

Shapeshifters in the Voluntary Sector: Exploring the Human-Centered-Computing Challenges of Nonprofit Organizations

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I'd lived in Irvine, California, for six months and never realized that there was a wildlife sanctuary there, tucked in beside the freeway and the miniature golf course, less than a mile from the university.

Conducting fieldwork with more than two dozen nonprofit organizations over the past two years, I'd found myself in plenty of neighborhoods that were hidden from the public eye—a barrio with a small community health clinic situated directly beneath the flight path of an airport, or the abandoned industrial center of a state capital, now converted to a campus for the urban homeless—but I hadn't yet found myself navigating a wildlife sanctuary hidden among the trappings of suburbia. At least it was partly a wildlife sanctuary. It was also the property of the city water company, used as part of the local water-treatment system, with just enough industrial infrastructure scattered along the roadway to leave me wondering whether I was in the right place. But I found the office I was looking for, in one of a half dozen small, out-of-place-looking cottages clustered at the end of the road.

There, “Debbie” managed the local affiliate of a national environmental nonprofit. She was the only full-time employee, handling many of the responsibilities of a chief executive officer, volunteer coordinator, program coordinator, communications director, development officer, and administrative assistant all at once. The office space she worked in was on loan from the water company in exchange for her and her volunteers providing tours of the wildlife sanctuary for local school groups. Debbie was quick to emphasize what a great arrangement this was, that most other affiliates of their nonprofit had no office space of their own.

Cross-Sector Dynamics

The particular interdependency between this environmental nonprofit organization and the public utility was, in my experience, fairly unique. But interdependencies with other organizations and institutions more generally are part of the fundamental character of nonprofits and help explain the dynamic nature of much of the work they do. These interdependencies create new challenges for human-centered computing and make nonprofit organizations a particularly interesting site for research and design.

There are four sectors—categories of organizations and institutions—that are often considered collectively to enable society to function [1]. Each sector plays a unique role in society. The *public sector* comprises governmental organizations and institutions that enable the articulation and attainment of shared goals; the public sector typically provides some military, social, and regulatory services. The *private sector*, including for-profit corporations and businesses, fosters resource development, creates products, and hires the

vast majority of workers. The *household and community sector*, including extended families, neighbors, and other informal community institutions, helps people meet life challenges, such as managing households and raising children. The *social or voluntary sector*, including nonprofit and voluntary organizations, “harmoniz[es] the various actions of [other] organizations” [1]. The organizations in the nonprofit and voluntary sector have to be shapeshifters, adjusting their own work to fill the gaps between other sectors and to offer goods and services that are underprovided by other organizations and institutions. As the social and economic context surrounding nonprofit organizations changes, the work of nonprofit organizations must change, as well.

Changes in the public sector have historically been among the biggest influences on the voluntary sector, enabling the formalization, certification, and regulation of nonprofit organizations [1]. Governmental decisions about what public services to provide can lead to partnerships with nonprofits, which often operate as subcontractors in the delivery of these public services. Governmental decisions about what public services not to provide leave nonprofits to fill the gaps between public policy and human need. The changing relationships between the public and voluntary sectors affect the goals, work practices, and technology use of nonprofit organizations. A nonprofit community health clinic in which I carried out fieldwork, for example, received a governmental grant and, as a result, was required to implement electronic medical records in order to receive federal money. A regional, nonprofit food bank assisting clients in signing up for governmental food assistance needed to learn new best practices once the government mandated the development of an online application process.

Changes in the private sector influence the work of nonprofit organizations, as well. As the economy grows, so, often, do the resources—particularly through grants and donations—of the nonprofit sector [1]. But as the economy wanes, so, too, does the availability of resources... all while the demands on and needs of clients served by nonprofits are increasing. Consistent even during these economic pendulum swings is the influence of business philosophy in swaying people’s beliefs about how nonprofits should be run. The belief that nonprofits should be efficient and productive economic institutions can be in conflict with the belief that nonprofits should embrace their role as participatory forums in a democracy, nurturing volunteers, fostering membership, and privileging community advocacy [2]. The director of a church-affiliated human services nonprofit, when discussing the challenges of information management, explained the tension in this way:

What about policies? What about procedures? What about time sheets? What about this? What about that? And so then you start... everything gets documented. Everything becomes very rigid. It becomes a workplace rather than a ministry kind of place. And you start following policies rather than people and you start living by rules rather than caring for the person.

The varied philosophies of nonprofits can lead to differences in the uptake of information technologies. These differences range from fundamental decisions about whether or not

to document information in the first place to differences in how the internet is viewed—such as being a means of efficient fundraising and information dissemination or as being a means for relationship and community building among the organizations’ beneficiaries, advocates, donors, and volunteers [2; see also 3].

