

# Everyday People: Enabling User Expertise in Socially Responsible Design

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## Abstract

This paper examines the contemporary relevance of interdisciplinary research practice specifically within the field of design for social need. Examining the complexity of current social problems using the concepts of Rittel & Webber's *wicked problems*, this paper looks at the potential for the application of co-design methods within an interdisciplinary framework. By proposing the use of a social model of design, it is argued that it is through co-design methods and the use of generative toolkits such as Liz Sanders' *MakeTools* and IDEO's *Human-Centered Design Toolkit* that the design process can be enhanced in the early stages. This paper argues for interdisciplinary practice by enabling user expertise so that the user can equally contribute to the design process. This paper also explores the changing role of the designer from researcher to facilitator, and how this can benefit communities dealing with complex problems. Finally, this paper looks at the benefits of active user involvement in socially responsible design through discussions on empathy, user empowerment and benefits to communities within design education.

## Keywords:

Co-design; Participatory Design; Interdisciplinary; Socially Responsible Design; Design Research; Toolkits; User; Expertise

There has been increasing demand for a change in design thinking with regards to socially responsible design. In recent years a *call to action* has grown increasingly louder. Buzzwords around social action are widespread in contemporary media and political platforms, with issues surrounding environment, poverty, health, and education. The role of design must adapt in response to the effect of economic and social change on a population of nearly seven billion people. While design has been commonly associated with beautiful objects of desire or luxury, the significant change in design thinking lies in the belief that "If designers have begun to figure out how to design 'better experiences' for high-end consumers, what about improving the experiences of those who belong to the population segment that design activists have dubbed 'the other 90 percent?'" (Berger, 2009, 185).

The call for socially responsible design is urgent, with leaders in the industry setting the pace. These initiatives have emerged as both a necessary and inevitable next step. The Cooper-Hewitt's touring exhibition *Design for the Other 90%* sparked knowledge about the radical difference in quality of life in which the majority of humankind find themselves. Design associations such as *Design for the Majority*, (a chapter of the IDSA) enlist members with a bold mission on this changing social climate stating "we as designers can either lead this shift, or we can follow" (IDSA website). In addition, initiatives by Denmark's *INDEX: Design to Improve Life* have also been undertaken to further international education by incorporating their socially conscious process model

into national education. Most notably, *INDEX*: implemented the largest international design award, in recognition of designs that substantially improve the lives of people.

At the root of these initiatives lies the central belief that “design is fundamentally grounded in human dignity and human rights” (Buchanan, 2001 36), and that the designers need to respond conscientiously through responsible action. In other words, with human consideration during the design process. On new design thinking, *IDEO*’s Tim Brown jokes, “design is too important to be left to designers” (Brown, 2009). With the increasing recognition of human consequence to any design decision, designers will need to consider both interdisciplinary and participatory methods to further consider humans, or *users* as active participants in their own future.

The complexity of social design problems calls for interdisciplinary practice. By examining the role of the user within a participatory framework, this paper argues that participation in the design process is a critical success factor for increased benefits to the end result. However, it is only through exploring the means of involvement through co-design and the use of generative tools that the user can be viewed as an equal contributor– an “expert”– in the interdisciplinary design process.

## 1.1 Clarification of Terms

This a theoretical paper based on a literature review. As the field of design practice and research evolves, the terminology continues to evolve and expand as well. Some of the sources are initial publications on the subjects, so it is important to clarify the terms that may have changed. *User* will imply *humans whose lives are directly affected* and “who stand to have their activity and experience transformed” (Carroll & Rosson, 2007, p. 258). *Socially responsible design* refers to design within the realm of social need, and upheld by a definition where it is “grounded in human dignity and human rights” (Buchanan, 2001). This paper will take *Human-Centered Design* to mean a “design process specially focused on socially responsible design, with the end aim of responding to basic human need” (*IDEO Toolkit*, 2008). *Design Thinking* is inspired by a “process that endeavors to solve problems and create new possibilities, generally relying on empathic research [...] combined with creative experimentation and extensive prototyping and refinement” (Berger, 2009, p. 302). The term *design* will be in the scope of socially responsible design.

