

**OBJECTIVES** This course aims towards the understanding of the methods and media used for the visualization of information. Students will study advanced projects involving the concepts, methods and procedures focused on managing information that is both complex and accessible. We will design for a purpose: content that is grounded in a clear set of design goals and objectives.

This course will introduce the following information, concepts and skills:

Student-driven authorship of content

Content management

Information mapping and diagramming for both static and interactive media

Interface behaviors/functionality

Usability/user testing

Designing for an audience/end-user experience

Web development and publishing

Time management and handling multiple projects at once

Working with clients and creating clear communication strategies

**RESPONSIBILITIES** Attend class meetings. Submit completed assignments by the given deadlines.

If I don't see a project in process it will not be graded. It is your responsibility to bring the materials that you need to class so that you can work on assignments during class time. **Participation in class discussions and critiques are essential.**

**NOTEBOOK** Each student should keep a 3 ring binder as a record of his or her work and study for the course. Notebooks should contain: the reading materials, notes pertaining to the assignments, and most importantly, the sketches that you create as part of the design process. Often these documented ideas and sketches are as important as the finished result.

**GRADES** Understanding the objectives of the assignments; research for the project; quality of the results for each assignment; participation in class discussion and critiques; respect for Attendance Policy, and Due Dates will be all part of the final grade.

A	Outstanding	The quality is performed to a very high standard of proficiency for this level of the program.
B	Very Good	The quality is performed to a high standard. The student has reached a level which clearly exceeds "competency".
C	Good	The quality is clearly demonstrated without being exceptional in any way. Students could be thought of as competent in respect to this quality.
D	Satisfactory	The quality is demonstrated to a minimally acceptable level. There may be flaws, but these are not serious enough to fail the student on this quality.
F	Unsatisfactory	The quality is absent or performed to a very low level, or performance is seriously flawed. This is a failing mark.

**ATTENDANCE** Attendance will be taken at the beginning of each class period. Five minutes late for class is late for class. You may incur a total of THREE absences during the 15 week session without affecting your final grade. **This includes excused absences.** Each additional absence will affect your grade. Arriving late or leaving early counts as one half of an absence. An accumulation of two tardies will count as one absence.

**DUE DATES, WORK SUBMITTAL & WORK HABITS** It is critical to honor the due dates. Grades will be lowered for late submittal on all accounts. For example, if the designated time is specified due for a critique in the beginning of the class, the work must be presented at the beginning of the critique or it will be classified late. Rigorous studio work during the full class is essential and required. Complete documentation of the process leading up to the end result, from in and out of class, is to be presented. This documentation is to be in the format of the before mentioned 3 ring binder. Have this notebook with you at all times during the class hours.

**OFFICE HOURS** If you have any questions or concerns, I encourage you to discuss them with me. I will post office hours on my office door. It is also possible to arrange meetings by appointment.

**PROJECT ONE: ONE DOLLAR PROJECT – INVESTIGATION INTO VISUALIZING QUANTITATIVE DATA**

What does a dollar mean? What does it symbolize? What does it mean to you? What does it buy in this region and this country? How much does it buy in other countries? This is the beginning of a series of questions that you will ask yourself as the project progresses.

