Challenges and Opportunities in Contemporary Participatory Design

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At the core of Participatory Design is the direct involvement of people in the co-design of tools, products, environments, businesses, and social institutions. In particular, Participatory Design has developed a diverse collection of principles and practices to encourage and support this direct involvement. Many of the design tools and techniques generated to further this process have become standard practice for the design and development of information and communications technologies and increasingly other kinds of products and services. These design tools and techniques include various kinds of design workshops in which participants collaboratively envision future practices and products; scenarios, personas and related tools that enable people to represent their own activities to others (rather than having others do this for them); various forms of mock-ups, prototypes and enactment of current and future activities used to coordinate the design process; and iterative prototyping so that participants can interrogate developing designs and ground their design conversations in the desired outcomes of the design process and the context in which these will be used.[1] Participatory Design has also pioneered and developed some of the basic research questions, methods, and agendas that have recently been taken up by design research in more traditional design environments (e.g., innovation through participation).[2]

Increasingly, participatory designers have sought to develop processes to enable active stakeholder participation in the design of the tools, environments, businesses, and social institutions in which these information and communication technologies are embedded. These widened contexts have been reflected in the themes of recent Participatory Design conferences and in the substantive focus of the research presented in them.

Participatory Design: A Brief Overview

The beginnings of contemporary Participatory Design lie primarily in the restless and exhilarating days of the various social, political and civil rights movements the 1960s and 1970s. People in many western societies demanded an increased say in the decisions that affected many different aspects of their lives. Some designers and design researchers participated very directly in these activities and

1 Jesper Simonsen and Toni Robertson, eds., *Routledge International Handbook of Participatory Design* (London: Routledge, 2012).

2 Jesper Simonsen et al., eds., *Design Research: Synergies from Interdisciplinary Perspectives* (London: Routledge, 2010).

some also responded by investigating how they might relate to their own practices. Community arts projects were common; architects and planners got involved in the participatory planning of community housing; and a major conference sponsored by the Design Research Society and held in Manchester took *Design Participation* as its theme.[3]

At this time too, and by no means unrelated, what we now call the Participatory Design of information technology was pioneered in Europe and especially in Scandinavia as part of what later became known as the workplace democracy movement. Writing of this early work, Morten Kyng observed that "As part of the transformation of the workplace, working conditions for many end users have changed dramatically, and not always for the better."[4] Participatory Design researchers and Scandinavian trade unions initiated a range of collective activities to question existing approaches to the computerization of the workplace, to create visions of different kinds of future workplaces and practices and to design the new computer based systems that would shape them. The active involvement of those who would use these new technologies was central to and defining of these activities. The aims were to support users and enable them to use and enhance their skills while avoiding any unnecessary or negative constraints or automation of their work tasks. New ways of designing were needed that relied on new forms of cooperation between end users and professional system developers. This essential, emancipatory commitment, the motivation behind it, and the context from which it emerged have driven the development of Participatory Design ever since.

The international Participatory Design research community gathers at the biennial Participatory Design Conferences (PDCs). This conference series started as a dialogue about user involvement in IT systems development between Scandinavian scholars and promoters, on the one hand, and Europeans and Americans interested in how the Scandinavian experience might be adopted and expanded on the other. The first PDC was held in Seattle in 1990, and the conferences have been held every other year since.[5] They continue to provide an important venue for international discussion of the collaborative, social, ethical, and political dimensions of design. Today, Participatory Design is a well-established area of research and an important practice across many design disciplines.

These days, user participation within information and communication technology design is widely accepted and practiced through the use of iterative design techniques such as mock-ups and prototyping. User participation is central to the development of understandings and practices that are defining current trends in, for example, design thinking and user-driven innovation. But the meaning of participation does not reduce to 'involvement,' and Participatory Design is not the same as 'user-centered design;' though

3 Nigel Cross, *Design Participation* (London: Academy Editions, 1972).

4 Morten Kyng, "Designing for a Dollar a Day," in CSCW '88, *Proceedings of the Conference on Computer-Supported Cooperative Work* (New York: ACM Press, 1988), 178-88.

5 All Participatory Design Conference proceedings from 1990 are available from http://pdcproceedings.org (1990-2002 as free downloads and from 2004 via the ACM Digital Library).

the two can have much in common and some design tools and techniques are used in both. While many areas of design now pay at least lip service to people's participation, the question of how participation is being negotiated and defined (and by whom) is fundamental to distinguishing Participatory Design from the more common user-centered approaches. Participatory Design projects are always driven by ongoing and systematic reflection on how to involve users as full partners in design and how this involvement can unfold throughout the design process. The basic motivation remains democratic and emancipatory: Active participation needs to define Participatory Design because if we are to design the futures we wish to live, then those whose futures are affected must actively participate in the design process. This is the reason why Participatory Design continues to develop processes, tools, and methods that can enable active and engaged participation in design activities, wherever and whenever they occur.

