Towards a Sociopoetics of Interface Design: etoy, eToys, TOYWAR

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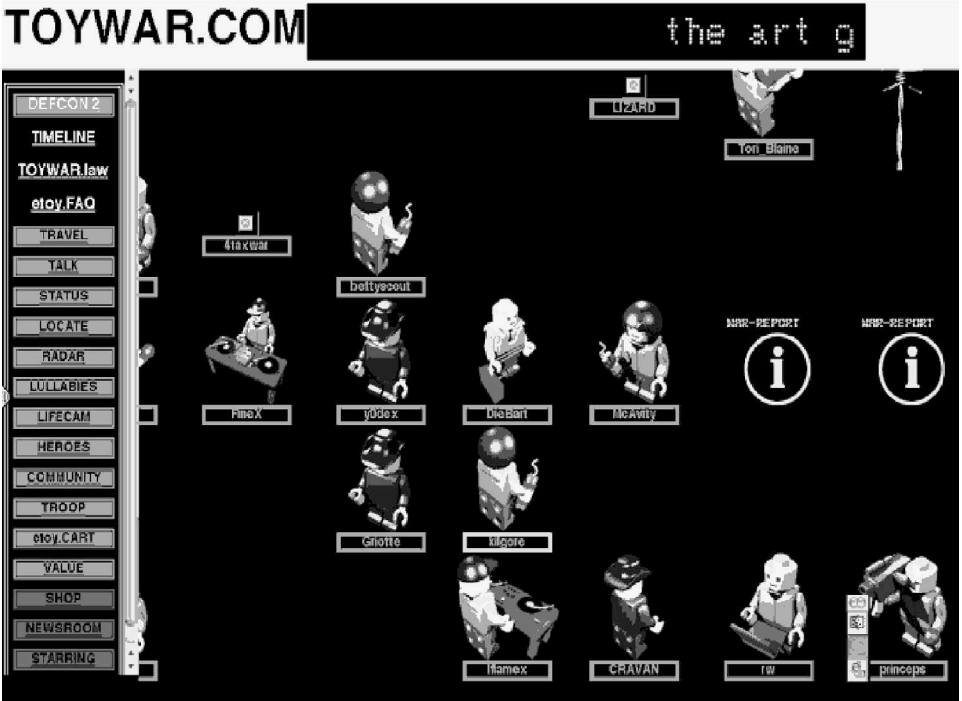

Fig. 1. Sample TOYWAR interface.

Interface-off

In the summer of 1999, an America youngster surfing the Internet for the site of eToys, a US online toy company, instead made his way to the site of etoy, a performance art group once based in Europe but now living on in the networks of cyberspace. The young American, instead of going to etoys.com, mistakenly went to etoy.com. There, rather than being greeted by bright white pages featuring smiling faces and the latest in games and action figures, he instead found stark black pages devoted to etoy.HISTORY, etoy.SHARES, and etoy.PRODUCTS. Instead of seeing text and graphics of baby blue and candy red, he saw neon orange and electric green. And rather than moving through the

site via the standard "inverted L" of top- and left-margin navigation menus, he used an array of links whose design and placement varied widely from page to page. Then, attempting to view some animated content, the boy was given this message: "Get the f***ing Flash plug-in."

At this point, the youngster asked his grandfather for some assistance; the man became irate upon reading the f***ing message and quickly contacted the toy company demanding an explanation. The toy company, in turn, contacted the art group not only to complain but also to "work out" a long-term solution to such identity or branding problems. At first, eToys tried to purchase the etoy.com domain name outright. When etoy refused to play, eToys' lawyers initiated a lawsuit against etoy over trademark violations and other alleged misdoings. In late November 1999, the lawyers obtained a court injunction and shut down the etoy site.

The artists struck back, however, by organizing an online "TOYWAR" consisting of massive email campaigns and a global virtual sit-in, a "denial of services" attack launched against the etoys.com site at the very height of the holiday season. Over 1700 "toy soldiers" were enlisted worldwide via the Internet. The toy company, having already shut down etoy.com, in turn pressured Network Solutions (an organization that controls domain names) to cut off etoy's email service and persuaded an Internet service provider to shut down one of the sites hosting the virtual sit-in. Most significantly, TOYWAR coincided with a major sell-off of eToys stock, resulting in a $4 billion loss in market capitalization; the toy company subsequently dropped its lawsuit, and the art group's site is now back up on the web.[1] Not surprisingly, etoy claimed victory and now boasts that TOYWAR is the most expensive performance art event ever produced.

The TOYWAR incident has been analyzed from several perspectives,[2] and elsewhere I have argued that such "interhacktive" events call for understanding interfaces as fingerprints of larger sociotechnical systems, as places where their values and referents become discretely and concretely embodied.[3] Here I want to use the face-off between etoy and eToys as a springboard for outlining a sociopoetics of interface design. My use of the term "sociopoetics" draws on the work of Craig Saper, who defines it as "artworks that use social situations or social networks as a canvas."[4] The sociopoetics outlined here is thus intended to function both as an introductory treatise on interfaces and as a rudimentary "how-to" guide for designing them.

The context from which I will approach this sociopoetics is primarily pedagogical: having been trained in performance and cultural studies and then working in the new media industry, I have spent the last two years teaching interface design to multimedia students. Thus I wish to formulate a sociopoetics of interface design which addresses both theoretical and practical concerns. At the same time, I will point out some basic resources that may be useful to those interested in learning more about interface design. Though the focus here will be on websites, this poetics draws upon other media and disciplines and will also suggest a more general applicability.

The medium of everyday life

Before outlining this poetics, a preliminary definition of interface is in order. Let us define interface as a site or situation where two or more systems meet and

interact. These systems and their interactions can be very complex, but they can also be rather simple. The relatively complex human–computer interfaces involve (for starters) fingers and keyboard/mouse, eyes and screen image, ears and speakers. The complexity and ubiquity of human–computer interactions no doubt account for the intense interest in interface design that has arisen over the past decade.