## 2. Socially Responsible Design

### 2.1 New Design Thinking

As social problems of the world change, so does the role of the designer. It can be argued that earlier definitions of design do not effectively cover the wide range of theory, knowledge, and methods used in new design thinking. The role of the designer, once viewed as a profession based on principles of aesthetics, and creation of beautiful artifacts “has expanded into a more thorough and diverse interpretation of the physical, psychological, social, and cultural relationships between products and human beings” (Buchanan, 1992, p. 9). Until recently, it seemed suitable to pigeonhole designers into specific subcategories; graphic, industrial, urban design, with each

designer approaching individual problems with their own unique knowledge. However, the increasing complexity of social problems has, as a result, made solving them increasingly difficult. Because of this, “the boundaries around these problem areas have begun to collapse [...] As a result, old divisions of design practice now appear increasingly inadequate and ineffectual” (Margolin, 1996, p. 23).

The role of the designer is now, more than ever, about adhering to a new way of thinking about problems, one that incorporates a broader research approach in order to fully understand problems as systems, rather than individual parts. By expanding their knowledge designers can then contribute a well-informed solution, matching the complexity of the problem. Evolving far beyond the principles of aesthetics and basic form and function, design thinking is now focused on “form and content,” fundamentally rooted in humanity (Buchanan, 2001, p. 35). Designers must cross multiple disciplines to expand their scopes of knowledge and this approach can now be considered a tool, not solely a profession. Only through this new form of thinking can designers really be able to face current social problems.

## 2.2 Rittel & Webber’s Wicked Problems

The complexity of problems faced by designers can be best characterized by Rittel & Webber’s formulation of *wicked problems*; those that are far too unique and complex that do not have logical or concrete solutions. The properties of wicked problems are detailed in Table 1. As such, these problems must be looked at more expansively. As social problems tend to be interrelated, they must be looked at it in a bigger context, which “tends to run counter to the more conventional method of trying to simplify problems to boil them down in an attempt to come up with ‘the answer’” (Berger, 2009, p. 206). When a problem is *wicked* it is impossible to fully solve in the way that a mathematician might solve a puzzle. Social problems can never be solved. (Rittel & Webber, 1972, p. 160), and often any one solution may actually “solve one aspect of the larger problem while making another part worse” (Berger, 2009, p. 207). In an example of a current water contamination problem, it is argued that designing a filter is just a quick solution and only identifies one part of the issue. Designers hold responsibility to carefully examine the system as a whole. Only by understanding consequences and impacts such as local culture, water sources, health issues, and cost of implementation, can a solution to a problem as complex as water contamination be approached (Berger, 2009, p. 206).

1	There is no definitive formulation of a wicked problem	The information needed to understand a wicked problem depends on one’s idea for solving it
2	Wicked problems have no stopping rules	There can never be an end to a problem when there are no definitive solutions
3	Solutions to wicked problems are not true-or-false, but good-or-bad	There is no criteria to determine this when there are no definitive solutions
4	There is no immediate and no ultimate test of a solution to a wicked problem	There is no on-the-spot test because it could take years to implement a variety of solutions
5	Every solution is a “one shot operation”	There is consequence to every decision, so there is no room to learn by trial-and-error
6	Wicked problems do not have an enumerable set of potential solutions	There are not only infinite numbers of solutions but infinite combinations of possible solutions

7	Every wicked problem is essentially unique	They can often be similar, but never the same because of individual context
8	Every wicked problem can be considered to be a symptom of another problem	Every problem is interrelated
9	The existence of a discrepancy representing a wicked problem can be explained in numerous ways	Especially in interdisciplinary work, everyone's understanding of a problem will be different.
10	The problem-solver has no right to be wrong	The aim is not to solve, but to improve the problem, so a hypothesis must be given regardless

Table 1. The ten properties of *wicked problems* (Rittel & Webber, 1973).

Put bluntly, these ten properties stress “the social reality of designing” (Buchanan, 1992, p. 16). The concept of *wicked problems* translates to a variety of issues faced in new design thinking because of the “fundamental indeterminacy,” of them; that is, lack of answers and infinite combinations of solutions (Buchanan, 1992, p. 16). While problems might not be readily definable, the role of the designer should continue to identify “the actions that might effectively narrow the gap between what-is and what-ought-to-be” (Rittel & Webber, 1973, p. 159). This must first be accomplished by examining social problems as systems, and by following a social model of design.