"Participation" in Participatory Design means to investigate, reflect upon, understand, establish, develop, and support mutual learning processes as they unfold between participants in collective "reflection-in-action" during the design process. Designers strive to learn about the practices and contexts of those who will use their designs, while end-users and other participants in the process strive to learn about possible technological options. Mutual learning throughout the process provides all participants with increased knowledge and understandings: Potential users about what is being designed; designers about people and their practices; and all participants about the design process, its outcomes and how both can influence the ways we live and the choices we can make.

Participatory Design has been defined by a strong commitment to understanding practice, guided by the recognition that designing the technologies people use in their everyday activities shapes, in crucial ways, how those activities might be done. Understandings of practice, gained through various forms of ethnographic inquiry, are exploited as alternatives to the formal diagrams and heavily abstracted work flow processes that define traditional approaches to technology design. Practice plays a central epistemological role in Participatory Design that complements its rejection of technology-driven formalisms and rationalist models of both work and design, along with their focus on individual work tasks. The focus on practice recognizes the role of everyday practical action in shaping the worlds in which we live. Most importantly, practice is understood as a social activity; it is the community that defines a given domain of work and what it means to accomplish it successfully.[6]

One of the greatest challenges in Participatory Design projects is to ensure that they continue long enough through the development and implementation of new products and situations to

6 Lucy Suchman and Randall Trigg, "Understanding Practice: Video as a Medium for Reflection and Design," in *Design At Work: Cooperative Design of Computer Systems*, Joan Greenbaum and Morten Kyng eds. (Chichester, UK: Lawrence Erlbaum Associates, 1991).

fully explore the mutual learning and to both reflect on and otherwise evaluate the process and its outcomes. This has become more difficult to manage with the increasing availability of off-the-shelf products and the rise of domestic, mobile, and embedded technologies. Systems and applications are rarely developed from scratch. It is more usual for generic components to be purchased and then configured within specific settings. Participatory designers have needed to develop new design processes, tools and techniques to enable mutual learning, design reflection and evaluation in projects where individual components are configured into useful devices and services.[7]

Practices change over time, often in response to opportunities provided by new technologies and to developing protocols about their use. How particular technologies are used and the roles they play are shaped by the situations in which they are embedded. Many of those involved in Participatory Design recognize that design is completed in use. During the 1990s, this recognition resulted in a marked interest in the tailor-ability of systems, so that users could adapt them to suit their needs after implementation.[8]

As a result, Participatory Design research and practice includes studies of actual technology use and ongoing reconfigurations of particular settings and practices. The ongoing design iterations so central to Participatory Design practice can include evaluations of implemented technologies after they have been used for a period of time and can also be included as part of ongoing commercial projects.[9] Exploring practices that involve the use of actual technologies offers Participatory Design practitioners valuable opportunities to understand the fundamental ways in which these, too, rely on the material and social circumstances at hand.[10]

Those working in Participatory Design know that involving the people, who understand the practices and environments where new products and services will be used, as active participants in the design project means that the process and its outcome are more likely to be accepted and sustained. After all, these people know most about what the new designs need to do, and will be the key actors in implementing change and making the new practice work. We have also learned over the years that in the design of complex products, the success of the outcome is fundamentally linked to the different voices able to contribute to its design. When different voices are heard, understood and heeded in a design process, the results are more likely to be flexible and robust in use, accessible to more people, more easily appropriated into changing situations, and more adaptable to these situations over time.

An ethical stand underlies Participatory Design in that it recognizes the accountability of design to the worlds it creates and the lives of those who inhabit them.[11] Working in genuine partnership with those who will use the technologies we build is our way

7 Ellen Balka et al., "Reconfiguring Critical Computing in an Era of Configurability," in *Proceedings of the Fourth Decennial Conference on Critical Computing* (New York: ACM Press, 2005), 79-88.

8 Randall Trigg and Susanne Bødker, "From Implementation to Design: Tailoring and the Emergence of Systemisation in CSCW". In *CSCW ' 94, Proceedings of the Conference on Computer-Supported Cooperative Work* (New York: ACM Press, 1994), 45-54; Toni Robertson "Shoppers and Tailors: Participative Practices in Small Australian Design Companies," *Computer Supported Cooperative Work: The Journal of Collaborative Computing* 7, 2-3 (1998): 205-21.

9 Monika Büscher et al., "Ways of Grounding Imagination," in *Proceedings of the 8th Participatory Design Conference: Artful Integration: Interweaving Media, Materials and Practices* Volume 1 (New York: ACM, 2004) 192-203; Thomas Riisgaard Hansen et al., "Moving Out of the Laboratory: Deploying Pervasive Technologies in a Hospital," *IEEE Pervasive Computing* 5, no. 3 (2006): 24-31; Morten Hertzum and Jesper Simonsen, "Effects-Driven IT Development: A Strategy for Sustained Participatory Design and Implementation," in *Proceedings of the 11th Biennial Conference on Participatory Design: Participation – the Challenge* (New York: ACM Press, 2010): 61-70.