But interfaces surround us and certainly predate the computer. The dashboard of an automobile presents another complex interface, as does the clock/radio that sits on most folks' nightstand. What makes these interfaces complex is that each is composed of other, simpler interfaces, such as buttons, dials, knobs, switches, gauges, illuminated displays, and buzzers and bells and speakers. What we actually have with complex interfaces are interfaces embedded within other interfaces.

Deceptively simple interfaces can be found by walking around your house. Doorknobs, light switches, and phone jacks all present potential interface problems—and it is usually because of such problems that we even notice interfaces. A tour of the kitchen can reveal a horror show of interface design problems: stove tops whose controls don't match the layout of the burners, toasters that always seem to make toast too light or too dark, timers that go off without our hearing them, faucets that we struggle to turn on and off, and silverware that we have trouble holding or that bends when we cut into meats or thick-skinned fruits.

While we may easily recognize the interfaces of such household gadgets as blenders and remote controls, interfaces surround our public lives as well: ATM machines, phone booths, copiers, elevators, automatic hand dryers, roadway signage, the surface of the road itself, even the meeting of foot and ground—all these can be considered as interfaces.

In many ways, interface design is the medium of everyday life. Through interfaces, we communicate with friends and associates, transport ourselves from one location to another, conduct financial transactions, create and analyze art and science, compose love letters, read the news, buy a soft drink, and on and on and on. Some interface designers argue that a good interface is precisely one that we don't notice, and there's some justification for this view: if we were to focus on all the interfaces that surround us at any moment, we'd suddenly become frozen in contemplation and/or overwhelmed by their multiple and competing demands for interaction.[5]

Outline of a sociopoetics

Let us now turn to the sociopoetics of interface design, using websites as our primary point of reference.

When and if non-specialist web surfers consider the question of a site's interface, these "users" (to use the specialist's terminology) understandably concentrate on the composition of individual pages: how textual, graphic, aural, and interactive elements (such as links) are organized before them. Pages, after all, are what people interact with directly. But page design represents only one component of interface design, a component commonly called "information design." And while it appears to be the primary component from the user's standpoint, from the interface designer's perspective, the information design of

pages should only be created after two other components have been worked out in detail. Prior to creating information design, interface designers must first craft a site's experience design and information architecture.

In short, interface design can be studied and taught in terms of three interrelated components: *experience design*, *information architecture*, and *information design*. Experience design focuses on the user's overall experience of interacting with the interface. Information architecture concerns the structural organization of information and interactions throughout this experience. Information design focuses on the composition of information at any particular point during the experience. To use a narrative film analogy: experience design concerns the suturing of viewers' desires through the underlying narrative; information architecture deals with how different shots and scenes are edited together to structure the viewing experience; and information design concerns the *mise-en-scéne* of individual shots. For the bookish: the experience design of a book would concerns the reading experience itself; the information architecture corresponds to the structure of chapters and sections, and the information design to the typography and layout of individual pages.

Let's explore these three components in more detail, while stressing their interrelated connections.

Experience design

"Experience design" refers to the crafting of a user's overall actions, behaviors, and emotional responses while s/he is using an interface. This crafting can be seen by returning to our opening interface-off: e-commerce sites such as etoys.com seek to create a coherent online shopping experience, often trying to replicate the experience shoppers have in the brick-and-mortar world. Thus, eToys greeted its holiday 2000 shoppers with a "2000 Holiday Hot List" and allowed them to browse through different categories of toys, place items in a shopping cart, and purchase them through a relatively simple checkout procedure. E-commerce sites also offer services that traditional stores rarely, if ever, provide. Shoppers at etoy.com can create, store, and retrieve wish lists, set up birthday reminders to be emailed to them, and send out party invitations. Most importantly, eToys shoppers can browse the products in a variety of ways, searching by manufacturer, age group, gender of child, and type of toy, depending on the shopper's personal preferences. By contrast, your local toy store would probably call the cops if shoppers began rearranging all its aisles and shelves.

In general, designers of e-commerce sites seek to create coherent, "user-friendly" experience designs. They break down the overall desired user experience into component activities and then organize these into different sections of the site (e.g. "shopping cart," "checkout," "track your order"). Ideally, navigational elements are clearly labeled and placed on pages in a consistent manner, and the layout of information is structured so that the most pertinent information appears "above the fold" (i.e. the user does not need to scroll down to find it). If the user wishes, s/he can use a localized search engine to find a specific item.

The experience design of a particular site can best be analyzed by comparing it to a totally different type of site. On the other end of the experience spectrum

eToys.com — *Where great ideas come to you.™*

Home | My Account | [?] Help
Wish List | Track My Order | Shopping Cart

WELCOME | SHOP BY AGE | TOYS | BOOKS | HOBBIES | VIDEO GAMES | SOFTWARE | DVD,VIDEO & MUSIC | PARTY STORE | BabyCenter STORE

Welcome! Our promise: We have the lowest prices, easy returns, and 100% safe shopping.

SEARCH

Search eToys

[ ] GO

Shop by Age

0-12 Months	6 Years
1 Year	7 Years
2 Years	8 Years
3 Years	9-12 Years
4 Years	Teen
5 Years	Grown-Ups

Shop eToys

• **Toys**

Holiday Hot List	Extra-Special Gifts
Popular Characters	Gifts Under $20
Toy Categories	Toy Brands
Bestsellers	See all.

• **Video Games**

Game Boy Color	PlayStation
Nintendo 64	Dreamcast

• **Hobbies** - NEW!

• **Children's Books**

2000 HOLIDAY HOT LIST

Hot toys. Great prices.