- GOAL** Study methods of visualizing quantitative data:  
Create efficient and effective communication strategies.  
Understand the positive and negative effects of visual “treatments” in regards to visual information.  
Coding and Decoding a message: Understanding how the audience reads, understand and comprehends.
- PART 1** Research and document as many different things that can be bought/done with one dollar. As part of the documentation keep an account of the what, when, where and how much of the dollar would be needed. For example, if you can buy a 79 cent package of gum, keep documentation of what kind of gum, what kind of store (if relevant,) and where it was made among other things that you find interesting. Make sure you include the cost of tax when keeping this documentation. In many cases, even though the price tag may read 99 cents, you cannot actually buy it with a dollar when you add tax to it.
- As you collect these examples, you will keep an eye out for something that intrigues you. It may be a pattern, it may be a single object that leads to other questions. At any point of documenting all the different examples of things you can buy with just one dollar, if you come across a curiosity, I would like for you to follow the train of thought and do research that will fulfill your questions. Examples of this kind of research will be given during class time.
- This researched and documented data will be turned into a chart and/or diagram. You will use logical thinking to create categories and subcategories so that we can easily navigate the chart/diagram. The goal is to turn text into visual information that is easy to read, comprehend and understand. Clarity of macro and/or micro navigation will be key in the successful outcome of this project. How much information will be used and edited will be discussed as the project evolves.
- PART 2** I have gathered some reading materials for you to read and process while you think about the new project. Some will be handed out to you during class. Some are links that I am providing below. Please read through them multiple times so that you get a good grasp of the content.
- The first article is from Richard Wurman:
- There is an one page reading about the difference between data, information, knowledge and wisdom.
  - Then there is an article about Richard Wurman and the “LATCH” system of organization.
  - The third part is an extension of the Wurman article, but gives a specific example about categorizations using “dogs” as examples.
- Below is a link to “Guide to the Internet” that uses diagrams to explain how the internet works:  
[http://ils.unc.edu/courses/2006\\_fall/inls461\\_001/fall06/intro/holmesInternet.html](http://ils.unc.edu/courses/2006_fall/inls461_001/fall06/intro/holmesInternet.html)
- Here is a link to a youtube video that has a segment of the TV show “The West Wing” and they talk about the power of representation and graphic interpretation:  
<http://www.youtube.com/watch?v=n8zBC2dvERM>

One last thing is from the book by Edward Tufte, "The Visual Display of Quantitative Information."  
Here he writes:

Excellence in statistical graphics consists of complex ideas communicated with clarity, precision, and efficiency. Graphical display should:

- show the data
- induce the viewer to think about the substance rather than about methodology, graphic design, the technology of graphic production, or something else.
- avoid distorting what the data have to say
- present many numbers in a small space
- make large data sets coherent
- encourage the eye to compare different pieces of data
- reveal the data at several levels of detail, from a broad overview to the fine structure
- serve a reasonably clear purpose: description, exploration, tabulation, or decoration
- be closely integrated with the statistical and verbal descriptions of a data set.

Tufte ends with "Graphics REVEAL data. Indeed graphics can be more precise and revealing than conventional statistical computations."

TIP:

Think about the dollar project as a chart and/or diagram that will be used as an educational or informational poster. What you are looking for is a story for this diagram. Thinking of it in terms of writing a story or article about your finding (that one might read in the New York Times) may help you with your concept for this part of the project.

**PROJECT TWO: CHANGING YOURSELF**

1. Choose one quality about yourself that you wish you could change. Write out a report regarding the history of this desire and why it is wished to be changed, etc. The report will be as long as it needs to be in order to explain yourself. This report is due Feb. 2th, the Tuesday of the week 2. Bring two copies: one for yourself and one for the professor.

2. Design and produce a product/object (3D) that will solve/resolve this problem, i.e. the quality that you wish to change about yourself. (Warning: no pharmaceuticals, no magic pills allowed). Make a non-working model of your product out of foam, wood, metal, plaster, paper, cardboard. This will test your product's size and form. You may use pre-existing forms, shapes and vessels if it fits your concept needs.

3. Create a profile of your product: Who is your audience? Where do you see this product sold? How will it be displayed? What are the competing products that already exist?

4. Design an instructional brochure using only images for an international audience.

5. Design and produce package design or a website for the product you have designed.

You will be working on this project for most of the semester while simultaneously working on other projects. In the real world, you rarely get to work on one project at a time. This will be your exposure to how to multi-task and handle multiple projects at once. Your calendar will look something like this:



**IMPORTANT:** Choosing a web-based project.

You will have to create a minimum of one web-based project this semester. You get to choose which of the first two projects will be a web-based project. Here are your options:

Option one: If you want to study package design, then your first project, the Dollar Project will have to be a web-based project.

Option two: If you want to study website design in a more in depth way, you can choose to create a website for your product for the "Changing Yourself" Project. In this case, you will not have to create a package design for your product. And your Dollar Project will have to be a print-based poster design.

