Anything Is a Fridge: The Implications of Everyday Designers

Ron Wakkary | Simon Fraser University | rwakkary@sfu.ca

Kerry and Beck are everyday designers. An everyday designer remakes or modifies systems and appropriates design artifacts as creative resources through design-in-use [1, 2]. Beck is also an electrician who works at the city port, and on weekends and the odd evening plays bass guitar with his band. While not well-to-do, he squirreled away enough money to buy an inexpensive sailboat. In addition to being an everyday designer, Kerry is a dancer who works part time at a health food grocer across town, and is the full-time caretaker of her two boys, who are 18 months and six years old. One day, Beck asks Kerry what he should do with "this thing" on top of the fridge. Kerry explains to him that "this thing" is a breast pump she is lending her friend. She assures him it will soon leave the house.

Beck and Kerry (and the kids) graciously allowed me and Leah Maestri, a student researcher, into their home a few days a week. We were conducting an ethnographic study of four families over five months in an east-side Vancouver neighborhood to explore how families creatively use and reuse design artifacts. Our purpose was to utilize these studies to improve the design of interactive technologies in the home.

The day of the breast-pump incident, Beck explained to us, slightly exasperated, that they'd cleaned the top of the fridge last week, but somehow it was getting cluttered again. Leah asked him where he put his sailing gear that was on top of the fridge during our last visit. He said he took the gear with him when he went to work on the boat the day before. Kerry and Beck then told us how three surface areas in and around the kitchen work together to help keep things organized with their lack of storage space. It all began with the top of the fridge, which acts like a deep shelf space or very tall table; then the open cabinet referred to as the "microwaveless shelf," since it was designed to store a microwave they do not own; and finally, a small table in the hallway alongside the kitchen. In essence, wherever possible, surfaces like the top of the refrigerator have been put to use. Or as Beck puts it: "Basically, anything is a fridge… It's all one big fridge."

In terms of everyday design, Beck and Kerry have appropriated design artifacts like the top of the fridge together with other horizontal surfaces for new uses. The intent for the "microwaveless shelf" is to store dish towels, mail, or notes. During this particular session it was stuffed full of items—from a maple sugar house to dental floss to a can of wood stain (see Figure 1). The top of the fridge was a place to keep other valued things, like a wicker box full of important papers. Other items saved for one reason or another include a 20-year-old Sony Walkman that Beck plans to sell one day on eBay, a lottery ticket redeemable for $8, and a clock. The remaining items are on top of the fridge to keep them out of reach of the children: a steel mixing bowl that had become a noisemaker (especially during our visits!) and a small guitar over which the boys fought.

The issue at hand during our visit was the migratory items, like the breast pump or sailing gear, that, much to Beck and Kerry's chagrin, found their way on top of the fridge, adding to the ever growing, unmanageable pile. The everyday designers in Beck and Kerry discussed how ideally, transitory objects on their way in or out of the house would be temporarily placed on the third surface, the small table in the hallway. However, some objects are better kept on top of the fridge, away from the children, like the sailing gear. Moreover, the hallway, which leads to the front door, had become what we refer to as a "crash pad," the resting point for innumerable things making their "landing" upon entry in the house—Beck's bass guitar and case, toys, strollers, jackets with backpacks still attached to them, and other items unceremoniously dumped upon arrival at home. The small table stood barely accessible among all the debris.

Acting on their intentions for the spaces, Beck had recently cleaned the top of the fridge to see what really needed to be kept there and what space could be freed up (see Figure 2), hence his

query about the breast pump. Kerry later went through the objects on the microwaveless shelf and reduced them to a basket for the dishtowels and a framed picture to prevent others from piling things onto the shelf (see Figure 3). She also told us how she similarly put a plant on a chest to prevent people from using it as a seat.

In the context of everyday design, the appropriated surfaces and objects like the picture and plant form a system. In our study, we found many instances of complex and systematic use of everyday items that are appropriated and creatively recombined into highly unique systems. I've provided a snapshot of Beck and Kerry's "anything is a fridge system," showing it in progress or emergent as an everyday design system. In fact, a distinctive attribute of everyday design systems is that they evolve and establish themselves over long periods of use from months to over a decade (see our discussion of the homemade phonebook in "The Resourcefulness of Everyday Design"). However, everyday design must begin somehow or at some time.

