

design matters



Fall 1997

Words with Pictures

by Michael Sharp

Much of my work requires arranging information in words and pictures to convey complex concepts clearly and simply. Often I find myself answering three general questions:

- How much information is appropriate to present?
- When and where is the information best presented?
- How can I best communicate the information?

The answers to these questions are shaped by users' needs and interests. Once these are identified, I still need to craft the information for optimal communication.

Three of my favorite resources offer cogent guidelines for using words with pictures: Edward R. Tufte, Karen A. Schriver, and William Horton. All have published books on information design that go beyond integrating words and graphics. And, as you might expect, all tend to overlap. Still, each has a unique approach, which I interpret as follows:

- **Tufte**—represent data faithfully and aesthetically
- **Schriver**—integrate words and pictures to achieve a rhetorical purpose molded by readers' thoughts and feelings as identified in empirical studies
- **Horton**—combine words and pictures efficiently for effective communication

Here is my interpretation of what these three authors have to say about integrating words and pictures.

Edward Tufte

"Graphics reveal data"

Edward Tufte has spent much of his career teaching people how to tell the truth with statistics—beautifully. His three books provide varied and rich examples of how to do so—and how not to. His examples come from different cultures and ages. What he says about combining words and graphics is best understood by reviewing his principles for graphical excellence, summarized below. Good graphics:

- **Emphasize data** over design, decoration, graphical technique, and production technology
- **Show data accurately**, in meaningful proportion, and at several levels of detail
- Show **as much data as efficiently** as possible in a given space

To achieve this, use words, numbers, and drawings together. Integrate words on drawings closely, using white space to separate elements rather than rules or borders. Write short phrases so that you can put the words directly on the drawings close to their referents instead of farther away in a legend. Finally, use standard layout:

- Clear, precise, modest typeface, with serifs, in uppercase-lowercase (the same typeface used for body text and numbers)
- Horizontal layout from left to right (for our Western culture)
- Words spelled out, not abbreviated

Karen Schriver

Bring words and pictures together "so that all readers can use the information for their unique purposes."

Karen Schriver recently left her position at Carnegie Mellon University to pursue independent research and scholarship on document design. She has

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Whither ID?

by Michael Sharp, Guest Editor

Information Design (ID) is a young field, whose practitioners and theoreticians seem to have just begun to sense their identity as a group. Some information designers have previously identified their work as that of writers, others as graphic designers, and still others as consultants who draw from a number of skill sets. We all see ourselves as communicators. I think most information designers sense that they draw from more than one competency to do their jobs well, even though they might view themselves primarily as writers, graphic designers, or consultants.

Our field is one of several that seem to have emerged recently—usability, performance-centered design, and visual communication come to mind. Is this situation like a new market, with products and philosophies competing to be the winner? Or, is it more like the blind men trying to describe the elephant, each knowing only that part of the whole which is individually touched?

I think it's more the latter—a matter of perspective, and to some degree, organizational politics or culture. Over the past five or ten years, I have worked in a number of organizations. Each has its own way of embracing this emergent field. Despite different approaches, the various perspectives seem to have these ideas in common:

There is a need to bring to or create for people who must deal with it (*users, workers*) a representation of a piece of reality (*communicate information*) in such a way that they can work effectively. This means that the representation stays faithful to the data upon which it is based (*accuracy*). Also, information is brought to people in such a way that they can interpret and apply it readily (*user needs and interests*). This approach requires practitioners to resolve three issues, which are core in Information Design:

- How much information should be presented? (*Issues of level*)
- When and where should information be presented?
(*Issues of sequencing and layout*)
- What is the most effective presentation technique?
(*Issues of perception, including modality and individual preference*)

Among other things, each group of decisions involves deciding how best to integrate words and pictures. Words and pictures each can communicate well alone; but together, they communicate much more powerfully. Hence, the theme of this issue of our newsletter focuses on this basic building block of ID—effectively mixing words and pictures.

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Design Matters

Volume 2, Number 2 ♦ Fall 1997
Design Matters is the newsletter of STC's Information Design Special Interest Group (SIG).

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Submissions

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How We Perceive Visuals

An Introductory, Annotated Bibliography

by *Thomas L. Warren*

If you want to build a library on how users process the information contained in a technical document, better get a five drawer filing cabinet. The first drawer will be bulging with copies of papers/chapters on how users process text. There are an amazing number of studies on the cognitive processes involved in reading a sentence. And the lessons we, as information designers, can learn from the research drives the way we design, write, organize, and edit the textual part of the document.

What about the visual elements? That's drawer two. When you collect papers, and chapters on visuals, you will find an incredible amount of "What graph to use when" papers. It seems that every year, at least one or two such papers appear in journals, anthologies, proceedings, or on the web.