### 2.3. A Social Model Of Design

As new design thinking must deal with interrelated and complex social problems, an interdisciplinary practice must be used. Margolin & Margolin propose a social model of design practice specifically for designers, based on the literature of interdisciplinary process used by social workers. Such a model calls for joint projects within disciplines, with the end product designed to satisfy a human need— a six step problem-solving process working “in a collaborative manner with the client system” (Margolin & Margolin, 2002, p. 24). Following this social model, new design thinking can look more holistically at a problem and enlist theory and knowledge from other disciplines. ‘Design’ as a subject matter “is potentially universal in scope, because design thinking may be applied to any area of human experience” (Buchanan, 1992, p. 16). The magnitude of knowledge needed to formulate strategies when dealing with *wicked problems* is impossible for one designer alone as “individual intelligence is insufficient to our tasks” (Rittel & Webber, 1973, p. 160). Through collaboration, designers can expand the field of knowledge surrounding a problem to ensure that every possible aspect of a system is addressed.

Approaching social problems using an interdisciplinary framework is necessary, as “without integrative disciplines of understanding, communication, and action, there is little hope of sensibly extending knowledge beyond the library or laboratory in order to serve the purpose of enriching human life” (Buchanan, 1992, p. 6). With the primary aim of synthesizing knowledge, interdisciplinary practice is in use by respected organizations, institutions, and design leaders in the field of socially responsible design. Danish organization *INDEX: Design to Improve Life* has implemented cross-disciplinary approaches in their process models and included it in their overall mission statement. Design and innovation firm *IDEO*'s roster of multi-disciplinary team members is evidence of new design thinking, and the *Cooper-Hewitt*'s affirmation of the need for designers “working directly with end users of their products, emphasizing co-creation to respond to

their needs” (Retrieved from the Cooper Hewitt’s Design for the Other 90% website, 2009). While these forerunners of design practice set the pace for other designers to adopt a social model for design, the new focus on the human-centeredness of design thinking brings into question the role of the ‘user’ in the design process.

### 3. Enter the User: from Participant to Expert

If the consideration of humans at the core of the design process is the “the major tenet of new design thinking” (Buchanan, 2001, p. 37), then what is the role of a particular ‘human’ in the design process when they are the one(s) potentially affected by the end result? The following sections will examine the application of participatory design practice and explore how users can be effectively involved in order to fully maximize the potential for viable interdisciplinary design practice following a social model.

#### 3.1 Origins of Participatory Design

Participatory design is fundamentally rooted in early Greek Civilization, “where perhaps the first formal citizen forums were held” (Beheshti, 1986, p. 122). While the meaning of the term ‘participation’ has evolved considerably over the last few decades, participatory methods are founded in the basic tenets of democracy. The egalitarian principles such as freedom of speech, public assembly, and equal representation fed the energy of activism for democracy in the 1960s, and inspired a stronger community consciousness in the early 1970s (Beheshti, 1986, p. 122). These political and social trends were instrumental in growing demands for citizens to have influence in decisions of their communities. Politically, *participatory democracy*, or “collective decision-making” (Sanoff, 2006), has the aim of organizing a society in which “individuals share in those social decisions which determine the quality and direction of their lives” (Beheshti, 1986, p. 122).

Including the perspectives of users in a design project was initiated in Scandinavia in the 1970s. One of the first participatory design projects, using a “Collective Resource Approach,” (Sanders, 2008, p. 3) came out of a project where union workers were actively engaged in the development of systems designed to make their workplaces more efficient. This collaboration allowed the computer professionals designing the systems to fully understand the worker’s needs and day-to-day issues from the perspective of those “whose work was to be impacted by the change” (Sanders, 2008, p. 4). This realization of the users’ intimate understanding of the problem emphasized the potential for active knowledge sharing and mutual benefits by involving people directly affected by the results. In addition, participation research expanded through the writings of Cross, Beheshti, and Sanoff, who supported a model referred to as the *Design Coalition Team*, “simply defined as all those who are involved in, affected by or can exert influence on the process of designing the built environment” (Beheshti, 1986, p.124). This meant equal say from all participants, including users. These writings and initial participatory projects were central in design practice and furthered considerations of user involvement during the design process.

