How I Learned to Stop Worrying and Love the Hackers

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Designers are a unique breed: We take pride in our flexible attitude and ability to be disciplinary ambassadors, but we are often so easily seduced by process that we can get set in our ways. Though having a strong sense of what “designerly” means is an important aspect of creating professional results, focusing too closely on this definition may prevent us from embracing work that doesn’t quite appeal to our sensibilities. The current hacker-inspired DIY movement is an example of this, and this groundswell of activity has become too important to be ignored.

As disciplinary boundaries blur and we approach what forecaster Paul Saffo describes as a “creator’s economy” [1], we as designers face an interesting situation where there may actually be more creativity happening around us than there is inside our own offices and studios. This peripheral activity may not be design in a traditional sense (or in a billable sense), but in some ways it actually embodies the exploratory spirit of design better than our own professional practice. Are these emerging hacker-explorers starting to outcreate the creatives?

In Our Backyard
At a recent design conference, digital illustrator Joshua Davis told a story about going to Japan to speak about the patterns he had recently incorporated into his work [2]. Davis was an American guest lecturer invited specifically to expound upon his appreciation of Japanese graphic motifs. The moral of the story was familiar: It sometimes takes an outsider to point out something that is right under our noses. Though these were the very patterns that appeared on the floors and tile work that his hosts could see every day in or near their own homes, it took an outsider to truly celebrate them.

I had a similar experience when I first moved to San Francisco in 2005. In addition to the Bay Area being a hotbed of geek culture, it was a pivotal time in product-design history—when the confluence of broadband availability, wireless internet access, and ubiquitous screens made the “smart products” that we dreamt up in utopian student projects and hypothetical design scenarios a reality. In my new home I was thrilled to see the roles of artists, designers, and technologists so seamlessly blur into one another through local events and collaborative projects. At the same time, I was stunned to see how little attention my colleagues in the interaction-design world paid to it. In their eyes, I was off to my “funny little meetings” to hang out with the geeks and the hackers and their current curiosities, but I certainly didn’t see my collection of extracurricular activities as particularly out of place. In fact, I believed these activities to be must-see examples of design exploration. They were exuberant displays of visionary exercises. They were elegant slices of innovative thought, and they had everything to do with contemporary design practice.

DIY Renaissance
Fast-forward a couple of years, and I can see that there is more awareness among design firms of how hacker-inspired art and technology efforts can provide an excellent playground for inspiration and experiments in cultural change. Nonetheless, there is still a reluctance to seek this inspiration on a regular basis. In the meantime the creative geek/hacker/tinkerer subculture has exploded, and the technological DIY spirit that was once the almost exclusive domain of the Bay Area and elite technology institutions has spread to cities throughout the world.

Resources for Information
“Okay, great,” you may say, “so where can I get some?” Well, for

starters, DIY publications and community-driven resources take the mystery out of tough technical problems and can inspire new projects. MAKE (http://makezine.com) is a monthly magazine published by O’Reilly that seeks to embody the weekend-inventor spirit that once existed in ’50s geek classics such as Popular Mechanics [3]. Though the projects featured may exist more for the pleasure of their creation than their actual use (they include things like solar-powered music boxes and aerial photography balloons), the spirit of tinkering and experimentation is one that will make you look at a soldering iron in a whole new light.

While MAKE is slick, tightly edited and published in a number of different formats (including specially packaged collector’s series), Instructables (http://www.instructables.com), is the wilder, freer version of this same kind of content that The Village Voice credits with being “perhaps the most concrete case to date of the Internet’s potential for reshaping our material world...” [4] This Web-based, community-driven repository of how-to documents maintains consistency through its structure of “step-by-step collaboration.” The content includes instructions on how to build a CO2 generator, an electric solar-power system, and motor-driven spiders, to name a few.

Access to Tools

All this clear instruction and powerful inspiration is great but won’t go beyond entertaining reading without access to tools and space to work. This is where places like Techshop (http://techshop.ws) come in. Techshop is a fully equipped workshop that gives members access to almost every imaginable machine-shop tool such as welding stations, laser cutters, and milling machines. A monthly or yearly membership offers full access to the tools, space, events, and low-cost skills classes and is a natural breeding ground for collaborations and creativity. Currently based in the California Bay Area, it is planning to open in 10 more cities around the U.S.

At the same time, imagine if you could dream up an object and then use all your tools virtually without ever setting foot in a machine shop. It sounds pretty magical, but Ponoko (http://www.ponoko.com) is an online resource that does just that by letting its members design, produce, and sell physical products like jewelry, lamps, or even furniture without ever leaving a browser window. Seriously. Aimed at anyone with access to a vector program like Illustrator or Freehand, the downloadable template kit lets users draw a design, upload it, select materials, and have the parts shipped directly to them. Ponoko will even provide sales and distribution. Though the current focus on laser-cutting techniques means that the forms must be based on flat panels, the service represents a 3D leap off the desktop-publishing page with which we are all so familiar. Currently based in New Zealand, they are actively adding production resources in the U.S.