Drawer three will contain the copies of chapters on visuals from the seemingly endless textbooks on technical writing. Guidelines abound—but they never talk about the cognitive processes users employ to understand a visual. A quick glance at my book shelf shows a text from 1935 (Agg and Foster) that tells the engineering student the kinds of visuals available and when to use them. And the book in my mailbox tomorrow will have the obligatory chapter on visuals.

That leaves drawers four and five. Teachers never have enough drawers to store those reports from students that the administration, flying in the face of copyright provisions, tell teachers they have to keep. Put them in the fifth drawer. What goes in the fourth drawer? The handful of papers and other resources that try to account for the cognitive processes of understanding visuals. This listing gets you started. But, be warned. You will be treading into yet one more discipline that provides theoretical information for technical communication: statistics.

Having said all that, now what? I will assume that, if you are a teacher, your interest is to teach your students how to produce visuals that are as comfortably processed as is the text. If you are an information designer, you want the visual elements

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Best-laid plans etc...

by *Cheri Taylor, Beth Mazur*

As those of you who have been with us since the beginning know, we are coming to the end of our first calendar year as a SIG. It has been quite an experience, and we have learned a lot since last January.

One of those learning experiences has been how to deal with unexpected crises! This issue of *Design Matters* had been scheduled for delivery by early November. However, two different computer crashes (our guest editor's which lasted three weeks, and the managing editor's, which lasted one month) as well as a number of other factors (two job changes, one 300-mile move, the holidays) contributed to the delay in actually sending this issue. We apologize for this, and hope to improve our production process and schedule in the future.

But our lessons can be yours too ... if you haven't backed up your hard drive, now may be a good time! An Iomega Zip drive can hold 100Mb; a 10-pack of these can take care of most hard-drives (don't bother backing up software that you can restore from distribution disks).

New Members!

We are extremely pleased that the ID SIG membership is well over 400! This is nearly six months ahead of our expectations. Of these, 380 members are in the US, 10 members are in Europe (including Germany, Belgium, France, UK, and Israel), 30 are in Canada, and 7 are from Australia and New Zealand. We greatly appreciate your support!

Our 5\$ dues

Speaking of this, many of you will be making the decision whether to remain a SIG member. Cheri has identified a number of reasons for keeping your membership, including:

1. For the average SIG, \$5 does not even cover the costs of printing and mailing its newsletter to its members. This year, the average cost per SIG member for all newsletters was \$5.94.

2. STC plans to upgrade its server, and the quickly growing SIG population will receive significant benefit from that. Such hardware, software, and maintenance don't come cheaply though. Is less than a penny and a half a day too much to spend for access to your SIG web site and listserv subscription?

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Summer 1997: The European Scene

by Karen Schriver

European activity in Information Design can seem obscure to us Americans for all sorts of reasons, not the least of which is the distance. I recently had the pleasure of participating in two European conferences: In the Netherlands I was one of eleven invited speakers; in England, the keynote speaker. Both conferences were small (about 80–120 attendees) with few parallel sessions, so that one could hear most speakers. I'd like to give you a brief sketch of the western Europe's unique view of our field.

Society for Text and Discourse Meets in Utrecht

The Netherlands conference was seventh for this group, an interdisciplinary mix of specialists in reading, linguistics, psycholinguistics, cognitive psychology, text processing, document design, and discourse analysis. All previous meetings were in the US, making this their first in Europe. Attending were researchers from the Netherlands, Scotland, UK, Israel, France, Spain, Australia, and the US. Utrecht is a wonderful medieval city about 40 minutes by train from Amsterdam. This meeting was hosted by the University of Utrecht's Institute of Linguistics (the former Centre for Language and Communication, now part of the Institute).

One key goal was to bring together differing views of language processing and comprehension. Quite a few Americans participated, but here I want to emphasize the European view of our field. European speakers included:

- Teun A. van Dijk, University of Amsterdam, Netherlands, "The interface between cognition and context"
- Patricia Wright, MRC Applied Psychology Unit, Cambridge, England, "The cognitive dynamics of task-embedded reading"
- Anthony J. Sanford, University of Glasgow, Scotland (yes, the Sanford of the Sanford and Garrod team who wrote the 1981 book, *Understanding Written Language: Explorations in Comprehension Beyond the Sentence*), "An interpretation-driven view of text comprehension"

One emergent theme was the need to describe textual products in as much detail and complexity as we do the processes of production and comprehension. The papers characterized many ways in which texts help orchestrate meaning—from linguistic choice to tone

to rhetorical stance. Many showed how a reader's situation influences text interpretation. For example, Teun van Dijk argued elegantly for the need to integrate theories of cognition with those of social and ethical action. He presented a new model of text comprehension that extended well beyond the original Kintsch and van Dijk model published in *Psychological Review* (1978).