Although participation has been increasingly incorporated into practice, there is still a great divide between the roles of *designer* and *user*. Most recent research methods are conducted through ethnographies, interviews, and surveys. This information is then interpreted by the designer or researcher, who is thought to have an “expert understanding of users of artifacts” (Reich, Konda, Monarch, Levy, & Subrahmanian, 1996, p. 169). While this type of participation in the development process definitely moves the role of the user closer to the designer, the user is still not really a part of the team, but “spoken for by the researcher” (Sanders, 2002), and still through interpretation by the designer. The user is regarded as a *subject*, with little to no involvement further along during the design process. Further participation methods can bridge the designer/user gap, by involving the user in “ideating, and conceptualizing activities in the early design phases” (Sanders & Stappers, 2008, p. 1), referred to by Sanders and others as the “fuzzy front end” of a design problem. Increased contributions and involvement can possibly shift the view from *user as subject*, to *user as expert*. This can suggest that there must be opportunities for further inclusion of the user throughout the entire design development process.

### 3.2 Co-Design

Co-design, the “collective creativity of collaborating designers” (Sanders & Stappers, 2008, p. 2), upholds the idea of interdisciplinary practice within the social model. A large part of its potential, especially in socially responsible design, lies in the conviction that everyone is inherently creative, and knowledgeable about their own experiences. With complex social problems, it is necessary to think beyond the obvious solutions, and engage every team member through their skills and expertise. Co-design makes a case for user expertise by enabling the user’s active involvement through the design process, who is then able to equally contribute to the solutions.

In co-design, the boundaries of roles between designer and user become blurry, and the user, “who will eventually be served through the design process is given the position of ‘expert of his/her experience’” (Sanders, 2002). This is a significant shift in perception from user as *subject* to user as *expert*, now assumed to have an equally valid say in the design process. If expertise is defined as those with “access to special knowledge of a subject which supposedly raises that individual’s awareness above that which is obvious” (Sanoff, 1985, p. 180), it can be argued that a user’s perception of a problem through personal experiences and memories is in itself a unique knowledge, and therefore an expertise. Because new design thinking is about approaching a problem from every possible perspective, then the experience-based insights from the user are invaluable to interdisciplinary teams.

Users (as co-designers) cannot always clearly articulate their experiences, needs, or desires to relay their expertise. This is referred to as a user’s *tacit knowledge*, that knowledge which is implicit, or inherently understood, but may not be able to be expressed through words (Polanyi, 1964). Therefore, it is not enough to simply *involve* users— they must be *enabled* to access and reveal this knowledge in order to “harness the collective and infinitely expanding set of ideas” (Sanders, 1999). Tools are needed to enhance this collaborative communication, in ways that allow people to visually express themselves through tangible means. This paper will focus on two particular generative toolkits.

### 3.3 Generative Toolkits

There has been much research development in tools for co-designing. To guide communication during the co-design process, the designer must assume the role of *facilitator* (Sanders & Stappers, 2008, p. 11), who can create appropriate tools to enable users to generate tangible, experience-based ideas. It has been established that “people cannot tell you in words about their unmet needs” (Sanders, 1999), so in this sense, by enabling user expression, toolkits can be considered a form of common language through which designers, users and other co-designers can communicate. This language is “built upon aesthetics of experience rather than an aesthetics of form” (Sanders, 1999). Sanders’ *Say-Do-Make* design process model is shown in Figure 1, illustrating that it is through *making* that the tacit knowledge can be made explicit.



Figure 1. Design process model: What people say, do and make. (Sanders, 2002)

These toolkits can be physical materials with which to create tangible artifacts, as in the case of Sanders’ *MakeTools*. Many varieties of toolkits exist, some eliciting cognitive or emotional experiences, stimulated by statements or thought provoking questions. Co-designers express themselves with the materials provided, often able to rearranged and built into artifacts with Velcro or stickers, and refined with pens or markers. Often their created artifacts are in the shapes of words, image collages, prototypes, concept maps or storyboards (Sanders, 2000), from which desires, needs, and “new, experientially-defined categories” emerge (Sanders, 2000). These artifacts reveals users’ clear personal experiences about ideal scenarios, which would probably not have been revealed without the necessary tools.