**PROJECT THREE: VISUAL INFORMATION AND CREATING OPERATION MANUALS**

We will work with Prof. Katja Hölttä-Otto's senior Mechanical Engineering class as our client to create Operation Manuals for products and projects that they have been in the process of creating for the last year. Prof. Hölttä-Otto's senior class has worked collaboratively with people in our community to create products that enhance the current status of their products and projects.

Prof. Hölttä-Otto's senior class will present to us what their needs are in late March or early April. This meeting will happen on a Thursday from 2 pm to 5 pm. If you have class during this time, please let me know. You will have about a three to four week turn around time. Each of you will be given a project randomly. There will be two to three designers assigned to each projects, therefore our clients will have two to three design options to look at. After feedback and conversation, the clients will determine which of the manuals are most successful and meet their needs. They will then use this manual as part of their final product presentation.

You will learn the following with this project:

1. Learn to create a product to meet desired needs of client as well as user.
2. Create clear communication channels with clients.
3. Learn to project manage.
4. Learn to keep design projects on schedule.
5. Learn to keep and write meeting minutes.
6. Learn interdisciplinary team work.

Office Max brand, 30 percent recycled, 24lb, and 96 bright from Office Max

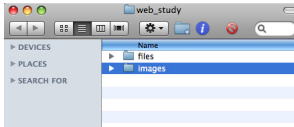
Paper is passed in faculty will mark next to each name:

E (excused - lab employee)  
L (a freshman, sophomore, or junior who passed in letter)  
NM (did not pass in because the student takes more than one class)

WK 1	01.26	TUE	First day of classes: Syllabus, Media lab rules, and Paper donations. Overview of Project One and Two.
	01.27	WED	Homework due at 11:50 PM. E-mail professor three concepts/ideas each for both Project One and Project Two. (ylee@umassd.edu)
	01.28	THU	Individual meetings: Review three concepts/ideas each for Project One and Project Two. 11am-12pm, Main Auditorium: "L'inyon Fe la Fos" (Unity Makes Strength), a celebration of Haitian culture and resolve
WK 2	02.02	TUE	Individual meeting on Project Two: Changing Yourself: 1. Bring in three product/objects that we can hold, feel and touch. Dreamweaver demo: tables, rollovers, hotspots, and basic html links. If we have time: gif animations and slices.
	02.04	THU	1st Crit on Project One. Print out to full size with small color print outs. Coversation on the readings.
WK 3	02.09	TUE	Individual meeting on Project Two: Changing Yourself: 1. Research: Create a profile of your product: Who is your audience? Where do you see this product sold? How will it be displayed? What are the competing products that already exist?
	02.11	THU	2nd Crit on Project One. Print out to full size with small color print outs.
WK 4	02.16	TUE	FOLLOW MONDAY's schedule.
	02.17	THU	3rd Crit on Project One. Print out to full size with small color print outs.
WK 5	02.23	TUE	Project Two, Changing Yourself: One on one meeting on "How to Use" Manual. Printed out to full size.
	02.25	THU	Final Crit on Project One. Print out to full size with small color print outs.
WK 6	03.02	TUE	DUE: Project One. Work in lab: one on one updates on Project Two.
	03.04	THU	1st Crit on Project Two, Changing Yourself: Package design or Website.
WK 7	03.09	TUE	Work in lab: one on one updates.
	03.11	THU	2nd Crit on Project Two, Changing Yourself: Package design or Website.
WK 8	03.16	TUE	SPRING BREAK
WK 9	03.23	TUE	MID-SEMESTER: 10 minute interviews during lab.
	03.25	THU	3rd Crit on Project Two, Changing Yourself: Package design or Website.
WK 10	03.30	TUE	Work in lab: one on one updates.
	04.01	THU	Client Presentation by Prof. Hölttä-Otto's class (2 PM through 5 PM: Date and time subject to change)

-----> important date

IMAGE 1

**DESKTOP SETUP**

On the desktop create a [web\_study] folder.