Finally, changes in the household and community sector also influence the work of nonprofits. As the makeup of households change—as households take in a greater or fewer number of family members or as family members enter or depart the workforce—their reliance on nonprofit organizations for assistance can change as well. Families may rely on food banks for supplemental nutritional assistance or youth development nonprofits for afterschool childcare. As family members adopt new technologies, nonprofit organizations may have to reconsider the ways in which they communicate with their clients. In my fieldwork, I interviewed the director of a youth development nonprofit that provided music lessons to gifted students who might not otherwise be able to afford this educational enrichment. She needed to understand how best to reach the organization’s target population, whether or not the internet would be a viable distribution mechanism for application materials, and through what media she could most reliably communicate logistical information to the parents and guardians of their students. Questions about communication between the voluntary sector and the household and community sector become particularly interesting when considering that the adoption and use of technologies among families of varying socioeconomic statuses differ in significant ways [4]. The movement of households between socioeconomic classes during the waxing and waning of the economy also means that potential clients’ practices with regard to technology may differ or be in flux, as well.

Dynamics Within Nonprofit Organizations

The unique and dynamic role that nonprofit and voluntary organizations play within the ecosystem of other social and economic institutions makes them a particularly interesting site for research and design. They must remain a flexible organizational presence, evolving in response to the dynamic field of other organizations and institutions. As their work changes, so do their information and technology needs. But nonprofits are characterized by other dynamics, as well [5].

Nonprofit organizations have a dynamic and fluid workforce. Employees may come and go based on the availability of governmental subcontract work and the availability of other financial resources as the economy improves or declines. Volunteers come and go as time permits; some volunteers may participate in volunteer programming for a couple of hours one weekend and never return.

Nonprofit organizations may also be characterized by dynamic and unpredictable work contexts. Some human services nonprofits must be prepared to respond in crisis situations in which neither the location nor state of the infrastructure can be predicted in advance; some housing and shelter nonprofits work on construction sites with infrastructure that is still being built. The presence or absence of infrastructure and the degree to which it is predictable significantly influence the kinds of technology that can be used.

In addition, nonprofit organizations often have significant resource constraints in time, money, and expertise. Employees frequently serve in multiple capacities within the organization, leaving little time for administering or learning how to use new technologies. The evaluation of nonprofits' activities often gives weight to economic indicators, such as the percentage of their budget spent on clients and services versus administrative overhead, de-incentivizing nonprofits from investing in new technologies. Employees and volunteers are also likely to have expertise in the domain of the nonprofit (for example, biology at an environmental nonprofit or social work at a human services nonprofit) as opposed to expertise in business or information systems that might better enable them to tackle the challenges of nonprofit information work.

Research Challenges

For those who work with nonprofit organizations, it can be tempting to point to off-the-shelf solutions or assume that there are easy fixes. They just need an internet connection to communicate with volunteers and donors. They just need database software to manage their volunteer contact information. They just need a tablet computer to do remote data entry. They just need a couple thousand dollars to throw at the problem, to hire a consultant or an IT staff member. They just need more training. But the challenges faced by nonprofit organizations aren't challenges with easy solutions. When and if they do have money to throw at a problem, how do they evaluate the landscape of technology available to them? If they bring in a consultant or are lucky enough to find a volunteer with technical expertise, what happens to the technology once that individual leaves? How can one expect to train a workforce that is constantly in flux? And what happens to all of the above when the organization's needs change yet again in response to the dynamic ecosystem of institutions in other sectors?

The research challenges that emerge from working with nonprofit organizations arise because of their unique role in harmonizing among other classes of institutions and organizations, because of the dynamic nature of the work, and because of the numerous constraints within which these organizations must operate. These research challenges do not belong to human-centered computing alone; they transcend disciplines and require broader collaborations.

Research with nonprofit organizations provides a context for understanding the need for computational literacy in the real world. Dialogue about computational literacy often happens under the auspices of computer science education. What should undergraduate students who don't pursue degrees in computer science, for example, know about computers, programming, computational thinking and/or the capabilities and limitations of technology? Another way to approach the issue, however, is to better understand what needs for computational literacy exist in the real world. Many of the frustrations expressed by nonprofit staff members I've interviewed involved investments they made in technology that had to be abandoned when the consultant, IT volunteer, or other local expert left the organization. Nonprofit organizations are sites where more broad-based computational literacy would be immensely valuable. Merkel and her colleagues make a

compelling argument for the use of participatory research methods when working with nonprofit organizations so that researchers don't inadvertently cause similar frustrations when they leave [6]. Nonprofit staff and volunteers need to own both the decision-making process and the technology itself; they need enough expertise and empowerment to maintain their own systems over the long term. Beyond employing participatory design methods to respond to the needs of volunteers and staff members at any one organization, however, are questions about what kinds of scaffolding are necessary, more generally, to help staff and volunteers understand their own information needs, to evaluate the strengths and limitations of various technologies, and to set realistic expectations for what any given technology can and can't do. What computational constructs do staff members and volunteers need to understand in order to assess options and talk about them in critical and meaningful ways with others? What kinds of skills are required for individuals within an organization to function as learning communities, sharing knowledge about technology and helping newcomers learn to use new systems? How do we extrapolate from the scaffolding, constructs, and skills that are necessary in this context an understanding, at least in part, of what computer science education should look like for more broad-based computational literacy?

