

Use and Misuse of Metaphor

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Metaphors have long been popular in graphical user interface design. Unfortunately, the spectacular success of a handful of simple metaphors--folders and trash cans, for instance--eclipses the fact that most metaphors fail to improve usability and many make matters much worse. In this note, we want to outline some of the basic issues in the use of metaphors and then explore some of the misuses of metaphor on the Web.

User interface metaphors can be used in isolation for highly specific purposes or to organize and provide structure for the user interface as a whole and for the overall interaction between the user and the system. A pictorial representation of an office through which files and communications functions might be accessed would be an example of a structural metaphor, that is, one used to give structure to the overall interface. A file folder is a more narrowly focused or functional metaphor.

Metaphors may be either literal and explicit, as in the example of the office scene just described, or they can be implicit as conceptual shapers of design without any direct representation on the visual interface. Typically, for example, no actual desktop is literally presented on the screen, although the concept of the desktop is used as an organizing theme underlying much of the on-screen presentation.

On the Web, the concept of an online store is an example of a structural metaphor, while the ubiquitous shopping cart is a functional metaphor. More often than not the store is only an implicit metaphor while the shopping cart may or may not be represented literally in some form.

Silly Simulation

Problems in usability arise from the misuse of metaphors, and metaphors can be misused in more than one way. Some of the worst abuses of metaphor arise

when real-world objects and their behaviors are simplistically simulated on-screen, whether as structural or functional metaphors. Objects that are simple and straightforward to understand and use in the real world can become sources of confusion and awkward usage when translated onto the desktop. Examples of this kind of misuse of metaphor abound. Some software CD players proudly display realistic renditions of the controls of a real-world stereo system, including the volume control knob that must be turned (by dragging with the mouse!) to raise or lower the playback volume. Or consider the software telephony solution that requires the user to dial a number by clicking on the image of a telephone touchtone keypad. Such silly simulations as these are often proclaimed to be “intuitive” and “user friendly” when, in truth, they are neither. True, the user may immediately recognize the object pictured on-screen, but that does not necessarily mean that they will know how to use it or that it will be easy to use.

The situation for the user is made worse when real-world metaphors are employed in ways that violate the user’s expectations learned from experience with the real-world objects. Consider, for example, an on-screen calculator utility in which clicking on the tape causes the tape to appear to tear off and then vanish. Mixing metaphors is another way that on-screen behavior violates expectations and can confuse or distract users. Most wastebaskets do not burst into flames when something is thrown into them.

A notorious example that illustrates nearly the entire catalog of misused metaphor is IBM’s RealCD, a software CD player designed through IBM’s OVID (Object, View, and Interaction Design) methodology and proudly featured in the book on the method [Roberts et al., 1998].



Figure 1 - Is it real? Is it a CD? How do you get help? How do you exit?

True, typical users will almost instantly recognize the realistic portrayal of a CD “jewel case” on their desktops, but figuring out how to use it effectively is

another matter. Most of the space is taken up by the permanent application “splash screen”--the simulated cover of the simulated CD case. The unconventional arrangement of the controls necessitated by slavish adherence to the jewel-case layout makes usage even more awkward. While claiming to adhere to a familiar real-world metaphor, the designers blithely ignore the fact that CD cases do not typically have control buttons on them. Some users cannot even figure out how to exit the application! (For a complete usability analysis of this badly mangled metaphor, visit <http://www.iarchitect.com/realcd.htm>.)

The Web is haven for many a muddled metaphor. Here is a particularly egregious example of a strained and inappropriate structural metaphor used until recently on the home page of a major airline. A ticket counter, one supposes, with nary an agent in sight, is supposed to allow visitors to reach the various facilities of the site.



Figure 2 - An organizing metaphor that doesn't fly.

The usability problems within this silly simulation are too numerous to catalog in full, but one giveaway to the ineffectiveness of the design is the fact that an arrow is needed to draw attention to the reservation telephone. (A telephone? On the Web?) Online reservations are a major money-maker for airlines, and here you have to hunt for them. Even checking schedules or frequent flyer points is made more difficult by sidewise labeling half-obscured by simulated Lucite. It is not even readily apparent which among the many objects are active; the user has to scan-and-pause with the mouse pointer to know what is available.