Patricia Wright argued that a detailed look at three kinds of reading (following procedures, answering questions, and reaching decisions), provides a broader view of reading than by just studying how people read narratives (the genre most studied by text analysis researchers). Her research into task-embedded reading suggested practical implications for both document and interface design.

After-hours highlights included:

- An evening poster session in the warm glow of an elegant room with mahogany walls, golden chandeliers, and dozens of "Dutch master" paintings of famous Utrecht professors (the only picture of a woman—the Queen of the Netherlands)
- A boat trip through lovely canals that wind through Utrecht's center

As usual, the Dutch were wonderful hosts!

InfoDesign '97 Meets In Cambridge

The Information Design Network (IDN) and the Information Design Association (IDA) co-sponsored this conference. IDN is a coalition of academics and practitioners dedicated to improving information design. It is organized by Coventry University and funded for two years by the British government's Department for Education and Employment. Many conference participants belong to both organizations. InfoDesign '97 was the sixth information design conference in the UK. We've not had even one in the US!

The IDA meets monthly around London and publishes the newsletter *IDEAs*. Loosely affiliated with the IDA is the *Information Design Journal (IDJ)*, devoted to the theory, research, and practice of information design. The next issue features an article by the director of the Communications Research Institute of Australia (CRIA), David Sless, who presents his view of the history of information design along with critiques from leading document designers around the world. The UK information design community has actively contributed to the knowledge base for our field.

InfoDesign '97 was held in Churchill College, a college of the University of Cambridge, at the Møller Centre for Continuing Education set in a lovely rural area near the center of Cambridge. Accommodations included a croquet course, English tea, and good food—the best bread pudding I've ever had!

For years I had anticipated my first conference

To learn about joining the Society of Text and Discourse, contact Dr. Charles R. Fletcher at: randy@text3.psych.umn.edu. See also this group's flagship journal, *Discourse Processes*.

dedicated to information design. What a thrill finally to see Patricia Wright, James Hartley, and Robert Waller all in the same venue! Topics ranged from educational strategies to practical techniques to research methods. One pervasive thread was how words and graphics can work together—on paper, online, or video—in ways that achieve specific rhetorical goals. Here is a synopsis of some of the papers:

- James Hartley (University of Keele) discussed ways to improve information leaflet design and typography for elderly readers, elaborating many of his points in *Designing Instructional Text*.
- David Lewis and Abi Searle-Jones (Information Design Unit, a consultancy in Newport Pagnell, Buckinghamshire) reported on a study that looked at how people understood British government welfare benefits documents. For example, they found 1996 British survey respondents interpreting “partner,” “spouse,” and “salary” differently from 1986 respondents.
- Conrad Taylor (Ideography, a consultancy in London; Popular Communication, an organization that runs training courses in Shropshire; Newsletter Editor and Secretary of the IDA, London), described an approach for teaching nonprofessionals the fundamentals of information design through exercises in which they learn to apply their experience as readers in their work as designers.
- Robert Waller and David Lewis (Information Design Unit) described a project that explored over 100 leaflet design strategies for getting readers’ attention regarding topics such as “safe sex” and “the dangers of smoking.” They found the message tone to be critical to readers’ willingness to engage with the text.
- Yuri Englehart (University of Amsterdam, Netherlands) brought theoretical coherence closer to the categories of information design activity proposed by Saul Wurman and Edward Tufte. He provided a set of categories for thinking about the ways in which spatial position reveals meaning, particularly in quantitative graphics design.
- Patricia Wright (Medical Research Center, Cambridge), described a study on designing health information for British consumers and the relative effectiveness of different media such as print, video, and interactive multimedia displays. She found the type of media influencing when and where people will read or use information.
- Oscar de Bruijn (University of Wales, Swansea) presented research on designing icons and other visual symbols to improve guessability, learnability, and user performance. He compared how quickly people learned to use software interfaces designed with either abstract or concrete

icons. He found concrete symbols best for rapid initial learning because they promote accurate guessing. Over time, though, well designed abstract symbols could match the advantage of concrete symbols.

The conference dinner was held on the campus of Churchill College in a lovely old room with tall windows and dark wood floors. Following the dinner, a trip to local pubs provided a taste of that famous English beer. Plenty of built-in time allowed for chatting and making new acquaintances while we enjoyed ourselves.

For those who couldn’t attend, Conrad Taylor (Ideography, London) and Peter Wilby (Coventry University)—self-appointed InfoDesign ’97 reporters—wrote terrific paper-by-paper summaries of events that became available on the InfoDesign-Cafe listserv only minutes after the papers were delivered. Their report is much more complete than this one. You can find it as well as abstracts of all InfoDesign ’97 papers on the IDN website at

<http://www.csad.coventry.ac.uk/idn/>.