Research with nonprofit organizations provides a context for an extreme test of usability, with implications that reach beyond the interface, deep into the infrastructure. In system design, there is often a balance that must be struck between ease of use and learnability on the one hand, and power, flexibility, and expressivity on the other. The former frequently privileges novice users; the latter often assumes that users will invest in training or tolerate a steeper learning curve in exchange for longer-term benefits. Given the fluidity of the nonprofit workforce, however, it is essential to find better ways to support ease of use and learnability without sacrificing power and expressivity in an environment where the flexibility and dynamism of information and technical needs are simply not negotiable. Given the resource constraints of nonprofits, we can't take the easy way out by waving our hands and recommending that nonprofits should consistently hire IT consultants or support staff. For example, over and over again I heard volunteer coordinators bemoan the lack of accessibility of database systems, a class of technology that has been around long enough that something more closely approaching broad-based usability should have been achieved by now. But for nonprofit organizations, the usability of database systems isn't just about having a more usable interface for querying data. Most database systems are predicated on the assumption that you can create a consistent schema to describe data; but when the schema, structure, and attributes of data are dynamic and constantly in flux, particularly in response to the work of other organizations and institutions, it means that usability must engage with much more fundamental research questions of infrastructure, implementation, and storage, as well as the user experience of setting up and maintaining these infrastructures.

Research with nonprofit organizations provides a context for understanding the role of technology in inter-organizational and inter-institutional collaboration, not merely within sectors where the underlying goals, values, and/or technology use among organizations and institutions are similar, but also across sectors where the underlying goals, values, and/or inclinations about technology may differ drastically. Nonprofit

organizations have relationships with a breadth of organizations and institutions. Understanding the nature of the various collaborations—be they with governmental agencies, corporations, families, or other institutions within the voluntary sector [see also 7]—provides an opportunity to study the ways in which technology may mediate, foster, disrupt, or impede those diverse collaborations. In what ways do the different fundamental roles and values of organizations and institutions in various sectors influence technology adoption and use? How can we, as designers, help to bridge or build upon these differences? Studying the use of social media to identify, locate, and aid friends and neighbors who may have been affected in crisis situations, for example, Palen and her colleagues observed that nonprofit organizations have fundamentally failed to adapt to the innovative technology use of the public and must do so, moving forward [8]. What are the different orientations toward technology use in this context and what are the underlying roles or values that have seeded different practices? Interviews with staff members and volunteers from a crisis-response nonprofit suggest that concerns about the availability and robustness of various communication infrastructures during times of crisis constitute the primary factor in choosing to invest in and rely on some technologies over others. How does one, for example, bridge between community-sector innovation with new technologies and the pragmatic investment in and focus on legacy systems by organizations in the voluntary sector?

Originally trained as a biologist, “Debbie,” the director of the environmental nonprofit based in the wildlife sanctuary, has a great deal of expertise in local ecosystems. Working with a variety of environmental nonprofits over the course of her career, she has also gained expertise working across sectors with the diverse organizations and institutions that make up the ecosystem in which nonprofits function—working with schools and youth groups to educate children about the importance of local ecosystems, working with businesses that want to develop on environmentally sensitive land, and working with governmental agencies to aid in decision making about how best to use and protect those lands.

Often, critical ecosystems, such as the wetlands in which Debbie has worked, are undervalued by local communities because the full extent of their environmental value is not well understood. As she describes it, key elements of interdependences are rendered invisible beneath the surface of the water:

Back in the early '80s... a wetlands was just a stinky place... [so] you should have a marina there where lots of people can have boats and have fun.... Every month we had public tours to help sway people to understand there's a lot going on underneath the water that's very important...

The past two years that I have spent conducting research with nonprofit organizations have helped to reveal some of the dynamic interdependencies so prevalent in the voluntary sector, particularly the many ways in which nonprofit organizations must be shapeshifters in their work and technology use, constantly responding to cross-sector changes in their surrounding ecosystem. There are a number of ways in which we as a field might respond. We can operate at a surface level and yet still be extraordinarily helpful, for example, by volunteering to help nonprofit organizations maintain or upgrade

their information technology infrastructures or assist them with the design of their websites. But beneath the surface-level needs of these dynamic, shapeshifting organizations lie a set of underlying challenges that require more thoughtful, long-term research—research that builds on the expertise of human-centered computing along with the complementary expertise of multiple domains of computing and social sciences.

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