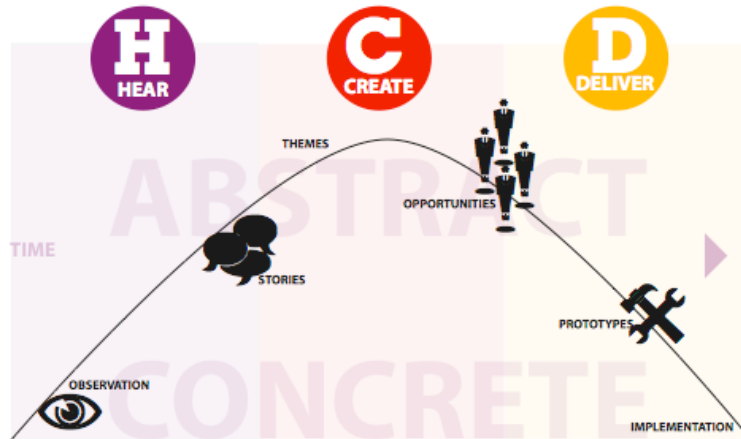


Figure 2. Design process model “Hear – Create – Deliver” (*IDEO Toolkit, 2<sup>nd</sup> Edition*)

IDEO’s *Human-Centered Design (HCD) Toolkit*, and accompanying *Field Guide* were created for particular use for socially responsible design for NGO’s and others, and parallels of the *HCD Toolkit* design process model, shown in Figure 2, can be drawn to Sanders’ design process model in that both aim to generate experience-based ideas through co-design. Both empower users by enabling their expertise. The *HCD Toolkit* guides facilitators through community participation and visual expression. An example of a co-creation workshop from the toolkit is seen in Figure 3. By including notes for the facilitator, and templates from which to build, the kit includes guides for role-playing workshops, storytelling sessions, scenario drawing, and prototyping, this process gives “voice to communities and allows their desires to guide the creation and implementation of solutions” (*IDEO HCD Toolkit, 2<sup>nd</sup> Edition*). This enables their unique expertise in the situation. The toolkit itself functions as much as a facilitator, illustrating how to select participants, and providing ways to deal with differences of culture, gender, hierarchy, and class systems, as shown in Figure 4. These are the same principles underlining interdisciplinary collaboration, as the toolkit reinforces the approach that “one cannot understand the problem without understanding it’s context,” (Rittel & Webber, 1973, p. 162). By enabling co-designers to create a tangible representation of their everyday life, these tools empower community members.



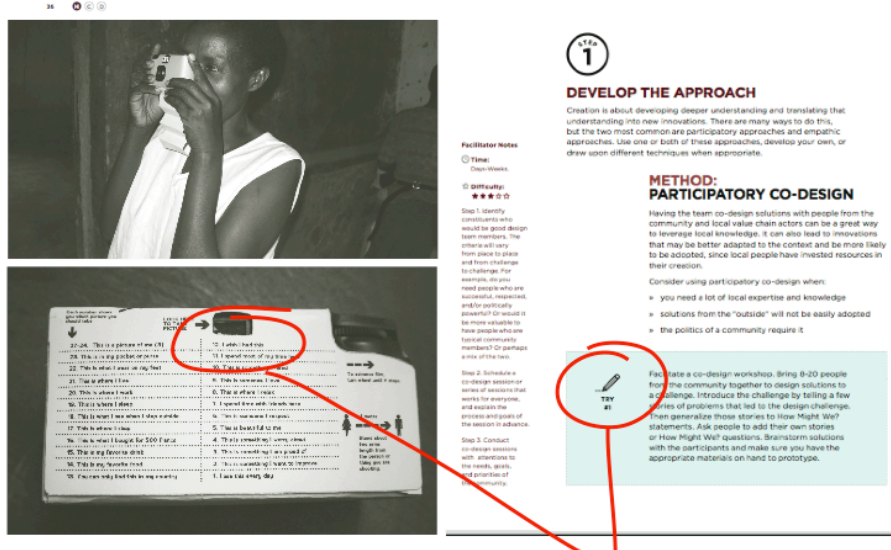


Figure 3. On the right, an example of tips outlined for facilitators to lead the workshops. On the left, co-designers create photographic storyboards using self-documentation and following a list of suggested guidelines— phrases such as *I do this every day* or *This is something I worry about*. (IDEO HCD Toolkit, 2<sup>nd</sup> Edition)