By the end of 1997, complete texts of the papers (as well as some photos) will be available on the IDN website. Ongoing activities will be posted on the IDN website and on two other key listserves for information designers, InfoDesign and InfoDesign Cafe. To subscribe to the InfoDesign list, send email to majordomo@wins.uva.nl and type: subscribe InfoDesign in the message window. To join the cafe, send email to the same address and type: subscribe InfoDesign-Cafe. Where the InfoDesign list is very low traffic (two posts per month), the cafe gets maybe seven posts per month. The subscribers are an interesting global mix of visual and verbal people.

One thing IDN members hope for is more participants from the U.S. and other countries at their future conferences. This year’s conference featured mainly British information designers. Clive Richards and Peter Wilby, professors of Information Design at Coventry University, expressed how the IDN wants to collaborate with U.S. organizations related to writing and design. Recent links forged with the ID SIG and the nascent North American branch of the IDA show promise.

IDN plans another conference scheduled for April 19-21, 1998. Information Design seems poised to develop internationally more coherently now. I hope you get the chance soon to take in a conference in Europe. Exposure to their perspective can enrich your understanding of the potential of document design.

Author’s Note: Thanks to Patricia Wright and Conrad Taylor for their help with this review.

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of your document to pull their weight in helping the reader solve the information problem that sent him or her to the document.

Where do you start? That is the purpose of this preliminary, annotated bibliography. I am going to organize this into two major sections: Books and articles. Within the book section, I am going to try and make it useful by listing the works in the order of importance: start at the top of the section and move down. I might mention that this bibliography is really from a reading list I developed for some Swedish students who were interested in how users understand visuals.

The course was taught via the Internet using interactive video/audio software. The full reading list is available on <http://www.raycomm.com/twarren>.

The full syllabus and some of the visuals I used for the lectures are available on the OSU technical writing program web page:

<http://www.okstate.edu/artsci/techwr>.

Books (Order of Importance)

Cleveland, William S. *The Elements of Graphing Data*, rev. edition. Murray Hill, NJ: AT&T Bell Laboratories, 1992. The Hobbart Press of Summit, NJ is the commercial publisher. ISBN: 0-9634884-1-4.

Warning: This is a complicated and complex book. It bears careful study and will reward you with an interesting theory on how humans physically process visuals. Cleveland is a statistician and writes for them, but you can gain a lot from this book in terms of how the eye/mind travels through a visual. If you are familiar with Pugh's Skim, Scan, Search, etc. strategies for reading text, keep that in mind. (If you can find *The Editorial Eye* for March 1997—vol. 20, no. 3, pp. 1-3—I try to simplify the processing based on Cleveland and Pugh).

Marr, David. *Vision: A Computational Investigation Into Human Representation and Processing of Visual Information*. San Francisco: Freeman, 1982. ISBN: 0-7167-2362-x

Begin with the date: 15 years+ old. Yet its discussion of how vision works is still the best around. You'll probably have to hunt this one down through interlibrary loan, but the search is well worth the effort. His discussion is highly theoretical and up an abstraction level or two from even Cleveland. Plan to take both with you over the summer holidays and be ready for some tough—but highly rewarding—work.

Kosslyn, Stephen M. *Elements of Graph Design*. NY: W.H. Freeman and Company, 1994.

Cleveland comes at the problem as a statistician and Kosslyn comes at the problem as a psychologist. The two make an unbeatable combination to help you understand how users understand visuals. Both Cleveland and Kosslyn deal with graphs and tables and not drawings, photographs, etc., but the extrapolation to those other forms is not a problem. Use David Marr's book (listed above). A bonus found in the Kosslyn book are two appendixes: "Elementary Statistics for Graphs" and "Analyzing Graphics Programs."

Tufte, Edward. Three titles. Cheshire, CT: Graphics Press.

Visual Explorations: Images and Quantities, Evidence, and Narrative. ISBN: 0-9613921-2-6

Envisioning Information. ISBN: 0-961-3921-1-8

The Visual Display of Quantitative Information. ISBN: 0-93613921-0-x

No discussion of visuals is complete without a mention of Edward Tufte's work. He currently has three books available and all three are worth the rather hefty price to buy (\$133.00 retail for the three). Tufte brings another dimension to trying to understand how visuals work for users. He is a statistician who has won a lot of notice and awards for his books on information design—numerical information, that is. His fight for increasing visual literacy is reminiscent of Edward Fry's work except that Tufte is working on the college (advanced) level and Fry works at the high school level.

