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Global Ergonomics

Empathy, a community focus, and team preparation are among the human/humanity-centered principles for design and innovation in the developing world.

Design for Social Impact

BY AARON SKLAR & SALLY MADSEN

Today's designers are increasingly being approached by foundations, nongovernmental organizations, and social entrepreneurs to address new types of design challenges. Members of the social sector have expressed frustration with the status quo and are looking to designers to bring innovation to the world's complex problems, which include providing basic health care, sustainable agriculture, water, and sanitation. Many of these challenges are particularly pressing in the developing world.

Through our work in these domains, IDEO's design teams are constantly refining our methods and practices. We have used many of our common approaches with success, but we have also been challenged to develop new ways of working that are more compatible with the needs and conditions found in the developing world. In designing for communities that have distinctly different cultures and infrastructures from our own, we have had to be both adaptable and creative.

We use the following five design principles as our starting point for working in the developing world. Some are recognizable as fundamental principles for any type of human-centered design work, but we share them here in a slightly nuanced form to emphasize their elevated importance in developing-world contexts.

Principle 1: Start With Empathy

We believe that empathy is the cornerstone of all human-centered design work, and it is critical for working in the developing world. Having empathy for others means seeing the world from their point of view, not your own. This can be challenging when working in communities very different from one's own. Empathy is incredibly powerful, especially compared with the common approach of addressing big issues such as poverty and disease with a demographic mindset. Analyzing statistics and trends is a good starting point, but it doesn't easily lead to design inspiration and innovation. When we are truly empathic, we put ourselves in the shoes of the people we are designing for and start to understand their motivations and aspirations.

Every design team can call on dozens of methods to achieve empathy. In a recent collaboration with International Development Enterprises in Ethiopia, our team set out to learn about the needs of smallholder farmers (Figure 1). One of the methods the team used was an overnight home-stay in a rural farming village.

On our first day in the village, one farmer described in a dejected and hopeless tone the challenge of being unable to afford schooling for his seven children. The next morning, the villagers were stunned to find us still there. When we visited the same farmer again, he invited the team in with an enthusiasm and connection that wasn't present the day before, and he shared his detailed plans for getting his family out of their difficult situation.

Figure 1. A research team member uses an immersion exercise to gain empathy with smallholder farmers (Ethiopia).

These personal experiences helped us come up with ideas that would not have surfaced without the direct connection with this farmer and others like him. One such concept that resulted from this work is an alternative microfinance offering that fits the seasonal nature of the income patterns of farmers, rather than requiring the traditional weekly payments.

Principle 2: Design for Communities

Solutions for the developing world demand consideration of more than the individual. Rural communities tend to be tightly integrated, and any change we bring to an individual to improve his or her livelihood can shift the balance of the whole community in unintended ways. Designers have become adept at designing for the individual experience. Now, we have started to expand human-centered design to become closer to the goal of *humanity-centered design*: balancing the needs of the individual with those of the community. Humanity-centered design challenges us to be mindful of unintended consequences; our goal is to seek empathy for multiple stakeholders in the community and to solve problems with all their needs in mind to create stronger solutions.

During a study of microfinance in Uganda, our team learned the importance of this approach of expanded empathy. In collaboration with Hewlett-Packard, we were challenged to develop a handheld device that aids in microfinance banking transactions such as withdrawing funds and making payments. The original focus of the research was on improving the individual user experience (e.g., display legibility), but as we gained empathy for many

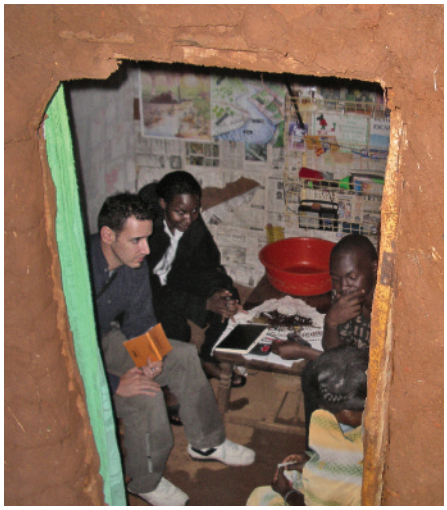

Figure 2. Observing a microfinance borrower as she goes about her daily tasks allows the team to understand the individual in the context of the larger community (Uganda).

different community stakeholders, the real promise of the technology emerged (Figure 2). Allowing individual borrowers in rural areas to make transactions without making a day's journey to the city each week has benefits for the entire community.

We saw that enabling people to build local livelihoods strengthens rural communities, stemming the flood of villagers who move to urban slums in hope of a better life. Expanding our focus informed critical design decisions and resulted in a final concept that is more likely to be implemented and adopted.

Principle 3: Take a Systems View

Creating successful solutions in the developing world requires designers to consider the full context of the offering. Because many product and service offerings are new to emerging markets or not yet available in the target regions, the offering must be more than a great product or service. We should also consider factors such as how awareness will be built, how a product will be distributed, who will provide ongoing services and repairs, and how to control environmental impacts. By acknowledging that new concepts are part of a larger system, we can design for more comprehensive solutions that fit into the existing context and infrastructure.

The Rockefeller Foundation sponsored a recent project in India to make a low-cost health device accessible in rural villages – areas where people have limited access to health services and low levels of familiarity with technology in general. Because of the low level of awareness and health infrastructure in these areas, the team designed a system of solutions to support the core device. This included a family of services: strategies for finding and educating customers, procedures and training materials to customize the device for each patient's unique experience, and strategies for after-sales servicing.