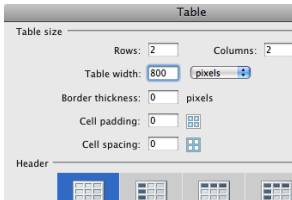
Create two more folders: [files] & [images] inside the [web\_study] folder.

Move downloaded images to new [images] folder inside of [web\_study folder].

Start up Dreamweaver and Photoshop.

Your folder should look like IMAGE 1.

IMAGE 3

**TABLES**

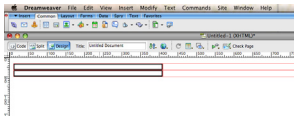
Create new document in Dreamweaver. Create a table:

Menu bar > Insert > Table

Type in: Rows 2, Columns 2, Table width 800,

Border thickness 0, Cell padding 0, Cell spacing 0 (IMAGE 3)

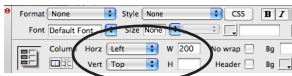
IMAGE 4



Select the two left hand side table (IMAGE 4)

(Click down on the upper left hand cell, drag and release the cursor when your cells are highlighted like IMAGE 4.)

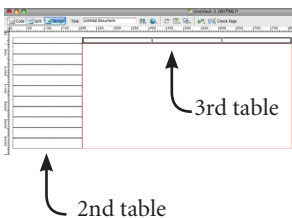
IMAGE 5

**PROPERTIES WINDOW**

With the two cells highlighted, go to the "Properties" window at the bottom of your screen.

1. Change the alignment as depicted in IMAGE 5. 2. Make width: 200 pixels

IMAGE 6



Create a second table inside of the lower left hand side of the first table.

Type in: Rows 10, Columns 1, Table width 200,

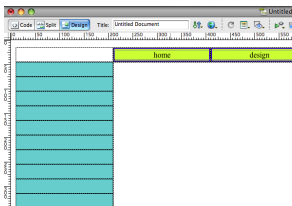
Border thickness 0, Cell padding 0, Cell spacing 0

Create a third table inside of the upper right hand side of the first table. (IMAGE 6)

Type in: Rows 1, Columns 3, Table width 600,

Border thickness 0, Cell padding 0, Cell spacing 0

IMAGE 7



Select all cells within third table and make Width: 200 and Height: 30 (IMAGE 7 & 8)

Select a color for the cell background from the "Properties" window at the bottom of the screen. Select alignment for text.

IMAGE 8



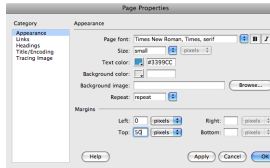
Create a fourth table inside the lower right hand side of the first table.

Type in: Rows 2, Columns 2, Table width 600,

Border thickness 0, Cell padding 0, Cell spacing 0

Select all cells within fourth table and make Width: 300 and Height: 300

IMAGE 9

**PAGE PROPERTIES**

Select “Modify” from the top menu and then select “Page Properties.”

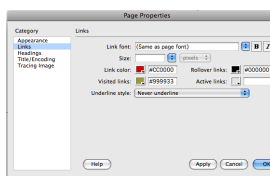
In “Appearance” option (IMAGE 9) you can change:

Font choice, font size, font color

Background color, image and pattern

Margins (left and top are most significant in my opinion.)

IMAGE 10

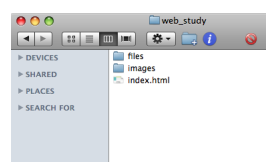


In “Links” option (IMAGE 10) you can change:

Link font, size, link colors, rollover colors, visited colors, and the option to underline or not.

Save document in web\_study folder as: index.html

Your folder should look like this:



If not, let me know.

**ROLLOVERS**

Click on one of the 300x300 pixel cells you have created in your fourth table.

Choose Rollover Image icon:

Go to Menu bar and choose:

Insert>Image Object>Rollover.

Browse and select images for “original image” and “rollover image.” (IMAGE 12)

Save and look at it in a browser of your choice. (Firefox or Safari.)