In our observations, everyday design begins with simple acts that are familiar to us all and therefore may be overlooked. For example, we often appropriate design artifacts and surroundings for new and unintended uses, like hanging a jacket on a chair (see Figure 4), or placing items on a ledge, short wall, or stairs (or top of a fridge). This type of reuse is typically expedient and temporary. Yet these ad hoc actions can become ongoing routines, like constantly storing items on a flat space or a child's repeated use of a lower kitchen cabinet as a step when getting food or dishes from the upper kitchen cabinets (see Figure 5). A good example of an appropriation becoming a routine is how one of the participants of our study stored her sunglasses on the "ledge" space in front of the speedometer on her dashboard (see Figure 6). It is from ongoing routines and appropriations that everyday design systems emerge and evolve into systems [1, 2]. Routines establish building blocks and activities on which to build upon, and appropriations allow for experimentation and adaptation within everyday design systems.

The evolution of an everyday design system is evident in the routine that Lori, a part-time elementary school teacher, has created for organizing messages. Lori lived with her five-year-old son and during our study, her partner Abe. For many years she kept a planner that she used in ways interesting to everyday design [3]. Lori's planner housed notes, reminder lists, and important notices. At one point she began using sticky notes—new notes pasted on top of full pages. She would occasionally place these sticky-note messages on the frame of her apartment's front door as a reminder for something important or timely. At this point, Abe moved in with Lori, so the sticky notes were also a convenient way to share messages. Over time the messages spread past the front-door area into the nearby small kitchen to include a chalkboard (see Figure 7), the fridge door, a hanging basket, and the doorframe. The placement of messages and lists was not arbitrary. Phone messages and reminders would go on a chalkboard near the front door. Sticky-note reminders continued to go on the doorframe. Notices and school handouts belonged on the fridge door, and notes and lists would go in the hanging basket together with the mail. The planner book was no longer necessary and no longer used.

The hanging basket was the last addition. Lori explained that she bought it at a craft fair with hopes of adding "old European charm" to her kitchen with "vegetables, onions, and garlic" hanging from the ceiling at the ready. This aspiration was reduced to avocadoes in the middle basket, sunglasses in the top basket, and "the bottom part became a catch-all for mail." This unintended reuse allowed the bottom basket to figure prominently in the messaging system: In addition to holding bills, the basket also stored lists and messages that Lori shared with Abe. For example, Lori and Abe would leave shopping and to-do lists for each other in the basket (see Figure 8). Since these lists were visible in the wired basket, Abe or Lori would pick up the list on the way out. If they were unable to complete the list, they would return it to the basket with the purchased items crossed off.

The system evolved over the years and in the process acquired a design complexity that managed distribution, storage, and display of different types of messages and lists for the household—all through simple appropriation and reuses of existing design resources.

The idea of everyday design is not entirely new to design and human-computer interaction. For example, Christopher Alexander discusses what he terms the unselfconscious process: a design process undertaken on a cultural level and over a long period of time, in which designed items are shaped gradually and continually to fit the surrounding, ever changing context [4]. Individuals participate in this process in an unselfconscious way, simply recognizing a failure in the system and reacting in a corrective way to achieve a well-fitting form. Alexander would eventually describe the process of continuous adaptation as piecemeal building [5]. Gerhard Fischer's meta-design evolves the idea of unselfconscious design by investigating open and closed systems and the role of end-user modifications in software systems [6].

The value of everyday design at this juncture of interaction design and HCI's development is the way in which everyday design can inform the design of interactive technologies for the home and beyond. In our research we draw three main implications from everyday design:

- *Principles of design-in-use.* The design and shaping of artifacts and new systems occurs through the use of artifacts in everyday design. Given this, design-in-use is best exploited when designers leave space for people to be creative and resourceful. In thinking about the design cycle of digital artifacts, design-in-use is a critical factor that will continue to shape a design long after it has left the hands of professional designers. (See the "Design-in-use Principles" sidebar.)

- *New identities for users*. The idea of a user is a core concept in HCI that has many assumptions behind it, namely that the user is a task-oriented consumer. Everyday design holds different and new assumptions that create new identities for users. Users are creative, resourceful and are sustainable [4]. (See the "New User Identity" sidebar.)

- *Rethink interaction design goals.* Designing for everyday design calls for a rethinking of design goals for the interaction designer. New and different goals include designing digital technologies that can be easily appropriated for new uses; designing simplicity that encourages flexibility and combinations with other designs; and creating designs with many undirected affordances that can be exploited in use. (See "Rethink Design Goals" sidebar.)

In a world where we all design and anything is a fridge, there is clearly more to discover. I plan in our future work to design digital artifacts that follow the design-in-use principles, and to design goals that assume the creativity and resourcefulness of everyday designers.