• Barbie Dolls & Accessories
• Fisher-Price
• LEGO
• Tekno Puppy
• Scooters
• See all Hot List.

Holiday Shopping Information

Lowest Prices Guaranteed

Holiday Delivery Information

eToys Gift Certificates

HOLIDAY KICKOFF SALE

Get your holiday shopping done early--we've got more than 300 top-notch toys at new low prices.

Extra-Special Gifts

The box they can't wait to open -- wonderful and unexpected presents.

• For Boys
• For Girls
• For Teens
• See all Big Gifts.

Fig. 2. Homepage of e-Toys, December 2000.

from e-commerce sites lie experimental art sites, such as etoy.com. Significantly, etoy has long been interested in the commercialization of art and the web, and its artistic praxis involves reverse-engineering corporate business and marketing strategies. In the wake of TOYWAR, etoy frequently incorporates and reengineers the experience design of eToys. Thus, the art group's own 2000 holiday site greets visitors with a graphic of entwined barbed wire and Christmas lights strung over these messages and links:

etoy.X-MAS-DISCLAIMER: I HEREBY DECLARE THAT:

I love the total commercialization of the net … but I want to do my shopping with a company that really understands the true meaning of Christmas …

Agree   Sometimes   Disagree

Visitors who select "Agree" are led to ZanyBrainy.com, a legitimate online toy store and thus a competitor of eToys; visitors who select "Disagree" are led to a page with two links, one to ZanyBrainy, the other to—eToys! Visitors who select "Sometimes" are routed through an interstitial page to etoy's main page, which features an etoy credit card surrounded by small, identical icons, the majority of which move swiftly across the page. Only by rolling over these icons with the cursor does one discover the names of different sections of the etoy site.

From just a few etoy.com pages, we can sense a very different experience design than that found on etoys.com. While designers of e-commerce sites strive

to create no-nonsense, user-friendly experiences for their visitors, experimental art sites often challenge visitors with "confusing" or "misleading" interfaces. The etoy introductory splash page offers the visitor a disclaimer with three response links leading eventually to three places: two e-commerce sites and the main etoy page. The latter is filled with other links, but these constantly change location and at first are not even readily identifiable as links. Needless to say, things get even more interesting as the user explores deeper into the site.

On a certain level, the experience designs of the eToys and etoy sites could not be more opposed. While the e-commerce site seeks to present information about its products and purchasing procedures in the clearest possible manner and thus create a seamless, user-friendly experience, the experimental art site uses irony and misdirection to create what might be called a "user-abuser" experience. Visitors to experimental sites expect to be challenged, misled, and played with. They expect the unexpected, as it were, and most experimental art sites do their best to satisfy/frustrate such expectations. The experience designs of eToys and etoy are thus entirely appropriate given the expectations and values of the creators and visitors of the respective sites.

On another level: though, or rather because, etoy reverse-engineers corporate practices, it seeks in part to persuade visitors to do exactly what eToys tries to get its visitors to do: buy something. Visitors to etoy.com can purchase etoy.PRODUCTS and even invest in etoy.CERTIFICATES. Of course, one could argue that purchasing a mass-produced product is very different from purchasing an original art work, but the artists at etoy are precisely drawing attention to the commodification of art (and perhaps also the "artification" of products.) The etoy group not only goofs on business; it also goofs on art—and on itself. The people at eToys, by contrast, seem most sincere about their own bottom-line sincerity.

Experience design is step one of interface design. Though some web designers may try to start by creating pages that look cool, as the site develops and people either begin to test or actually use it, such designers almost inevitably must go back and make drastic revisions. Without a clear sense of the experience one is trying to create, information design occurs in a vacuum.

When teaching experience design, I regularly draw upon the works of two theorist/practitioners, Donald Norman and Brenda Laurel. Norman's work grows out of his academic experience at the University of California's Institute of Cognitive Science at San Diego and his industry experience with the consulting firm Nielsen Norman Group. Laurel's work is informed by her graduate training in theater and her industry experience with such companies as Apple and Atari in the areas of human interface design and game design. Norman's *The Design of Everyday Things* (1988) provides key concepts and skills for designing experiences on a micro-level, while Laurel's *Computers as Theatre* (1993) offers strategies for designing experiences on a more macro-level. To put this another way, *The Design of Everyday Things* works well at the level of information design, while *Computers as Theatre* works at the level of information architecture.

Information architecture

Depending on who's doing the defining, information architecture is either the hottest new field of interface design or a staid, established discipline with all the pop and sizzle of the Dewey Decimal system. For Richard Saul Wurman, an architect-turned-designer who claims to have coined the term, information architecture is an emergent field responding to the contemporary tidal wave of information.[6] For Louis Rosenfeld and Peter Morville, whose backgrounds lie in information and library studies, information architecture dates back to at least the stone tablets Moses carried down from Mount Sinai.[7] But for all these authors, information architecture refers to the organization of information for potential users, and it is this definition that we shall use for our sociopoetics of interface design.[8]

Information architecture is the skeleton of an interface's experience design; it provides the underlying structure of a user's experience. To get a good sense of the relation between experience design and information architecture, one might visit a local museum and study how the exhibits are organized, how people move through the space, where they stop and reflect, where they interact and flow, where they relax and refresh, and even where the museum has situated its gift shop. Through such study, one learns how experience can be sculpted by information, how reflection and interaction can be elicited by the organization of visual artifacts, sounds, and texts in a three-dimensional space.

The information architecture of a website inhabits a different kind of space: cyberspace. One moves through its architecture by navigating HTML links or, in Flash sites, by triggering animated movies that reveal new information designs. At etoys.com, as well as most e-commerce sites, the main structural elements of the information architecture can be gleaned in the top- and left-margin navigation menus. Thus, the eToys top-nav menu contains links to the second-level pages: "Shop by Age," "Toys," "Books," "Hobbies," "Video Games," "Software," "DVD, Video & Music," "Party Store," and "Baby Center Store." Except for "Shop by Age," these content sections could easily be found in a brick-and-mortar toy store. Again, the experience design of some websites mirrors and displaces that of the physical world.