IMAGE 12

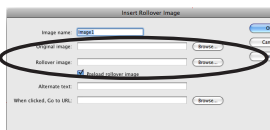
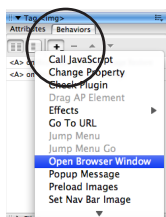


IMAGE 13

**POPUP WINDOWS**

Click on the rollover image you have just created and select it.

In the “properties” window at the bottom of your screen, find “link” and type “#top”

Next, if the window “behaviors” is not open, get it under “windows” in your top menu bar.

Choose “Open Browser Window from the “+” sign. (IMAGE 13)

Fill in the URL. Make sure you include “http://www” in the address. (IMAGE 14)

Choose a window size if you wish.

Save the document and look at it in a browser. Make sure it works. If it doesn't let me know.

IMAGE 14

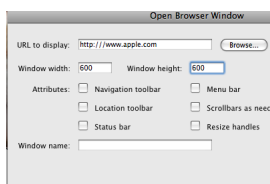
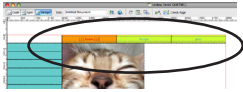


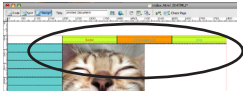
IMAGE 15



**SAVE AS (AND CREATE NEW DOCUMENTS)**

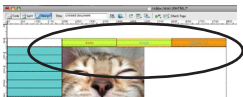
Change the background color for the upper tab for “home”.  
Add additional attributes as necessary. (IMAGE 15)  
Save index.html document.

IMAGE



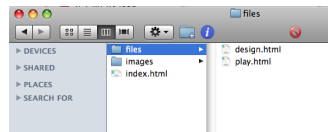
Now change the color for the upper tab “design” to signify “you are here.” (IMAGE 16)  
SAVE AS “design.html” to folder “files” inside of folder “web\_study”.  
When asked “update links?” select “yes.”

IMAGE



Now change the color for the upper tab “play” to signify “you are here.” (IMAGE 17)  
SAVE AS “play.html” to folder “files” inside of folder “web\_study”.  
When asked “update links?” select “yes.”

Your folder should look like this:  
If not, let me know.



**PATHNAMES**

index.html links to design.html:

\_\_\_\_\_

index.html links to play.html:

\_\_\_\_\_

design.html links to play.html:

\_\_\_\_\_

play.html links to design.html:

\_\_\_\_\_

design.html links to index.html:

\_\_\_\_\_

play.html links to index.html:

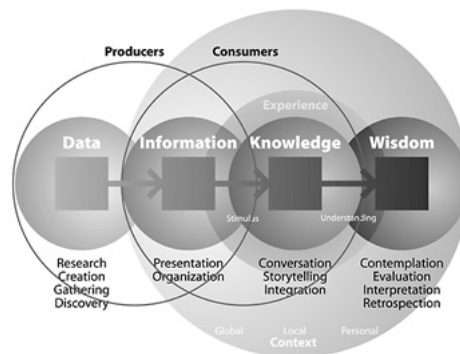
\_\_\_\_\_

**AN OVERVIEW OF UNDERSTANDING BY NATHAN SHEDROFF**

([http://ils.unc.edu/courses/2006\\_fall/inls461\\_001/fall06/intro/wurman.htm](http://ils.unc.edu/courses/2006_fall/inls461_001/fall06/intro/wurman.htm))

Understanding should be thought of as a continuum from data to wisdom. The distinctions between the steps along this continuum are not terribly discrete but they do exist on some levels. Therefore, the distinctions between data and information, for example, seem like shades of gray; and on the other side of the continuum towards wisdom, not only are the differences difficult to understand, but the concepts themselves are hard to define (such as what knowledge and wisdom are). This is mostly due to the fact that at this end of the spectrum, understanding gets increasingly personal until it is so intimate that it cannot truly be shared with others. Instead, only the process that leads to it can be shared.

Data and information, although words used interchangeably in our language and our culture, are not the same. Not only does information have more value, it takes more work to create and communicate. For all the talk of this being the Information Age, it would be more accurate to call it, instead, the Age of Data, though this is still not the case.