10 Lucy Suchman, *Plans and Situated Actions: The Problem of Human-Machine Communication* (Cambridge: Cambridge University Press, 1987).

11 Toni Robertson and Ina Wagner, "Ethics: Engagement, Representation, and Politics-in-Action," in Jesper Simonsen and Toni Robertson, eds., *Handbook of Participatory Design*, 2012.

of taking a stand on who we can be as designers and design researchers. Our ongoing challenges are to create the situations in which these partnerships can flourish and to develop the design processes, tools, and methods needed to enable full and active participation in the full range of design activities.

This Volume

This special issue, *Challenges and Opportunities in Contemporary Participatory Design*, presents insights from the past two PDCs. Eight papers were selected for their exploration of a wide range of current challenges and directions in the field, and these have been reworked, rewritten, and edited for the broader audience of *Design Issues*.

The theme for the tenth conference, PDC 2008, was *Experiences and Challenges*. The theme was chosen to honor two decades of biennial conferences. Contributors were asked to reflect on past experiences and review the important lessons we have learned so as to ready ourselves for the new challenges of the future. Five papers from this conference were chosen as a basis for this Special Issue. Together, they explore important trends, phenomena, developments, and views on both participation and design, which in so many different ways challenge our traditions, our experiences, and the current "wisdom" in the field.

After marking the tenth conference with this important reflection on the past in light of current issues and challenges, the eleventh conference, PDC 2010, was explicitly a forward-looking conference. Held in Sydney—for the first time outside the northern hemisphere—the conference theme, "*Participation:: the challenge*," was chosen to encourage an exploration of what participation can and needs to mean in current and future design contexts and to broaden participation in the conferences to include people from other design domains, as well as from industry (particularly small design companies) and academia. Three papers from this conference have been developed for this Special Issue.

Three of the articles in this special issue take up a call from Dan Shapiro to find ways of bringing Participatory Design into large development projects.[12] Johannessen and Ellingsen argue that iterative and agile Participatory Design methods can be applied to large-scale systems development, but this application implies that complex organizational issues are also addressed as part of the Participatory Design process. Their article is grounded in a health-related project, as is that of Simonsen and Hertzum, which reports and reflects on the extraordinarily thorough "wizard-of-oz" prototyping of a new electronic patient record system. Simonsen and Hertzum argue for the extension of well-known iterative approaches in Participatory Design to include the implementation of mature prototypes that can be evaluated during real work over

12 Dan Shapiro, "Participatory Design: The Will to Succeed," in *Proceedings of the 4th Decennial Conference on Critical Computing: Between Sense and Sensibility*, (New York: ACM, 2005) 29-38.

an appropriate amount of time. Such long-term evaluation can follow anticipated changes to practice while emergent and opportunity-based changes are also able to contribute to ongoing design. These are the changes that can genuinely improve the quality and acceptance of future systems and that drive the design of better workplaces and health systems in the future. Dalsgaard's paper moves away from information and communication technology development to examine the extension of Participatory Design methods and techniques into urban planning. His paper reports on a large-scale public project in which participatory approaches were used to bring new ideas from the local community into the design and building of a new municipal library and the services it could offer.

Four of the articles in this volume reflect the widening focus of Participatory Design to include a variety of community settings. DiSalvo, Louw, Holstius, Nourbakhsh, and Akin contribute a thoughtful account of engaging ordinary people in creative design and, through this engagement, their participation in the design of their local communities. Their particular focus used technology for environmental sensing, which then enabled the local community to organize actions around the results. Hess and Pipek provide a critical investigation of the extent to which online communities can form a basis for the Participatory Design of a commercial product, accounting how a software company invited members of its existing online user community to participate in the further development of the product they already use. A study of the design and use of social technologies in community settings grounds Hagen and Robertson's paper. They examine how social technologies are characterized by being designed through use—leading, in turn, to new forms of participation. Social technologies are widely used in self-reporting during design projects, but when they are used in the design of social technologies themselves, they offer many opportunities for seeding content and encouraging participation by the community for whom the technologies are being developed.

Participatory Design projects in developing countries have been part of the field for more than 20 years. The account by Winschiers-Theophilus, Bidwell, and Blake of African philosophy in sub-Saharan Africa reminds us of the need to understand and comply with different cultural traditions in particular cultures and local environments—particularly in terms of how participation is understood and practiced. We cannot assume that all our participants live and act within liberal democracies.

Finally, the strong relations between Participatory Design and the recent attention to design thinking are drawn out by Björgvinsson, Ehn, and Hillgren. They suggest that some of the practical, political, and theoretical challenges of Participatory Design might be relevant to contemporary design thinking. In

particular, they argue for a move beyond designing objects and specific design projects to "infrastructuring" design so that conditions are established for continuing participation in the design of solutions for complex issues and for envisioning positive and sustainable futures.

We hope that readers of *Design Issues* enjoy this volume with its presentation of some of the challenges and opportunities in contemporary Participatory Design.