The presence of "Shop by Age" in the top menu reflects the fact that many shoppers prefer to browse toys according to age groups. The very location of this link—right next to "Welcome" on the left side of the menu—indicates the importance of this user experience; likewise, the left-to-right order of the other top links suggests a hierarchy of shopping preferences. Moving to the left-margin navigation menu, we see that it repeats the links of the top menu in a slightly different order, with "Shop by Age" and "Toys" getting top billing. In addition, the left nav menu also reveals some of the third-level architecture, the subsections found under "Shop by Age," "Toys," "Video Games," and "Baby Center Store." If we can think of second-level pages as different aisles in a toy store, then the third-level pages represent different sections or shelves within those aisles. The "Video Game" page, for instance, contains links to the major game manufacturers (Game Boy, Nintendo, Dreamcast, and Playstation). It also provides direct links to specific games found on fourth-level pages.

Information architects often distinguish between two types of websites: narrow and deep, on the one hand, and broad and flat, on the other. Narrow and

deep sites have relatively few sections with numerous levels below them, so moving from the main page to a lower-level page may take a good many clicks. Broad and flat sites have many sections, but fewer levels within each one, making navigation less cumbersome. Well-stocked e-commerce sites such as eToys are broad *and* deep: lots of sections and lots of levels. To facilitate navigation and thus provide a friendlier user experience, a well-designed e-commerce site provides both global and contextual navigation menus. Thus while eToys' top-nav menu remains consistent on all pages, its left-nav menu changes depending upon the location in order to provide extensive links to pages within that section. The goal is to minimize the number of clicks a user must make to move around the site. Using the global top-nav bar, the user is one click away from all the main content sections; with the contextual left-nav bar, a couple of clicks takes the user to most pages within that particular section.

If we turn now to etoy.com, we find a very different type of information architecture, one in tune with the experience design of the site. As noted above, etoy's main page contains graphical links (small identical icons of etoy.TANKS, the cargo shipping containers that serve as mobile offices of etoy.CREWS), the vast majority of which constantly move across the page, right to left, left to right; intermittently, a link box will shift up or down and change directions. By rolling over boxes with the cursor, the user can get these playful animations to "reveal" the underlying information architecture which consists of such areas as "History," "Invest," "Toywar," "Timezone," "Subscribe," "Certificates," "Businessplan," "Chart," "etoy.com," "Specifications," "Hijack," and "Newsroom." Stable links include "Shop," "Businessplan," "Subscribe," "Invest," and "Spex." Clicking on an icon takes the user to that section.

If eToys.com has a wide and deep information architecture, then perhaps etoy's site structure might best be called "wacked and stacked." While the toy company's homepage navigation menus provide users a clear and accurate sense of the main content areas, etoy offers its visitors hidden links which, once rolled over and revealed, then provide only allusive clues to the underlying information. As one ventures deeper into the site, all sense of location quickly becomes senseless: one moves from page to page with little idea of where one's headed. With no global nav system, the site's links are highly contextual but in an odd way, simultaneously too contextual and not enough. Somewhere on the site, I got my bearings straightened with the "etoy.TANKSYSTEM travellers navigation-information." Here, somewhere, user-abuser text explains a series of iconic nav buttons. For instance, next to four directional arrows, I read:

> with these buttons you can navigate (left, up, down, right) … but be careful: informationspace doesn't know left or right … up or down … so it may well be that there is no way back!!!

At this point, I glanced at the url in my browser's address window and realized I had wandered off the etoy.com site and on to (fanclub.etoy.c3.hu), an etoy fan site served up from Hungary. Extensive empirical research suggests that (fanclub.etoy.c3.hu) hosts an earlier version of etoy.com. Further virtual fieldwork and robotic site mapping may be required to verify this preliminary finding.

Information architecture is step two of interface design, though once one has started to specify the experience design in any detail, one is already beginning
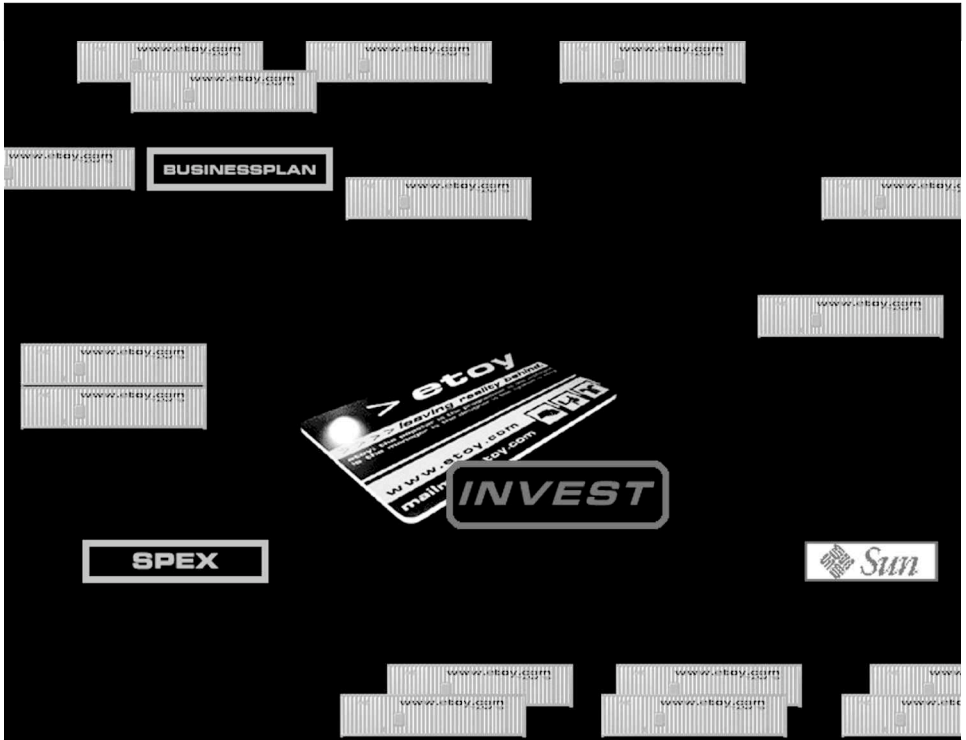
Fig. 3. Homepage of etoy, December 2000.