Littlejohn, Stephen W. *Theories of Human Communication*, 5th edition. Belmont, CA: Wadsworth Publishing Company, 1996. ISBN: 0-534-26052-7

No discussion of visual processing would be complete without at least one reference to a book on communication theory. Littlejohn surveys a lot (50+) theories of human communication. Understanding the general process of communication goes a long way to understanding the specific understanding of visuals. If his style gets in the way (and it often does in spite of a disclaimer in the 5th edition that it underwent a thorough style edit), turn to the student workbook accompanying it (Littlejohn, Stephen L. And Roberta Gray, *Learning and Using Communication Theories: A Student Guide to Accompany "Theories of Human Communication, 5th edition."* Same publisher: ISBN 0-534-26054-3).

Articles (Alphabetical Listing)

Booker, H. L. "Relative Comprehensibility of Pictorial Information and Printed Words in Procedural Instructions," *Human Factors*, 17 (1975): 266-277.

Note the title. This paper addresses one area where document design needs information—and the 1975 publication date suggests that we are not getting it. You will find some interesting views in this article that just may change the way teachers teach writing procedural instructions and the way practitioners write procedural instructions.

Gross, Alan G. "Extending the Expressive Power of Language: Tables, Graphs, and Diagrams," *Journal of Technical Writing and Communication*, 20:3 (1990): 221-235.

The title points out the focus of this article and the journal is one noted for its research-based articles. The article does minimally address the problem of tables (see below for more on tables). You should find some interesting ideas here that you can apply to your job/classroom.

Guthrie, John T. "Locating Information in Documents: Examination of a Cognitive Model," *Reading Research Quarterly*, 23 (1988): 178-199; and Peter Mosenthal, "Literacy as Multidimensional: Locating Information and Reading Comprehension," *Educational Psychologist*, 22, nos. 3 & 4 (1987): 279-297; and S. Weber and N. Kimmerly. "Searching Documents: Cognitive Processes and Deficits in Understanding Graphs, Tables, and Illustrations," *Contemporary Educational Psychology*, 18 (1993): 186-221.

I listed three articles by Guthrie (and his colleagues) that address the whole problem of understanding visuals. The three are in psychology journals, so that should give you the focus. They are useful for putting visuals in perspective with text.

Warren, Thomas L. "Prolegomena for a Theory of Table Design," in *Proceedings of the Public Graphics Conference*, Utrecht, The Netherlands: Department of Psychonomics, 1994, pp. 16.1 to 16.10.

Here, I raise the issue of processing tables. There is, relatively speaking, lots of material on processing text, graphs, and pictures, but almost nothing on processing tables. As an example, can you answer the following question and if you can, what do you base it on? You have 3 items with 3 pieces of information about them (Items A, B, and C and values of A = 1.5, 3, and 6; B = 2, 1.8, and 3; and C = 3, 6, and 10). Do you organize your table so that the comparatives are horizontal or vertical? In other words, you want your reader to compare the values of the three entities, so do you put A, B, and C in the left-hand column or across the top? Any research on this problem? I can't find any.

"Tables in Text: The Subskills Needed for Reading Formatted Information," in *The Reader and the Text*, ed. L.J. Chapman (Proceedings of the 17th UKRA Conference Warwick). London: Hineman, 1981, pp. 60-69.

"The Comprehension of Tabulated Information: Some Similarities Between Reading Prose and Reading Tables," *NSPI Journal*, October 1980, pp. 25-29.

"The Design of Tabulated Information," *Proceedings of the 17th International Congress of Applied Psychology*, I (1972): 363-372.

Finally, Patricia Wright. Who has found a paper of hers that is not insightful and immediately relevant? Here are some related to tables.

I hope that these few works have given you enough to start understanding how users understand visual information. We already know, as I said, a lot about how they understand textual information, but we need to know how they process the visual parts of our documents as well as the textual. If the trend in using visuals to replace text in various technical documents continues, we will need to become even more informed of how users process visual information.

If the topic interests you, let's talk through these pages. Also, you might want to subscribe (for free) to *TC-FORUM*—an international discussion vehicle published 4 times a year. You can get on the subscription list by sending me an e-mail. You will find a section that discusses these very issues of visual understanding.

Other works mentioned in the article:

Agg, Thomas R. And Walter L. Foster. *The Preparation of Engineering Reports*. New York: McGraw-Hill Book Company, 1935.

Fry Edward B. *Graphics Comprehension: How to Read and Make Graphics*. Providence, RI: Jamestown Publishers, 1981.

Pugh, A. K. *Silent Reading: An Introduction to its Study and Teaching*, London: Heinemann, 1978.

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You be the editor!

Have you always wanted to talk about information design from your point of view? Interested in editing a newsletter but not quite prepared for a major commitment? Then you may want to consider guest editing an issue of *Design Matters*.

Guest editors write, solicit, or otherwise acquire 2000-5000 words for a single issue. These articles can be of general interest to information designers or they can be themed on a particular topic.