Not all organizing metaphors flop quite so badly. An appropriate one that is carefully designed can serve as a central organizing dispatch giving access to a wide variety of features and facilities (see Constantine and Lockwood, 1999: 293]. Nevertheless, effective metaphors and effective uses are hard to find.

Shop and Go Traffic

The shopping cart is arguably the most pervasive metaphor in e-commerce on the Web. It is also probably the most perverse. The shopping cart as a metaphor may have been intended to allow real-world shopping experience to carry over to the Web, but, in many cases, it is a shopping cart in name only. It is as if designers grabbed the term from a glossary of retail terms but simply ignored the definition and description.

To appreciate the pure perversity of most Web-based shopping, imagine what shopping would be like if you went into a brick-and-mortar store where you were informed that you needed a shopping cart but could not take it with you as you shopped. Instead, you had to keep your shopping cart in a separate room off to the side in the store. You cannot check what is in your cart unless you go to that separate room. Even then, you will not be able to look into your cart directly, but instead will be shown a clipboard with a list of the items in the cart.

To continue shopping after looking into your cart, you have to return by a different route. In some cases you may be directed back to the store entrance from where you will have to find your way back to the aisle in which you were last shopping. If you attempt to take a shortcut and go around the back way, you may find that your shopping cart has been suddenly and mysteriously emptied.

In any case, you will only be allowed to put things into the shopping cart at certain times or in certain places. For example, you might not always be allowed simply to put an item directly into the cart when you see it, but might have to first turn the item over to read the description on the back of the box. Since you do not actually have access to your cart, you cannot just take an item out of it. Instead, you change the number of that item on the clipboard list to zero.

Ridiculous as this fantasy may seem, it corresponds quite closely to the user experience on typical e-commerce sites today. Inspired to overcome the misbehavior of metaphorical shopping carts on the Web, some designers have proposed VRML and 3D graphic solutions. They would emulate a realistic virtual shopping cart under control of the user's mouse so that it could be steered down virtual aisles stacked high with virtual goods. A click or a drag puts the new television or bouquet of flowers in the cart; a click or a drag and its back. This scheme sounds like a sure way to use up more backbone bandwidth while making online shopping even more clumsy.

Learning from the Legacy

The answer is not to try an exact online emulation of a real-world "shopping experience" but to use real-world metaphors to help build insight into what

users need and expect. Our woeful fantasy of shopper abuse in a topsy-turvy store highlights some of the important issues in designing “shopping carts” for e-business on the Web.

The biggest problem with most Web-based stores is that they disrupt the shopping experience by taking the user out of the shopping context to get to the shopping cart. In a sense, they keep sending users to another room and expect them to make their way back on their own. Recognizing this as a problem, some sites allow users the option of being able to transfer items to the cart without being taken there, but this is a work-around for what is really a basic flaw.

One of the characteristics of objects in the everyday world is that they are persistent--they do not appear or disappear at will, nor do they suddenly transform themselves from one form to another. An effective online shopping cart must, first and foremost, be persistent; it should be with the customer at all times, where it is visible and immediately accessible. A tiny icon that takes the visitor to the shopping cart page is not the same thing at all. The shopping cart itself, or some condensed or compacted simulacrum, should be on the screen wherever the visitor might go within the online store.

Moreover, objects in the shopping cart should also be persistent. If the user puts something into the cart they should be able to see that it is there. They should be able to tell, without going to another page, just what and how much they have bought. Elaborate graphics to show a symbolic cart filling up with thumbnails of purchases might be fun to try to design, but all that is really needed by the user is a count of items and an abbreviated list. Because an online shopping cart can do things a real-world cart cannot it affords opportunities for enhancing the value to the user. A Web-based shopping cart can tell the user not only how many things are in it but how much they will cost, for example.

We designed precisely such a persistent shopping cart years ago for one of our Web clients. A few progressive B2C sites have recently picked up on the idea and begun to use variations on the theme. Various design compromises are possible that do not seriously impair usability. For example, an item count in a dedicated area of the screen may be enough for some kinds of e-commerce.

There are many areas of Web-design in which metaphors can be useful if employed appropriately. Improving the online shopping experience only requires thoughtful design that uses the real world as a source of inspiration and insight rather than as a template or as a glossary of empty terms.

References

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