to work out the organization of information. Again, information architecture gives structure to the user's experience, even if that structure is confusing, redundant, and full of dead-ends. Wurman (1997) maintains there are five basic ways to organize information: location (e.g. a map), alphabet (e.g. an index), time (e.g. a timeline), category (e.g. the sections of a department store), and hierarchy (e.g. an organization chart), all of which he abbreviates and combines into the word "LATCH." Wurman leaves out two more, even as he employs them: number (e.g. "there are five basic ways …") and acronym (e.g. "LATCH"). Other common info structures include metaphor (e.g. Ralph Applebaum's use of family trees to structure the dinosaur exhibit at New York's American Museum of Natural History) and anarchy (e.g. etoy.com). Combining all these possibilities, some of my interface design students came up with this hot and back-end loaded acronym: ANALMATCH. A close reading of the present essay may suggest other possibilities (e.g. function).

Wurman's *Information Architects* is a richly illustrated anthology of small essays and case studies that I draw upon to teach concepts and practices of organizing information in physical and digital space. I've also used Rosenfeld and Morville's *Information Architecture for the World Wide Web* (1998) to focus on web-specific strategies, though the authors' approach is best suited for non-experimental sites (on the other hand, experimentally inclined designers might use this text as an anti-heuristic by systematically breaking the protocols the authors set forth). Another book I often teach from is Frances A. Yates' classic text, *The*

Art of Memory (1966), which analyzes "artificial memory" techniques ranging from classical to Renaissance times. Her study of how systems of knowledge were once organized into "memory theaters" ties in nicely with Laurel's *Computers as Theater* (1993), a text I've already suggested works well to connect experience design and information architecture.

We now turn to the third component of our sociopoetics, information design.

Information design

As I indicated earlier, most users—and some designers—would probably conflate interface design with information design if given the chance to do so. To some extent this is understandable, even with web designers, since information design puts the rubber to the road; it's the place where front-end users actually interact with back-end systems. However, unless issues of experience design and information architecture have been identified and addressed, information design can quickly end up in a ditch, taking the user along with it. At this point, experience designers and information architects must be called in to assist with off-road recovery. This holds for both conventional and experimental interfaces. One of the biggest challenges in teaching young interface designers lies in getting them to realize that the design process generally *ends* with information design rather than starts with it (in my industry experience, persuading clients of this last point can also pose some real challenges).

In the field of interface design, information design concerns the composition of graphic, textual, aural, and interactive elements at any particular point of the user's experience. What a person sees, hears, reads, and does at any moment— that's the stuff of information design. While information architecture constructs the structural frame for information, information design composes how multimedia content fits into that frame. It creates the "look and feel" of the experience design and thus sets the mood for the user's interactions. It may also communicate the structure of the information architecture.

Information design has been and largely remains dominated by graphic designers and, more generally, by those trained and/or working in print media. This legacy can and often does create wonderful information design, but it can cause problems as well. Perhaps the most serious problem lies in the false opposition of design and usability, an opposition that usually pits graphic designers against usability experts and also informs such memorable phrases as "works great, looks shitty," on the one hand, and on the other, "chart junk," Edward Tufte's (1990) dismissive term for charts that prioritize visual effects over the communication of data. Design/usability is a false opposition not only because it effectively reduces design *per se* to visual design, but also because usability and/or interactivity *are also designed* (unfortunately, often very poorly). Another problem with the dominance of graphic design lies in the fact that those with well-trained eyes often lack any training of the ear. The result: interfaces that make very poor (or often no) use of sound, whether it be music, voice, or sound effects. Faced with an array of multimedia technologies, information designers need training not only in typography and graphic design, but also in interactive and sound design.

In the context of interface design for the web, information design concerns the look and feel (and sound!) of individual web pages. Once again turning to our

interface-off: the first thing one notices about eToys' information design is its ample use of white space, its baby blue nav menus and text boxes, and its strategic use of candy red to attract the eye to carefully selected items, including the first letter of "eToys," primary headers such as "Shop by Age," major headlines and, most importantly, prices. The site is mostly silent (as are the vast majority of websites), though sample music tracks can be found and played several levels down in the "Music" section. Interactivity is rather low but appropriate. There are no interactive Flash animations or roll-over links, for instance, but the site is interactive where it counts: making online purchases. Visitors can add toys to a shopping cart, proceed to checkout where they fill in simple forms with their credit card and shipping information, confirm their order, and make the purchase.

I've said that most e-commerce sites strive to create a coherent and user-friendly experience design. The eToys site achieves this effect through consistent placement of key visual elements, such as the logo and the top, left, and bottom nav menus. Redundancy of links, which might appear unnecessary or even accidental, in fact allows users to move more easily through the site; the more "doors," the faster the passage. Primary content (product info and picture) appears in the middle of each page, usually above the fold; such placement, along with rather short page lengths, keeps scrolling to a minimum. While consistency is important, subtle but effective changes in color and layout help to articulate the site's information architecture, giving users a clear sense of their location at any moment. For instance, the main content areas are color-coded: the "Toy" section's secondary top-nav menu is royal blue, that of "Software" orange, and "DVD, Video & Music" green; complementary colors are used in the respective left nav menus. Similarly, the information design changes as one moves up and down the different levels of the site. In general, upper-level pages contain smaller images and less text, while those below have larger images and more text. Obviously, highly visible page labeling goes a long way in creating a clear sense of location. Overall, a balance of global consistency and local differences in the information design brings out the structure of the architecture while enhancing eToys' desired user experience.