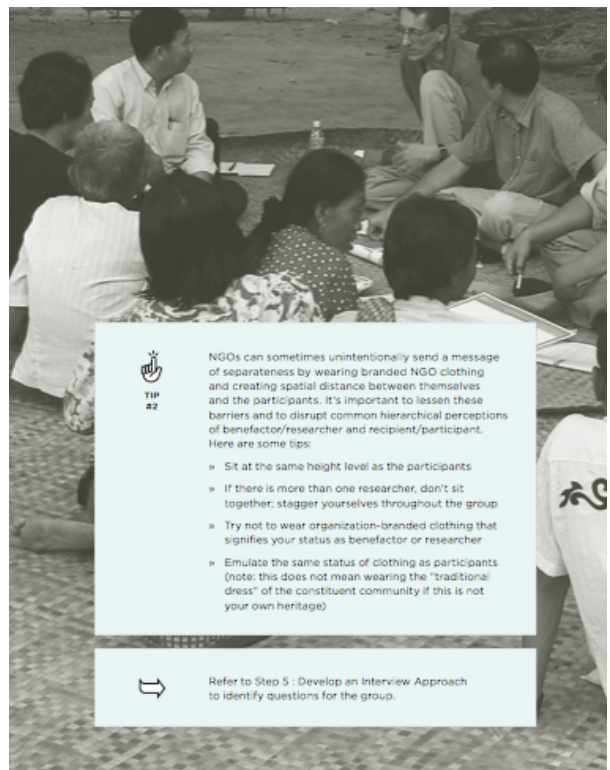


Figure 4. The toolkit explains certain techniques to enable the participant through sitting at the same height, and by not wearing clothing that sets facilitators apart or "separate" from the team, upholding the egalitarian principles of participatory methods (IDEO HCD Toolkit, 2<sup>nd</sup> Edition).

## 4. Implications on Design Process

Sanders & Stappers write that participatory design has the potential “to arrest the escalating problems of the man-made world” (2008, p. 5). By enabling user expertise through participatory methods, interdisciplinary design teams have a much stronger wealth of knowledge to face problems in the social arena. The benefits and implications of this collaboration are discussed below, as interpreted in Figure 5.



Figure 5. Benefits to co-design practice in socially responsible design

### 4.1 Empathy

Socially responsible design is especially relevant because of the direct impact it has on quality of life. Because of this, it is the moral responsibility of designers to consider the active involvement of the user in the design process as it determines the quality of *their* life, which the designer has the power to transform. If human rights are at the center of new design thinking, then user participation must be viewed as “a *prima facie* right of all people potentially affected by a design” (Reich et al, 1996, p. 162). The users direct involvement, personal history and unique experiences with the cause suggest a moral obligation for interdisciplinary teams to enable the user’s expertise. There should also be respect for the fact that it is the user whose life stands to be changed the most by the result. Carroll & Rosson argue for a user’s direct say and meaningful role because users “are morally entitled to have a say in anything that might change everything (2007, p. 243).

Empathy emerges as a success factor in socially responsible design as a result of active user involvement during the design process. Expertise is exchanged between designer and user through co-design as a result of the shared experiences. The user learns

design thinking, while the designer gains a deeper understanding of the user experience. Because of this, the designer is able to empathize with the user and greater care can be taken to consider all outcomes. This empathy strengthens the project, as the “awareness of the consequences of the decisions that are taken” (Sanoff, 1985, p. 178) is reinforced. This empathy for the impact on quality of life adds a greater sense of responsibility and consideration to the project. Ideas are developed thoroughly with the shared expertise.