We are also interested in finding someone to be the backup production editor for those times when the hard disk crashes (preference for those with access to PageMaker and a Zip drive)!

Design Matters layout and production is handled by Beth Mazur. For more details on these positions or just to comment in general, please send email to Beth at mazur@pobox.com.

“Dynamics in Document Design”

by Patrick Moore

Note: This review first appeared in the February 1997 issue of *Technically Speaking*, the newsletter of the Arkansas STC chapter. Excerpted with permission.

Karen Schriver’s “Dynamics in Document Design” is another strong entry in the Wiley series of books about writing in the marketplace. Schriver does not intend yet another “how to” book for beginning document designers. Such books are plentiful. She assumes her audience is acquainted with the fundamentals of document design and wants more information about the complexities and subtleties of document design. In this area—and many others—Schriver succeeds admirably.

Schriver’s book is so rich in insight, information, and innovation that no review will do it justice. One of the book’s many virtues is its presentation of heuristics for making decisions about typography and page-layout grids. A heuristic, as Schriver explains, “is a way of thinking systematically about the key features of a problem.” Schriver’s heuristic for grids

includes taking an inventory of all the text elements (photographs, descriptions, captions, etc.) in the document, organizing these text elements into rhetorical clusters, measuring the actual print or display area, dividing the print or display area into columns and rows, considering exceptions and deviations, trying out some optional spatial arrays for the document, and applying the grid to longer sections of the document to see how it works. For someone who has to design a longer document or complicated web site, Schriver’s heuristics are very useful.

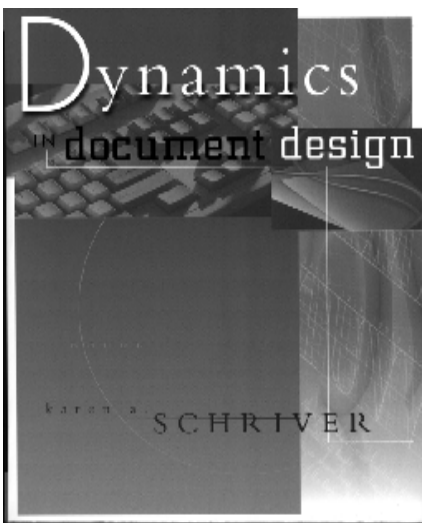
Schriver has not neglected design issues on the Internet. Her 18-page discussion of a student’s case study of the effectiveness of a web site is worth the entire price of the book. As a practitioner of feedback-driven audience analysis, Schriver had taught the student, Daphne van der Vlist of Holland, procedures for studying user responses to document design. Van der Vlist studied the reactions of seven users to the Virtual Tourist web site. As happens of-

ten in Schriver’s book, real users have rich and informative critiques of real documents. In her study, van der Vlist found that users had trouble with incomplete and illogically clustered headings, information that violated users’ expectations, underdeveloped information, poorly laid out lists, and pictures that narrowed content inappropriately. To aid her readers in understanding the users’ problems, Schriver used a four-page spread of eight screens from the web site, with user annotations in the margins surrounding the centered screen representations. Schriver’s analysis and graphic presentation of her student’s case is exceptionally informative and effective. People designing web sites should read this section.

Another strong section of her book describes one of her own projects—evaluating government-created drug education brochures aimed at teenagers. Using feedback-driven audience analysis, Schriver and her collaborators gathered 297 students ranging from 11 to 21 years old and asked them to respond to the text and graphics in the brochures that they provided. The students’ responses were very sophisticated and revealing. Schriver presents the responses to several brochures by using the format mentioned earlier. She reproduces the brochure in the center of a single page or a two-page spread and surrounds it with student responses in the margin. She draws lines to connect student responses to specific passages and graphics.

Schriver also discussed the constraints that the government writers and graphic designers operated under when they developed the drug education literature. Many were reluctant to talk about what they did. Bureaucracy and politics stifle the effectiveness of documents and of open communication between researcher/designers like Schriver and her subjects. A quotation from one person eloquently revealed the stress that some government writers and designers felt: “That brochure is not attributable to anyone. We receive lots of assignments, that was just one of them. We can’t say who wrote it. There are so many hands in the process. And we can’t say that what was printed was what anyone in this office wrote. We have to go now.”

Schriver offers an important innovation to document design teachers—her protocol-aided audience-modeling method (PAM), which allows document designers to better anticipate problems that users have with documents. PAM has two steps: (1) The student reads a sample document and lists the problems she thinks the intended audience will have with the text and graphics. (2) The student reads a transcript of a think-aloud protocol created by one of the intended users of the same document. A think-aloud protocol has a user think aloud about any difficulties she or he encounters while reading a document (form, instruction, etc.). In her research,



Schriver has found that students using PAM were 62% more accurate than a control group in predicting readers' problems. PAM, in short, is much better than such traditional methods as audience heuristics, peer-group critiquing, role-playing, and purpose oriented audience analysis.