{Sidenotes:}
[1] Wakkary, R. and Maestri, L. "The Resourcefulness of Everyday Design." *In Proc. C&C 2007* (2007): 163–172.
[2] Wakkary, R. and Maestri, L. "Aspects of Everyday Design: Resourcefulness, Adaptation, and Emergence." *International Journal of Human-Computer Interaction* 24 (5): 478–491.
[3] Wakkary, R. and Tanenbaum, K. "A Sustainable Identity: The Creativity of an Everyday Designer." *In Proc. CHI 2009* (2009): 365–374.
[4] Alexander, C. *Notes on the Synthesis of Form*. Cambridge: Harvard University Press, 1964.
[5] Alexander, C., Ishikawa, S. and Silverstein, M. *A Pattern Language: Towns, Buildings, Construction*. New York: Oxford University Press, 1977.
[6] Fischer, G. "Meta-Design: Design for Designers." *In Proc. DIS 2000*, (2000): 396–405.

About the Author
(TK)

{Begin Sidebars:}

Design-in-use Principles

- **"Design-in-use" involves a high degree of creativity that in the best sense of the word makes a user unpredictable.** Design-in-use requires an underdetermined approach to the user that does not exclusively define use of the artifact. Through design decisions of material choices, flexible structures, support for sharing, and simplicity, a space can be created for users to evolve new uses not conceived of by the designers. The creativity of the user establishes the foundation (not the challenge) for interaction design; unpredictability is reframed as a positive attribute of the user rather than an obstacle to "proper use."
- **Design artifacts become resources for further creativity as an outcome of design-in-use.** Artifacts will be used in ways that transcend their intended use. The simplest of products, which can easily be reused, work well in everyday design. This principle asks that professional designers design artifacts so they are open to and even invite uses that were not included in the original design. For example, in the digital-artifact equivalent of paper, rather than consider it a medium that supports written text and drawings, designers can design toward an action space that invites rolling, folding, marking, ripping, making holes, gluing together, etc. Electronic products in particular require greater and simpler actionable attributes in order to be redesigned, rather than the current proliferation of highly targeted "features" designed to address predetermined needs.
- **Design-in-use qualities emerge over time.** Design artifacts exist in an evolutionary and complex environment. The value and use of artifacts change over time as they are combined into systems with other artifacts, renewed through discovery of new uses, or as situations or needs change. Recognizing that qualities emerge over time requires us to consider more than just the explicit usefulness of an artifact, that is, to include more passive usefulness and unintended uses. Designers might consider identifying states and transitions of artifacts in order to better understand this process.

New User Identity

- **From consumer to creator**. The renewal and reuse of artifacts demonstrate the role of creativity over consumption in the identity of the everyday designer. In this role, end users are creative coagents, who, through design-in-use, invent and renew designed artifacts. For example, for years some Mac users have been turning old all-in-one Macintoshes into aquariums, known as "MacQuariums," rather than disposing of them.
- **From overdetermined to underdetermined**. This creates space for users to "perform themselves through the use of the technology." For example, the *squillo* is a one-ring mobile phone call first widely used by Italian teenagers that identifies the caller by callerID. The unanswered (and free) call is simple yet contains multiple expressions: an affectionate hello, a flirtation, or a message that you are running late but are on your way).
- **From user to designer**. The everyday design identity relies on design actions that allow for the reshaping of the world around us. It rests on the ability to appropriate and adapt artifacts as design resources. For example, despite the marketing of inexpensive and disposable solutions by the furniture company IKEA, "IKEA hackers" have pushed beyond the do-it-yourself culture that the company invites in order to repurpose and renew IKEA items to adapt to their unique and changing needs (see http://ikeahacker.blogspot.com/).

Rethink Design Goals

- **Design for appropriation**. Develop interaction design artifacts that are capable of being reused or adapted in ways other than what the designer intended. Design interactive artifacts that invite appropriation and adaptation from everyday designers. The two following goals—simplicity and undirected affordances—support this overarching goal.
- **Simplicity**. Everyday design systems evolve to be highly unique and supportive of complex routines. Yet the elements of the systems are often very simple artifacts. Interaction design artifacts, which can be resourced in everyday design, are best

> designed to be simple and have the potential to be combined with other artifacts to better support unique and complex needs.
>
> - **Undirected affordances**. Designers often incorporate or leverage affordances to direct users in completing tasks or operations. Everyday design digital artifacts would incorporate affordances that are not directed at any particular task but are readily available for experimentation geared to creating something new and needed.

{End Sidebars}

{Figure Captions:}
Figure 1. The "microwaveless shelf" overflowing with items.
Figure 2. The top of the fridge after being organized and cleaned.
Figure 3. The redesigned "microwaveless shelf"; a picture and frame are displayed to prevent piles of meaningless objects from forming.
Figure 4. The overlooked appropriation of a chair to hang a jacket.
Figure 5. Use of the lower kitchen cabinet as a step.
Figure 6. Appropriating the flat surface on the dashboard for storing sunglasses.
Figure 7. Lori's chalkboard used as part of her message system.
Figure 8. Lori's hanging wire basket with notes to share with her partner.