In a case study by IDEO, in collaboration with a VisionSpring team, the tool of role-playing was integral in implementing a solution for eye-screening tests in a rural village in India, where children were terrified of the actual tests. Through role reversal, the team was able to empathize with the children’s fear. In the spirit of childhood make-believe games, the team turned it into a game by having the children first conduct the tests themselves on their teachers. By “thinking from the perspective of [...] users, and doing everything [...] to feel and understand what they are experiencing” (*IDEO HCD Toolkit, 2<sup>nd</sup> Edition*), the team enhanced the experience by placing the child in a position of authority, thereby making the process playful and the children in control of their lives.

## 4.2 Empowerment

Co-design toolkits enable users to express their experiences so that within an interdisciplinary framework, they can be perceived as experts, and equally able to contribute to a solution. When the user is actively involved in the design process, “the major source of satisfaction is not so much the degree to which the individual needs have been met but the feeling of having influenced the decisions” (Sanoff, 1985, p. 178). By not only relaying, but also realizing one’s own expertise and harnessing it through tools, this new sense of *empowerment* for the user is a critical success factor to the future of collaborative design. Empowerment gives a sense of accomplishment, a sense of pride, and the realization that one has the power to affect change. Most importantly, it gives them the feeling of control over their life and within their community.

In a case study from Africa, a designer worked collaboratively with Ugandan bicycle couriers (called Boda-Bodas) to design and implement low cost utility bicycles that would enable them to carry passengers and supplies to nearby towns. The study examines the design process and experiences of designing with the ten Boda-Bodas. Central to the study is that “including Africans into the design process not only enriched the design but also encouraged the community of their importance” (Morris, 2008, p. 7). Not only did it enable them to participate in their future, their significant contribution to the design process empowered them. There is potential for a much larger impact on social change through community empowerment. By acknowledging that community members have the power to affect change, an interdisciplinary framework could allow members of communities to work together, each of them being experts on local problems.

## 4.3 Education

Perhaps the shift from *designer* to *researcher* to *facilitator* can continue to transition into *educator*. As co-design continues to evolve as an emerging practice, “participants learn

from their engagement in the process” (Sanoff, 2007, p. 214). This implies that there is enormous potential for community action to evolve separately from facilitation of the designer. Empowering community members, toolkits can enable users to recognize their own individual expertise through the design process, which they can then implement through interdisciplinary practice with other members of their community. This would mean that not only is the project “strengthened by the wealth of input, but the user group is strengthened as well by learning more about itself (Sanoff, 1988, 3). Given the proper tools, this could address front-end design problems within their communities and possibly prevent problems from becoming more complex further along.

Designer Bruce Mau refers to “distributed possibility,” which is “the widespread dissemination of design tools, useful knowledge, and expanded capabilities- all being downloaded and passed around as never before.” (Bruce Mau, queried in Berger, 2009, p. 203) What is noteworthy about IDEO’s *Human Centered Design (HCD) Toolkit* is that it is open source, readily available and free access for anyone to facilitate a project. This brings into question the possibility of further refinement of such toolkits so that perhaps users can facilitate their own techniques for working towards solutions in their own contexts. Further discussion on toolkit criteria can include elements specific to certain cultures, or enlisting community facilitators to guide their own co-design practice within their own community.

## 5. Conclusion

Sanders writes of a “world made up of the dreams of everyday people” (Sanders, 2000). The face of design is changing in consideration of the rights of users and in the face of social problems that are far too complex. The scope of such problems are often interrelated, and because of this, interdisciplinary research methods need to be applied in order to ensure that proper knowledge and expertise from multiple disciplines can be distributed in order to shape solutions for *systems*, not just single parts of the problem. Designers have a responsibility to involve the user in the design process as they are ultimately affected by the end result and are the most knowledgeable about their own individual experiences. This will further enhance the interdisciplinary design process in socially responsible design through the combination of experts working together on a common goal. Using tools and techniques to facilitate the user through the design process, there is much potential for research into how to further involve the user in the whole process. The effect of applying co-design techniques within socially responsible design can have substantial impact on *empathy*, which increases the value of design, *empowerment* of communities through co-design and expertise, and *education* by designers to further empower communities. Perhaps a world made up of human dreams isn’t entirely far off.

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