“One of the best ways of communicating knowledge is through stories, because good stories are richly textured with details, allowing the narrative to convey a stable ground on which to build the experience.”

**LATCH: THE FIVE ULTIMATE HATRACKS**

In this chapter author Richard Wurman explains how information architects can open themselves up to understanding, learning, and ultimately being able to explain information to others.

(<http://www.informit.com/articles/article.aspx?p=130881&seqNum=6>)

The ways of organizing information are finite. It can only be organized by location, alphabet, time, category, or hierarchy. These modes are applicable to almost any endeavor—from your personal file cabinets to multinational corporations. They are the framework upon which annual reports, books, conversations, exhibitions, directories, conventions, and even warehouses are arranged.

While information may be infinite, the ways of structuring it are not. And once you have a place in which the information can be plugged, it becomes that much more useful. Your choice will be determined by the story you want to tell. Each way will permit a different understanding of the information—within each are many variations. However, recognizing that the main choices are limited makes the process less intimidating.

**L**ocation  
**A**lphabet  
**T**ime  
**C**ategory  
**H**ierarchy

**LATCH**

If you were preparing a report on the automobile industry, you could organize cars by place of manufacture (location), year (time), model (category), or Consumer Reports ratings (hierarchy). Within each, you might list them alphabetically. Your choice would depend on what you wanted to study or convey about the industry. If you wanted to describe the different types of cars, your primary organization would probably be by category. Then, you might want to organize by hierarchy, from the least expensive to the most. If you wanted to examine car dealerships, you would probably organize first by location, and then by the number or continuum of cars sold.

After the categories are established, the information about the cars is easily retrievable. Each way of organizing permits a different understanding; each lends itself to different kinds of information; and each has certain reassuring limitations that will help make the choices of how the information is presented easier.

**LOCATION** Location is the natural form to choose when you are trying to examine and compare information that comes from diverse sources or locales. If you were examining an industry, for example, you might want to know how it is distributed around the world. Doctors use the different locations in the body as groupings to study medicine. (In China, doctors use mannequins in their offices so that patients can point to the particular location of their pain or problem.)

**ALPHABET** This method lends itself to organizing extraordinarily large bodies of information, such as words in a dictionary or names in a telephone directory. As most of us have already memorized the twenty-six letters of the alphabet, the organization of information by alphabet works when the audience or readership encompasses a broad spectrum of society that might not understand classification by another form such as category or location.

**TIME** Time works best as an organizing principle for events that happen over fixed durations, such as conventions. Time has also been used creatively to organize a place, such as in the Day in the Life book series. It works with exhibitions, museums, and histories, be they of countries or companies. The designer Charles Eames created an exhibit on Thomas Jefferson and Benjamin Franklin that was done as a timeline, where the viewers could see who was doing what, when. Time is an easily understandable framework from which changes can be observed and comparisons made.

**CATEGORY** Category pertains to the organization of goods. Retail stores are usually organized in this way by different types of merchandise, e.g. kitchenware in one department, clothing in another. Category can mean different models, different types, or even different questions to be answered, such as in a brochure that is divided into questions about a company. This mode lends itself well to organizing items of similar importance. Category is well reinforced by color as opposed to numbers, which have inherent value.

**HIERARCHY** This mode organizes items by magnitude from small to large, least expensive to most expensive, by order of importance, etc. It is the mode to use when you want to assign value or weight to the information, or when you want to use it to study something like an industry or company. Which department had the highest rate of absenteeism? Which had the least? What is the smallest company engaged in a certain business? What is the largest? Unlike category, magnitude can be illustrated with numbers or units.

We already employ these modes almost subconsciously in many ways. Most of us organize our financial records first by time, then by category when we figure our taxes. We organize our CD and DVD collections, libraries, and even our laundry according to certain principles whether or not we are aware of them. But it is only the conscious awareness of these methods that will reduce the frustration of searching through information—especially new information. Uncovering the organizing principles is like having the ultimate hat rack. It is as essential when working with already existing bodies of information as it is in developing your own information programs. The time spent in comprehending someone else's method of organization will reduce the search time spent looking for individual components. When you arrange information, the structure you create will save the frustration of juggling unconnected parts. Many people get into trouble when they mix the different methods of organization, trying to describe something simultaneously in terms of size, geography, and category without a clear understanding that these are all valid but separate means of structuring information. Understanding the structure and organization of information permits you to extract value and significance from it.

