

Democratic Considerations of Design in Complex Systems and Public Sector

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ABSTRACT

As designers venture deeper into government institutions and attempt to partake in solving the monumental problems facing global society, it is appropriate to question how the designers and the design community relate to the democratic implications of these engagements. This article attempts to frame this question by looking at historical and political aspects of design, as well as the practices used by designers operating in complex systems. The implementation of design and design related practices in government is reviewed, as is some literature in the field of design relating to democracy and design. The theory is discussed, and reflections on opportunities related to democratic participation are made.

KEYWORDS: Design, Public, Democracy, Participatory, Social, Transition, Innovation

1. INTRODUCTION

Many important movements in design through history have had social or even political associations, from the Arts and Crafts movement and the design schools of Bauhaus and Ulm and participatory practices of the 70's, all the way to the social design of today (Chen, Cheng, Hummels, & Koskinen, 2016; David, 2016; Irwin, Kossoff, Tonkinwise, & Scupelli, 2015; Koskinen & Hush, 2016). In recent years there have been an increase in the application of design practice in social innovation, government and complex systems (Chen et al., 2016). Typical areas of design associated with this trend include service design, social design, social innovation and transition design. Design practices can address smaller scale problems as a part of a greater whole or larger scale issues associated with complex systems (Koskinen & Hush, 2016). Designers may affect social and governmental systems and services, including policy making, in a democratic

society, and in doing so they are potentially influencing the implementation of the democratic system. In this regard it could be argued that it is pertinent to discuss the designer's approach to design in this setting and their considerations of their impact on the democratic society.

Social innovation, co-creation and design has been adopted into the practices of government and public services at various levels, and is being leveraged to improve services, innovation and to improve public approval ratings (Council, 2013; European Union, 2013; Voorberg, Bekkers, & Tummers, 2015). Collaborative and participatory practices are commonly used both in design addressing complex systems, and in public sector innovation. The historical origins of participatory design had political associations to socialism and was used as an egalitarian tool, but interest for this application of participatory practices waned over time, in favor of the user-centered approach in often preferred business management

research, focusing on the lead users as sources of information rather than as equals in collaboration (Binder, Brandt, Ehn, & Halse, 2015; Sanders & Stappers, 2008). Though co-creation and co-production are popular in government innovation practices, there are indeed negative sentiments among some government officials towards active citizen participation (Voorberg et al., 2015). In design literature there is limited explicit research on democratic issues. There are however, some in the design research literature who address the democratic context of design in public spaces (Binder et al., 2015; Bjørgvinsson, Ehn, & Hillgren, 2010), and some of the emerging disciplines of design relating to social issues does still have a certain connection to the approach of traditional participatory design and its egalitarian ideals.

2. DEMOCRACY

The word democracy originated from the Greek words *demos* (“people”) and *kratos* (“rule”). Democracies have existed in various forms in human history. The form of democracy is dependent several factors, including the size of the unit within which the democracy is acting. Early democracies tended to encompass smaller units, such as towns, tribes and cities, employing direct democracy. Athenian democracy was a form of democracy with a rather direct governing by citizens. In the 18th century the direct democracy gave way to representative democracies as the unit of government grew to nation-states and countries. Philosophers of the 19th century created the foundation for modern representative democracies. Modern democracy can be defined as consisting of four basic principles: A system for choosing and changing the electorate through free elections, citizens actively involved in politics, preservation of human rights, and a rule of law, applied equally for all people (Britannica Educational & Lowery, 2014).

3. POLITICAL ORIENTATION IN DESIGN

In a conference paper, David Oswald debates design history in a political perspective (David,

2016). He argues, that many of the defining movements and schools in design historically have generally been socially or even politically motivated, all the way from the Arts and Crafts movement in the late 19th century to the Bauhaus school and the participatory design practices from the 70’s. In the 80’s, design experienced great popularization, but mainly relating to superficial lifestyles. This was followed by a focus on digitalization and interaction design, with digitalization being perceived as green tech, but instead ending up facilitating market globalization and increased production. Oswald posits that the design community today avoids taking any political stance, including today’s advocates of social design.