Events and Happenings

The amount of information about projects, processes, and resources is so immense that it can become overwhelming, but local events offer an opportunity to contextualize the work. Community gatherings combine encouragement, vision, and good old-fashioned schmoozing under one roof on a regular basis. The grandaddy of maker-community events is Dorkbot (http://dorkbot.org/), a monthly show-and-tell club of artists, technologists, and veritable mad scientists. Founded in 2000 by Douglas Repetto in New York City, Dorkbot events now take place in more than 60 cities around the world. Though its main focus is around the weekend-inventor spirit that once existed in ‘50s geek classics such as Popular Mechanics, its presentations have included everything from gourmet food hackers to bigfoot hunters and something with robot anatomies called “teleidronics.” Meetings are locally run and organized by key volunteers, and beverages are often available for a small price, with proceeds going toward future events.

On a much larger scale, Maker’s Faire (http://www.makerfaire.com) is the biannual public event that is an extension of the MAKE and CRAFT magazine community. A spectacular display of contraptions, customizations, and maverick product manufacturing techniques, it will leave you championing the little guy in the marketplace. The Faires take place twice a year in


the California Bay Area and have begun branching out to other cities such as Austin, Texas.

Electronic Prototyping for the Rest of Us

Though electronic systems have become more prevalent in the design of everyday objects, they certainly are not a new phenomenon that would warrant an explosion in creative activity. What has changed is not the existence of electronic components or even ideas in creative technology, but access to tools and resources. Programmable chips, LEDs, and other electronic parts are cheaper than ever before. At the same time, easy-to-use electronics prototyping systems allow designers to quickly mock up physical user interfaces in a way that was, until recently, only accessible to engineers and electronics enthusiasts. Phidgets (http://www.phidgets.com) are a system for interfacing physical inputs with a computer via USB. “Plug and play” sensor kits allow anyone to monitor properties such as temperature, pressure, rotation, and 3D position. Specialized inputs such as touch sliders and RFID readers are also available, and many of the kits also have outputs for controlling physical devices like lights and motors. The boards can be controlled via a number of programming environments, and their incorporation of Flash ActionScript makes it an easy transition for many designers who have never worked with electronics before.

Arduino (http://www.arduino.cc) is an input/output system similar to Phidgets, but it is completely open source and has a strong community following. Created at the Interaction Institute Ivrea in Milan, it has its own programming environment, but like Phidgets, can also be interfaced with many other common programming environments such as Flash ActionScript.

A Screwdriver and a Set of Pliers

While plug and play kits like Phidgets and Arduino offer a powerful approach to experimenting with device behaviors, you can’t beat the immediacy of hacking an existing device when its functions will fit the bill for a project at hand. The popularity of electronic gadgets has led manufacturers to offer a plethora of new products that combine several sophisticated capabilities in a small case. Nabaztag is one such gadget. A WiFi-enabled device in the shape of an abstracted toy bunny with glowing lights and motor-controlled ears, it can be set to display user-configured ambient information such as stock market data, weather, or specialized tasks such as notification of when a specified user logs on to IM. Despite the fact that the bunny’s creator does not promote the item as “hackable,” splinter communities have begun to emerge online to encourage Nabaztag hacking.

Chumby is an ambient device that combines WiFi access with a touchscreen display for viewing content via user-selected “widgets.” While not quite as distinctive-looking as the Nabaztag bunny, it redefines the information appliance by embracing the spirit of customization and community-based knowledge exchange. Its makers boast that it is “completely hackable” and actively encourage both hardware and software tinkering with an open source platform. It has two USB ports as well as built-in position sensors (via accelerometers), so the combination of virtual and physical behaviors is endless.

Hacker Culture and You

Though I agree that the temperamental approach of a “rebel artiste,” as Luke Kowalski described in his November-December 2007 article for interactions [5], can be counterproductive to a design project, there is still a lot to be gleaned from the DIY community. We are in the midst of a tinkerer-maker revolution where everyone from amateur geeks to world-class artists are sharing a common spirit of creative energy. The DIY attitude is one of play, experimentation, and an appreciation for an intellectual landscape of possibility and undefined paths. It is visionary in its ability to maintain its rose-colored viewpoint and look beyond the nuts, bolts, and masking tape to the essence of something new. While it is natural to celebrate this subculture as some curiosity to be lurked at from afar, it may take some effort to embrace and integrate into design practice, but the knowledge gained will be well worth it.

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