Embodying a very different experience design, the etoy site's information design challenges the visitor from the get-go. The X-MAS splash sequence, with its barbed-wire-twinklie-lights and its links to ZanyBrain.com and eToys.com, the main page with its maddening menu of allusive nomadic links, the "etoy.TANKSYSTEM travellers navigation-information" with its misdirectional directions—all of these designs are meant to confront the user, making for a playful and sometimes frustrating online experience. The look and feel (and sound!) of the site is consistent throughout, even too consistent, and the lack of location labels and other architectural clues creates the sense that one has entered a labyrinthian realm of Kafka on Java. Unrelentingly black backgrounds and loud orange and green and white and sometimes blue and red text dominate the entire site, interrupted by charts and timelines and small mutant toy figures come to take revenge for the violence inflicted on their brethren by the brats and snots of human progeny.

Forget about user-friendliness; etoy.com deploys what I'll call "Inyerface Design." Graphics? Try sorting out all those identical nav buttons on the main page. (Perhaps only someone writing a sociopoetics of interface design would
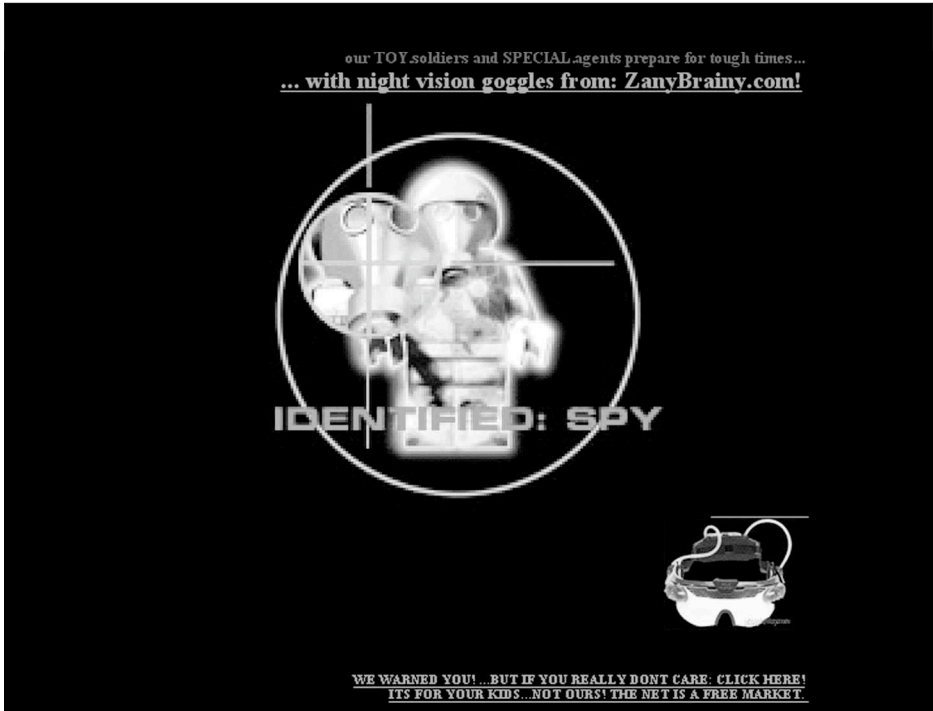
Fig. 4. Holiday etoy splash page, December 2000

even think of documenting the content areas of etoy.com.) Text? While e-commerce sites relegate legalese and other fine-print verbiage to tiny footers and/or marginalized "important information" pages, etoy flaunts its quasi-parodic bureau-babble in LARGE PRINT whenever and wherever they deem it necessary, luxurious, or—what the heck—strategically fun. Audio? Go to the etoy.PARADE (if you can find it): wait two to three minutes at 56.6 Kbps, then watch the victorious etoy.SOLDIERS march across your screen to the blaring beat of happy-face marching music. Interactivity? If TOYWAR doesn't take interactivity to a totally different level, nothing does. As etoy puts it: "TOYWAR is not about hunting stupid little pixel monsters: it is about the destruction of Internet brands and valuable domain names, about hundreds of real jobs, billions of dollars invested in NASDAQ and the INTERNATIONAL ART MARKET, legions of aggressive lawyers and the court system in the united states of america. TOYWAR is 100% 'Internet real life business war' ON YOUR PERSONAL DESKTOP." I should add that during the 1999 blitz, etoy found it necessary to post such notices to its eager enlistees, some of whom complained about the slowness of the interactive game play. "IF YOU UNDERSTAND THAT THIS IS NOT A STANDARD ENTERTAINMENT PRODUCT: *CLICK HERE!* (OTHERWISE CLOSE YOUR BROWSER AND GO TO A MOVIE THEATRE) THIS GAME MOVES AT THE SPEED OF ART. WHICH IS SLOW …"

For those who don't count, information design is step four of interface design. To sum up again: only after issues of experience design and information architecture have been addressed should information design commence. Infor-

mation design creates the look and feel and sound of the user's experience and can provide important indications of the larger information architecture. While heavily print-based, the work of Edward R. Tufte remains the paragon of no-nonsense information design. I've found his second text, *Envisioning Information* (1990), especially effective in teaching introductory interface design courses. Peter Wildbur and Michael Burke's *Information Graphics* attempts to transcribe Tufte's approach into the electronic sphere with mixed success. More cutting-edge insights can be gleaned from *The New Internet Design Project > Reloaded*. Edited by Patrick Burgyne and Liz Faber (1999), this anthology contains short pieces by and on dozens of leading web designers and projects (urls provided). As noted above, interactivity and sound design remain vastly under-taught, at least from a designer's perspective. This said, Jakob Nielsen's immediately classic *Designing Web Usability* (2000) is already both loved and hated by web designers (largely depending on their love or hatred of usability design). On the aural front, Bill Gaver (1997) at the Royal College of Art has initiated important research on sound and interface design, and several of his essays are available at < www.crd.rca.ac.uk/ ~ bill/ref.htm >.