Yet another valuable innovation is Schriver's timeline of document design from 1900 to 1995. She devotes forty-four pages to tracing the evolution of five design contexts: education and practice in writing and rhetoric; professional developments in writing and graphic design; education and practice in graphic design; science, technology, and the environment; and society and consumerism. On twenty-two sets of facing pages, Schriver has columns devoted to each of the aforementioned contexts in a given decade of the twentieth century.

Yet another valuable innovation is Schriver's timeline of document design from 1900 to 1995.

Again, this review cannot pretend to do justice to the many virtues and innovations in Karen Schriver's excellent book. Even though she aims her book more at experienced document designers and information architects, beginners and students can also profit from reading it. If you design documents for paper or electronic publication, buy this book. You will not be disappointed.

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Our 5\$ dues (cont'd from p. 3)

3. Joining a SIG highlights your specialty and interest. It identifies you as a practitioner of a certain aspect of technical communication. That's priceless publicity on a resume or within your peer group.

4. Joining a SIG brings you together with STC members with common experiences and interests, and who share their skills and knowledge. That kind of valuable and focused networking, dialog, and help can be hard to find when you need it and expensive when you find it.

5. A SIG offers you a chance to demonstrate and share information with novices, peers, and potential employers or clients. If you've reached a certain stature in your career, it's probably time to start paying back all the help you've received in the past and to let others know they can benefit from your knowledge and experience.

6. SIGs aren't just about STC members; they are conduits to the wider communication communities and often well-known and well-respected by other professional groups, national and international. Joining the SIG broadens your information access and allows you to participate in the discourse.

Need more reasons? We hope not! Remember, our SIG is still in its infancy, and we have high expectations for the future. We can use your participation and ideas. Let us know what you'd like to see from the SIG in 1998. And plan on visiting with us in Anaheim in May!

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Conference Calendar

The following is a listing of conferences of interest to Information Designers. For an up-to-date listing, please visit the ID SIG website at <http://stc.org/pics/idsig/>.

- ◆ **Vision Plus 4: Information Design for Global Communication, March 26-28, 1998, Pittsburgh, Pennsylvania**
- ◆ **InfoDesign 98: Information Design and the Learning Society, April 20-21, 1998, Cambridge, England**
- ◆ **STC 45th Annual Conference, May 17-20, 1998, Anaheim, California**

consulted and taught internationally in government, academia, and industry.

Research shows that pictures and words work better together than alone, but only when used in balance with one another, with the content of each contributing to the overall meaning of the communication. Strong graphics can distract reader attention from words necessary to understanding. Viewer preference matters. For example, although people might work better with words, they might still prefer pictures. Pictures and words should be near one another to work well together.

Rhetorical research has characterized three key relationships among words and pictures: redundant, complimentary, and supplementary. Schriver adds two more: juxtapositional and stage-setting.

Redundant—Graphic and textual contents are identical, as when a diagram illustrates a theory that is stated in words. For readers acquiring new material, this repetition of meaning strengthens learning; but for readers who already know the material, it might distract or frustrate.

Complementary—Graphic and textual contents are different but work together to create meaning that neither could convey alone, as when drawings illustrate a procedure that is stated in words. If the text is particularly abstract or counterintuitive, accompanying drawings that clarify the meaning work especially well.

Supplementary—Either text or graphic dominates in conveying meaning; the other supplements the meaning. Consider design carefully here to avoid distracting or confusing readers with meaningless though pretty decoration.

Juxtapositional—Text and graphic have meanings that clash or create tension. The message is conveyed through the difference in the meanings, as, in the classic Volkswagen ad showing a group of nuns getting into a microbus, captioned “Mass Transit.” The message (that this product carries many people for little cost) comes out of the clash of meanings normally conveyed by “mass transit” (carry many people) and by nuns (do good, live simply and frugally). And, the pun lends a chuckle to the whole thing.

Stage-Setting—Either text or graphic sets the stage for the other, as when a system diagram begins each chapter with that chapter’s part of the system highlighted. Use care in designing such relationships to avoid unintended or obscure meanings. Being clear with this strategy might require testing and revising drafts several times, after thinking through implications from various perspectives.