In order to connect the many other stakeholders around the individual patients, we developed training materials for local organizations and a toolkit for the employees who sell the product (Figure 3). In effect, we designed a business in a box – a comprehensive kit of tools and services surrounding the product.

Principle 4: Make Appropriate Trade-Offs

On every design project, designers need to prioritize between an offering's features, cost, and development time. It's then critical to make the right trade-offs to satisfy the design goals. In developing-world projects, we have found these trade-off discussions to be especially passionate. Some people believe that you can't compromise in designing for the poor – quality is the top priority. This thinking is common in aid-based development projects in which cost is not the key constraint, but it doesn't work when designing affordable solutions for the marketplace. At other times, social sector projects have multiple stakeholders – for example, funders, implementers, customers, and end users – with multiple sets of priorities. Our challenge is to make appropriate choices to satisfy the constraints of the people we are serving directly as well as the other stakeholders.

Figure 3. While selling her wares, this entrepreneur inspires the design team to emphasize considerations of the overall system of services and infrastructure that need to be in place in order to make implementation successful (Andhra Pradesh, India).

Our collaboration with KickStart to design treadle pumps for African farmers provides a case in point. In the first engagement, the two priorities were that the pump had to reach a certain depth and that it had to be manufactured in Kenya. In this case, the goal of the organization was to provide a valuable product and simultaneously support the local economy. Seven years later, emphasis shifted to lowering the cost of goods. KickStart removed the constraint of local manufacture to provide a cheaper pump in order to reach as many farmers as possible and lift more people out of poverty. These different constraints led the team to very different trade-offs in creating the appropriate user experience with the pump.

Principle 5: Prepare Your Team

One of the values that designers bring is a "fresh-eyes" approach. We bring a new perspective to career professionals who have years of immersion in a particular context. However, in the developing world, we can be easily overwhelmed by

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AT A GLANCE: Design thinking can be a powerful tool in addressing the complex challenges in developing countries. When used with intention, existing design practices are a strong foundation to reach innovative solutions. Five key principles guide our work: (1) Start with empathy. (2) Design for communities. (3) Take a systems view. (4) Make appropriate trade-offs. (5) Prepare your team. Practiced well, our design process can lead us to innovations that truly meet people's needs and improve their lives. In fact, we find that as we engage our fundamental design practices in the developing world, we reinvigorate our approach to any design challenge.

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the novelty of the situation – to have "bug eyes" rather than "fresh eyes." Among the many problems this may create, it can make the team appear naive to partners with whom we'd like to build rapport. Differences in culture, language, and lifestyle can be so extreme that they are distracting to a team. We can take steps to give the team a foundation so that they can acclimate quickly, build trust, and start learning.

For a recent project on transportation and storage of drinking water in rural India (Figure 4), we prepared the team in several ways. We conducted the project in partnership with Acumen Fund, with its internal expert on water in India as part of the core design team. The combined team was able to build on years of knowledge and leverage Acumen's connections in the field rather than starting from scratch.

While in India, the team worked with local organizations that were able to provide introductions to key community members, share their own expertise in the water domain, and give an overview of the local challenges. Language differences in the various regions of India made the need for an interpreter obvious; the team benefited from the added dimension of a "cultural translator," who was able to describe local customs and help uncover the hidden meanings between the words. This foundation of knowledge helped the team focus and ask more nuanced questions and, most important, move the project forward in an efficient, productive manner.

Moving Forward

The idea of Western designers focusing on the developing world is sometimes met with skepticism. There are countless past examples of companies trying to sell American and European products in the developing world, and these products tend to fail because they're designed for different markets with different needs. Although designs from Western countries aren't always transferable, our design process itself often might be. Starting with people and making sense of complex challenges has proven to be effective because it enables us to learn first hand what is appropriate and what is desired.

Our experience working in developing countries has challenged us to hone our design skills and to be more flexible in our approach. The principles of design for the developing world are shared here as a source of guidance – but also as a form of reassurance and encouragement. Designers should be confident that their approaches to learning about the world are applicable across the world. Practiced well, our design process can lead us to innovations that truly meet people's needs and improve their lives. In fact, we find that as we engage our fundamental design practices in the developing world, we reinvigorate our approach to any design challenge.

With human-centered design as the focal point, Aaron Sklar's work has explored the relationship between people and the world in which we interact. During his tenure at IDEO, Aaron has pushed to expand IDEO's expertise to pursue the larger goal of humanity-centered design. Using this broader perspective, Aaron applies his experience in empathy and design research to opportunities aimed at environmental sustainability and design for social impact. He may be contacted at aaron@ideo.com.

Sally Madsen is a designer and project leader at IDEO and a leader of IDEO's Social Innovation domain. She brings a holistic view to the design of products, services, and systems. Her experience at IDEO includes programs for social and commercial clients in India, Ghana, Kenya, Bangladesh, Mexico, and the United States. Before coming to IDEO, she founded Cosmos Ignite Innovations, a start-up providing solar-powered lights as a replacement for kerosene lights in India and other countries. BID

Figure 4. Seeking to understand the challenges of water transportation, novice team members were paired with a coach who had extensive experience in studying water in India (Rajasthan, India).