At this point, I would like to mention several other texts and references that might be of interest, as they provide more general perspectives on the sociopoetics of interface design. The first is *Websights*, edited by Katherine Nelson (2000); this excellent anthology addresses all three components of interface design discussed here. The second is Steven Johnson's *Interface Culture* (1997), an engaging and insightful book on the impact of human–computer interfaces on creativity and communication. *The Electronic Disturbance* by Critical Art Ensemble (CAE; 1994) remains the essential primer for those interested in electronic civil disobedience. Additional CAE materials are available at < www.critical-art.net >. Finally, the group Electronic Disturbance Theater (EDT; 2001) has recently issued an comprehensive anthology titled *Hacktivism*, edited by Ricardo Dominguez, which contains documents and essays pertaining to TOYWAR and other online incidents. The EDT archive can be found at < www.nyu.edu/ projects/wray/ecd.html >.

The performativity of interfaces

In many ways, interface design is at the same stage that theater was in the age of classical Greece—that is, the first act. Given the rapid release of new hardware and software, trying to predict how interface design will develop over the next few decades is a bit like Aristotle foreseeing the works of Shakespeare, Brecht, and Anna Deavere Smith while in the midst of writing his *Poetics*.

The sociopoetics of interface design outlined here oversimplifies many things, even on its own terms. The component areas of experience design, information architecture, and information design each contain many highly specialized concepts and practices I have chosen not to discuss for lack of space. Further, as should be evident, these three components are entangled within one another. To design experience, for instance, one must give it some structure and evoke some mood, and to do this one is already architecting and designing information. And though I've suggested some simple steps to follow in designing interfaces, perhaps we might take our cadence from the music of Duke Ellington as much

as John Philip Sousa. In short, to create effective interfaces, future designers may need dance lessons as well as marching orders.

The strains of such analogies point to another challenge of working in the (still) emerging field of new media: the challenge of finding and employing heuristic (and anti-heuristic) models. The model of models I have in mind here is less the copying of forms than the channeling and displacement of relevant rhythms and processes (thus the most *forceful* model of models is Dionysian rather than Apollinian—or, alternatively, Socratic).[9] I'm talking here about miming flows instead of forms, and if I'm leaning on the performing arts, it's because they provide the most salient models for designing experiences (the basic element of interface design). Brenda Laurel made a similar point a decade ago, arguing that "[d]esigning human–computer experience isn't about building a better desktop. It's about creating imaginary worlds that have a special relationship to reality—worlds in which we can extend, amplify, and enrich our own capabilities to think, feel, and act … [T]he theatrical domain can help us in this task."[10]

As I've argued elsewhere, while Laurel models her path-breaking poetics of human–computer interaction on Aristotle's *Poetics*, the field of cultural perform-ance offers a wide range of other models for understanding and designing interfaces: rituals, popular entertainment, dance, experimental theater, political demonstrations, and performance art.[11] For example, the first project I assign my beginning interface design students is to *perform a bad interface experience*: students create brief solo performances in which they replay and thus demon-strate their frustration with can openers, car keys stuck in steering columns, condom packages, etc. The performances last anywhere from 20 to 60 seconds, and I encourage students to use props and, more importantly, to feel and think out loud, to vocalize the emotions and cognitive processes involved in their interfacial experiences. Students in the audience watch these short performances, plug into the experiences performed before them, and then jot down their observations and make on-the-spot analyses.

Theater and other cultural performances have extensive histories of designing experiences for both performers and audiences alike, and therefore they offer powerful models for interface design, not simply forms but also *processes and methods*. Further, cultural performances possess two other traits highly relevant for interface designers. First, the vast majority of cultural performances are *collaborative*; they usually involve not a lone creative "genius" but a group of people working together (writers, actors, directors, stage crews, etc.). Likewise, interface design, whether it be for the web or for the macrophysical world, invariably entails collaborative production—between different designers, engi-neers, computer scientists, writers, etc. Second, cultural performances are *multi-media* in nature, composed of texts, gestures, sets, props, music, costumes, etc. Thus, it comes as no surprise that new media theorists regularly cite Wagner's concept of *Gesamtkunstwerk* (total artwork) when discussing multimedia produc-tions; nor is it any wonder that the industry standard software for creating high-bandwidth multimedia projects is Macromedia's *Director*, a program whose own interface employs metaphors from the performing arts (cast, stage, scenes, etc.).

Models of cultural performance help introduce us to the *performativity of interface design*. Human–computer interfaces can be thought of as discrete,

collaborative performances between larger social and technical systems. But to fully fathom the complexity of how interfaces perform sociotechnically, we need to draw on two other fields of performance: the organizational and the technological. While cultural and performance studies scholars have researched cultural performances over the past half-century, managers and organizational theorists have over the same period analyzed and designed "peak performance" organizations; and engineers and computer scientists have built and tested "high performance" technologies.

These different performances are not metaphorical displacements of one another; rather, cultural, organizational, and technological performance paradigms have their own genealogies which, while historically related, have until recently remained formally distinct.[12] For our purposes, the most important distinctions concern the different evaluative grids guiding these contrasting performances. All too briefly: cultural performances are evaluated in terms of their *social efficacy*, their ability to maintain or transgress social norms. Organizational performances, by contrast, entail the value of *organizational efficiency*, the "minimaxing" of inputs and outputs, costs and benefits. Finally, technological performances are guided by the value of *technical effectiveness*, the operational functionality of technological systems.