Ultimately, the goal is to team words and pictures together effectively so that readers can:

- Find information they want quickly and easily
- Understand the information

- Readily build a coherent interpretation of the text and graphics
 - See how text and graphics work together
 - Put the information to personal use
- Although much research still needs to be done, some design guidelines are evident from work done so far:
- Focus readers’ attention on the relationship between graphics and text.
 - Consider readers’ tasks and goals when deciding whether to present information in hardcopy or online.
 - Help readers to build a consistent story about the content through the design and integration of prose and graphics.
 - Use redundant text and graphics to reinforce difficult concepts.
 - Get readers’ attention or surprise them by juxtaposing text and graphics.
 - Help direct readers’ attention with stage-setting relationships between text and graphics.
- Place related text and graphics together as closely as possible.
- Use verbal cues in text to lead readers to view and interpret graphics.
 - Avoid graphics that only decorate and contribute little or nothing to communication.
 - Pay attention to how the placement of words and pictures creates interaction, to ensure that such interaction enhances rather than constricts meaning.

William Horton

“Few pictures can stand alone without words. Many require and most benefit from well-chosen labels, annotations, and notes.”

William Horton is a recognized authority on communicating technical information and founder and owner of William Horton Consulting, an independent consulting firm specializing in the design of more effective communications. Mr. Horton has lectured and consulted extensively on the techniques of visual communication.

Words in Pictures

Use words in pictures to:

- Identify a graphic
- Suggest how to read a graphic
- Describe what is in a graphic
- Describe how a graphic fits in with the rest of the communication

Words appear most often with graphics as captions, labels, or notes.

Captions

A caption identifies its associated graphic, most often appearing just below the graphic. Some graphics might not need a caption—if they are simple, appear right below associated body text, and are introduced by that text.

Captions can include any of these elements:

- Number—establishes sequence to the graphics in a document or document chapter, enabling the graphic to be indexed and referred to in the Table of Contents, Index, and other document locations
- Title—relates the graphic to its referent
- Description—explains how the graphic relates to the rest of the document

For better captions:

- Consider combining figures and tables into one series for numbering (then you can drop the words “figure” or “table” from caption numbers)
- Follow the same numbering scheme for graphics as for pages (continuous, or, by chapter or section)
- Prefer Arabic numerals to Roman
- Keep titles short (under two lines), using standard grammar and terminology that is consistent with the body text
- Titles should be “thematic,” that is, sum up the key idea of the graphic and suggest what readers should look for

Labels

Labels can be words and short phrases that identify parts of a graphic (traditionally called labels), or longer phrases and sentences that describe and explain parts (traditionally called annotations). Here the term “labels” refers to both.

Although good labels can’t fix bad graphics, they can limit misunderstanding. Follow these guidelines. Label objects as directly as possible by putting (in order of preference):

- Labels on or near objects
- Callout lines between label and object
- Index numbers or symbols near objects then defining the index in a key or legend
- Common graphical characteristics in labels and their objects (such as shading)

Phrase labels carefully—use common language and grammar; avoid abbreviations, contractions, and the “telegraphic” style of dropping articles and prepositions (unless space is limited).

Index large graphics with many parts. Arrange index numbers or symbols systematically (clockwise, counter-clockwise, or in rows) for quick reference.

Make labels and annotations visually distinct—use white space, a different text style (where objects have much text), and in some cases, borders. Make callout lines distinct:

- Lighter than object lines, as short as possible, so that the line connects label to referent unambiguously (arrowheads to edges, dots to areas, brackets to groups of objects)
- Objects with mostly vertical and horizontal lines should have diagonal callout lines, all at the same angle to help identify them as callouts
- Where possible, route callout lines through less important areas of the object

In particularly busy diagrams, surround callout lines with white space to help them stand out from other parts of the drawing.

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INFO FATIGUE SYNDROME IS HAZARDOUS TO YOUR HEALTH

Getting physically sick as a result of the stress caused by information overload now has an official name:

— Information Fatigue Syndrome —

and according to a 1996 Reuters Business Information report, almost half of all senior managers and a third of all managers suffer from the syndrome. (Investor's Business Daily 1 Oct 96)

—Reported in Edupage, <http://www.educom.edu>.

Information Design

The field of information design applies traditional and evolving design principles to the process of translating complex, unorganized, or unstructured data into valuable, meaningful information.

The practice of information design requires an interdisciplinary approach which combines skills in graphic design, writing and editing, instructional design, human performance technology, and human factors.

Although its reach extends far beyond traditional boundaries of technical communication, the essentials of information design profoundly affects our work. The products of information design occur in any domain in which clear communication is essential, from those familiar to technical communicators, such as reference manuals and online help systems to those outside the traditional realm of our work, such as public signage in public buildings, insurance and tax forms, and user interface design.

Our Mission

The mission of our SIG is to meet the professional development needs of our members and to act as a vital conduit between STC and information designers at large. Our objectives include:

- advancing awareness of information design among STC members;
- assisting members interested in acquiring information design skills;
- encouraging information design research and making available information design resources;
- examining the roles and practices of the information designer;
- and providing a forum for the discussion of relevant topics.

Please visit the ID SIG website at <http://stc.org/pics/idsig/>



The Information Design SIG

c/o Beth Mazur

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