**VANTAGE POINTS** Once you have a sense of organization, however casual, you can relax with that knowledge and begin to examine the information from different vantage points, which will enable you to understand the relationship between bodies of information. Ask yourself: How can I look at this information? Can I move back from it? Can it be made to look smaller? Can I see it in context? Can I get closer to it so it is not recognizable based on my previous image of the subject? Can I look at the detail?

Whatever problems you have in life—personal relationships, putting together a business deal, designing a house—can be illuminated by asking these questions. How can I pull myself out of the situation? How do I see it by changing scale? How can I look at the problem from different vantage points? How do I divide it into smaller pieces? How can I arrange and rearrange these pieces to shed new light on the problem?

Each vantage point, each mode of organization will create a new structure. And each new structure will enable you to see a different meaning, acting as a new method of classification from which the whole can be grasped and understood.

**CLASSIFYING LASSIE: THE DOG STORY** I could contact Avanta, an Italian company that makes stuffed animals, and ask them to make me a set of 296 life-sized dogs representing a male and a female of each of the 148 breeds recognized by the American Kennel Club. (My book *Dog Access*, produced in 1984, the source of the following illustrations, showed all the approved breeds at that time, arranged by size.)

To make dogs understandable to people, I could put this extra-ordinary bevy of stuffed animals on a gymnasium floor and organize and reorganize them. I could put flags on them denoting their country of origin and tie ribbons around their necks, colored according to which of the six different major groups in which they belonged: sporting dogs, hounds, work dogs, terriers, toys, and nonsporting dogs.

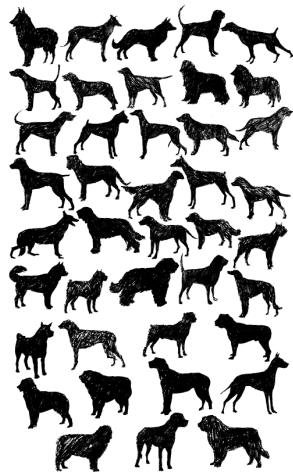
Then I could arrange them from the smallest to the largest, from the shortest to the tallest, from the lightest to the heaviest, from the shortest-haired to the longest-haired, by their level of viciousness, popularity in the United States, population, price, and the number of championships they have won.



Illustrations by William McCaffrey

Every time the dogs are arranged in a different way, you can start seeing new information about the relationships. You might see that the most popular dogs are the shorter-haired ones, or that the most expensive dogs are the small dogs, or that in certain breeds the females are bigger than the males. As you observe these different types of dogs, you'll discover patterns, and finding and recognizing patterns is what leads to understanding. Each way I arrange these dogs tells you something different about them; each mode of organization provides additional information. The creative organization of information creates new information. The dogs don't change, but the information about them does. And it takes no prior knowledge or understanding to comprehend.

You can do this with many things; it makes your mind work differently because it shows the importance of relaxing and thinking about the arrangement of information before you make it complex. It's a process of simplification, not complication. And you realize that by simplifying, by taking one point of view, one slice, you can make something absolutely clear. Whereas if you tried to say this dog is the most popular in Wisconsin, and is of medium height, and said all these things at once, you would never get the mental map in your head, nor would you retain the memory of the information. Each way that you organize information creates new information and new understanding.



I could organize these dogs alphabetically...



Or by category (country of origin, for example)...



Or by time (like the year when the breed was officially recognized by the American Kennel Club)...



Then again, I might arrange them in a hierarchy by weight in pounds...



Real learning about the dogs comes from comparing organizations. For example, you can see that the Afghan hound is taller than both the Labrador Retriever and the Komondor, but is outweighed by both.