Efficacy, efficiency, effectiveness: these evaluative grids are crucial to understanding the performativity of interface design—and of our postmodern condition. These grids can be understood, respectively, as corresponding to the following questions: "What is the social impact of X?" "What is the cost/benefit ratio of X?" and "Does X function, does it work?" Each type of performance is highly contested and marked by patterns of difference and repetition. And while cultural, organizational, and technological performance paradigms emerged rather independently in Cold War America, their evaluative grids have begun to converge in the "New World Order," in order to form a performative matrix that is multicultural, multinational, and multimediated in its effects. Efficacy, efficiency, and effectiveness do not become subsumed in this matrix; rather, everyone becomes subject to the constant, intermittent "satisficing" or trading-off of different performative values.

This is the point on which I have come to insist: *performance will be to the 20th and 21st centuries what discipline was to the 18th and 19th—a formation of power and knowledge.*[13] While discipline emerged in, or rather *as*, the age of Enlightenment, colonialism, and the industrial revolution and produced enclosed, sedentary institutions and isolated archives of discourses and practices, performative power/knowledge emerges as an age of post-Enlightenment, postcolonialism, and digital revolutions; performativity produces overlapping, nomadic sociotechnical systems whose archives are now becoming interlaced through electronic networks.[14] Bodies were once disciplined by highly rational and stable norms, passing slowly out of one institution into another; now they are encouraged to perform, to alternatively conform and transgress, and thereby to test a kaleidoscope of norms whose coordinates switch quickly between different evaluative grids, sometimes rational, sometimes intuitive, always on the move. The result is interminable multi-tasking: be effective, now be efficient, now be efficacious … In short: perform—or else, over and over and over, differently from one moment to the next.

With respect to our sociopoetics: *interfaces are ground zero of performative power*

and knowledge. The human–computer interface operates as the panopticon of global performance. The convergence of different "mixes" of social efficacy, organizational efficiency, and technological effectiveness can be sensed in our interface-off between etoy and eToys. The contrasting designs of their websites reflect the very different arrangements of efficacy, efficiency, and effectiveness at work and in play with eToys and etoy, both of which involve cultural, organizational, and technological performances.

With the toy company, the values of organizational efficiency dominate those of technological effectiveness and cultural efficacy, resulting in the coherent, user-friendly experience design, the well-defined information architecture, and the bright and happy information design found on etoys.com. And the art group etoy? That etoy has a website at all attests the group's investment in technological effectiveness, and despite their parodying of bureau-babble and bureaucracy's more sinister effects, the success of etoy in mounting a worldwide act of hacktivism with over 1700 participants shows their organizational savvy. But it is obvious that the value of cultural efficacy—in this case, cultural resistance to the e-commercialization of the Internet and art markets—carries the day with etoy each and every day, and this can be seen and felt and heard in their site's chaosmotic experience design, its Kafka-on-Java architecture, its black and blaring info design.

Simply put: with eToys, art and technology serve business; with etoy, business and technology serve art. These two different arrangements of performative values collided that day in 1999 when a young lad wandered onto etoy.com instead of etoys.com, thereby short-circuiting their carefully designed user experiences. The result was TOYWAR. The rest is e-history.[15]

Notes

1. How much TOYWAR was responsible for the sell-off is a matter of debate, as there was a downturn in the toy sector in general, and in the online toy sector in particular. The exuberant etoy group, however, insists on a direct correlation and now claims TOYWAR is the most costly performance art event in history.
2. For details on this event, see Electronic Disturbance Theater's *Hacktivism: Network_Art_Activism*.
3. See my essay "!nt3h4ckt!v!ty" (McKenzie, 1999), also reprinted in Electronic Disturbance Theater's *Hacktivism: Network_Art_Activism* (2001).
4. See Saper's forthcoming book *Network Art*.
5. The situation becomes even more daunting when we consider that thus far I have concentrated on interfaces that directly involve people or human "users." But technical systems can and do interact with themselves. To visit a website, for instance, your personal computer must connect to the phone network, through which it then requests information from the server hosting the site, information that is sent back through the network to your computer. Between each technical system there are

interfaces allowing them to interact with each other. And we don't have to go surfing to find machine-to-machine interfaces: between keystroke and display, for instance, lie processor, random-access memory, and cathode-ray tube, all of which must interact with one another to produce such feats as the on-screen display of the word "word."

6. See Wurman (1997), p. 15.

7. See Rosenfeld and Morville (1998), p. xiii.

8. Actually, an even more firmly established field of information architecture lies outside interface design altogether, for it concerns the building of "back-end" computer systems; our interest, however, lies on the "front-end," where information meets its end-users. In short, there are two different fields: engineers and computer scientists work on back-end information architectures, while interface designers work up front.

9. See John Sallis' (1991) *Crossings* on Dionysian, Apollinian, and Socratic modes of mimesis.

10. Laurel (1993), pp. 32–33.

11. See McKenzie (1997).

12. I trace these genealogies in *Perform or Else: From Discipline to Performance.* See McKenzie (2001), Chapters 1–3.

13. The reference here to Michel Foucault's work should be obvious, though my theory of the "performance stratum" is relayed through the plateaus of Gilles Deleuze and Félix Guattari, as well as the performance theories of Herbert Marcuse, Jean-François Lyotard, and Judith Butler. See McKenzie (2001), Chapters 5 and 6.

14. Again, I am simplifying things for, what, the sake of efficiency/effectiveness/ efficacy/your reading experience. To clarify a bit: performance *displaces* discipline; it has not yet fully replaced it. Discipline, though in decline, is still operative, especially in modernizing societies, and as auxiliary power in postmodern societies.

15. In early 2001, eToys laid off all its employees and announced it would fold entirely in April.

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