edward Tufte, go to: www.edwardtufte.com.

Gus Prestera, PhD, CPT

Doc Talk

Some of you recently participated in interviews we conducted with eP clients and colleagues. Those interviews have given us insight into the challenges you face during e-learning projects.

That insight is being used to inform the design of a new eP demo course. The course, titled *Writing an E-Learning RFP*, will highlight eP's e-learning capabilities as well as our new Rapid Development Process.

We're very excited about the content for this course. Users will learn how to conduct quick needs assessments, identify performance improvement strategies, and blend a variety of complementary learning strategies.

The project has also given our team an opportunity to reflect upon and improve our processes. We're planning to release the demo around the holidays, so look for an announcement.

To everyone involved, thank you for your continued support.

Designer's Toolbox:

The Michalak and Yager Task Analysis Method

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the attributes of each task.

- **Brainstorm** - At the initial meeting, you meet with the SMEs to identify the major performance tasks. Afterwards, you summarize the task list and distribute it to the target learners.
- **Validate** - They review the list, identify gaps, and suggest additions or modifications. After meeting with target learners and collecting their feedback, you revise and re-distribute the task list to the entire team for approval.
- **Drill Down** – With the major tasks validated, you go through the process again. You meet with the SMEs again to identify the subtasks, tools, conditions, skills, and knowledge required for each major task.

Analysis Tool

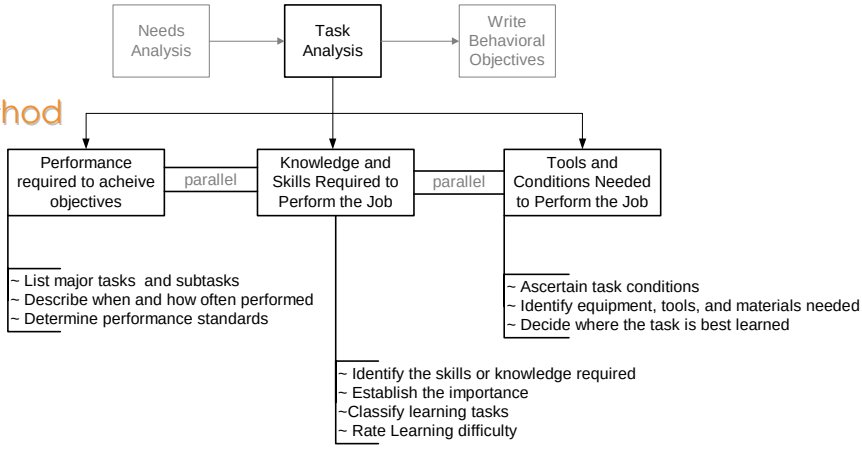
Michalak and Yager recommend using a spreadsheet or table. Begin by placing the tasks and subtasks in the first column. Then, identify the attributes that you will analyze for each major task. Create a column for each attribute to the right of the task listing.

Michalak and Yager provide a list of 10 attributes that are helpful when analyzing tasks. You do not need to use all 10, simply select the ones that are most applicable to your specific circumstances. In this regard, the method is flexible.

Once you have collected your task analysis data, you can apply it to the design of learning tasks, assessment methods, transfer activities, and evaluation instruments.

When to Use It

Because this method is task-oriented, it seems most appropriate for aspects of a job involving well-defined tasks, such as standard operating procedures. With aspects of a job that are not so well-defined, and are less procedural, this method could seem awkward. For example, what are the tasks associated with working globally,



Task List	When and How Often Performed	Quantity and Quality of Performance	Conditions Under Which Performed	Perceived Importance of the Task	Skills or Knowledge Required	Types of Learning Tasks	Learning Difficulty	Equipment, Tools and Materials Needed	Where Best Learned
1. Major Task									
1.1. Subtask									
1.2. Subtask									
1.3. Subtask									
2. Major Task									
2.1. Subtask									
2.2. Subtask									
3. Major Task									
3.1. Subtask									

Example of a task list with tasks and subtasks as well Michalak and Yager's 10 task attributes.

influencing without authority, leadership, creativity, or friendly service? These are all critical skills in everyday work life, yet they may not lend themselves to being proceduralized conveniently into a list of tasks and sub-tasks.

In the next issue, we'll discuss a method that may be more appropriate for analyzing these types of skills. Between now and then, consider applying the Michalak and Yager to your next project.

Editor's Note: Alicia Pfaff is an Instructional Designer for effectPerformance, Inc. She recently completed her Masters Thesis, which involved a review of task analysis methods. If you are interested in learning more, please contact Alicia at alicia@effectperformance.com. Look for another task analysis method to be presented in the January issue.

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1513 Fairview Avenue
Havertown, PA 19083-4235