Margolin & Margolin claim that the main focus for designers since the industrial revolution was manufactured products for the market, aimed at consumers, while other practices gained little attention (Margolin & Margolin, 2002). They propose that Viktor Papanek’s book *Design for the Real World* (1972) prompted others to respond by attempting to create social design programs dealing with issues related to developing countries, the poor and the elderly. It is argued that Papanek promotes a critical view of the market economy and that he claims the designer should organize interventions outside of the market system. Margolin & Margolin on the other hand describe the “market model” and the “social model” as two poles on a continuum. It is emphasized that the future designer needs to develop skills in interacting with vulnerable and marginalized populations suggesting, like Manzini (Manzini, 2014, July 25), that social design is focused on specific groups in society that are not serviced by the market system. A connection to utopian socialism is noted in utopian social design. Also, Marxist sociological theory can be found in sociological social design (Koskinen & Hush, 2016). The practitioners of incremental social design are described as shying away from demands for radical change and utopian ideals. The authors assert however, that the mainstream is utopian and suggest that sociological social design is still a rarity.

3. USER CENTERED PRACTICE

User participation is widely adopted in design and innovation today. According to (Sanders & Stappers, 2008), designers have been moving closer to their users for the last six decades. In design there has been several approaches to gathering insights about the user's wants and needs. The involvement of users in the design process can vary depending on several factors such as the background of the designers, type of product and complexity of the task. In America the user centered design has been dominating, progressing towards co-creation with a focus on including lead users in the design process. In Europe the participatory design approach can trace its origins back to the 70's in the Nordics where industrial workers were involved in the development of their workplace. While co-creation focuses on gaining insights and input from the co-creators during the design process, co-design is including the stakeholders in a process which involves a shared learning experience between designer and co-creator. In traditional product design, design thinking and business literature describing design practice, the user centered approach of observing and probing the user to gain useful information has been employed. In more recent years the involvement of users in co-creation has become more prominent, but business literature co-creation has still had a greater focus on lead user involvement. Today the popular terms of co-creation and co-design is often used about collaborative design practices. Sanders & Steppers define co-creation as any collaborative creativity between two or more people, while co-design is defined as a subcategory of co-creation where the collaboration happens in a design process.

While participatory practices and co-design practices are common in design today, being that the participatory design approach has been around for a several decades, Sanders & Stepper questions why it has taken so long for these practices to be adopted. They propose the slow adoption is a result of co-design assuming that everyone is creative. In business community the

concept of "lead users" is popular, and there is a notion that only specific people are creative. Participatory design could also be perceived as threatening to the hierarchical structure of businesses in terms of relinquishing control to users and customers. Further, Sanders & Steppers also claim that participatory practices are considered academic pursuits with little relevance to business and that user studies are perceived as expensive and user participation as a radical step into the unknown.

The user-centered design gained wide adoption in 90's, and while it was effective in product design, it is inadequate in addressing complex design issues concerning future experiences and communities. Sanders points to the resulting emergence of modern design disciplines such as service design and transformation design which incorporates several other disciplines within their practices. In one article (Margolin & Margolin, 2002) the authors propose that a social design practice can be developed in which designers could draw on practices from other professionals, such as social workers, in order to deal with issues related to socially responsible design. These practices would entail employing collaborative processes that involve the users, and might also include other human service professionals. They suggest that the socially responsible designer can find likeminded allies among other professionals. Some recent research however, has revealed that even when using collaborative, multidisciplinary approaches, designers have a hard time coping when the systems reach a certain level of complexity. Designers work well in what sociology calls mechanical solidarity, found in smaller, less complex communities. The approach of designers function less well in larger, more complex societies where there is organic solidarity, and consequences of actions are harder to understand and predict (Chen et al., 2016).

4. DISCIPLINES AND APPROACHES

There are several approaches in the design field toward addressing complex issues and societal

issues. Historically the participatory design practices of the 70's emerged from the attempt to deal with new technologies disrupting industries and workplaces (Sanders & Stappers, 2008). Today there is an emergence of several approaches partially rooted in that tradition. These approaches are defined to varying degrees, and somewhat overlapping both in practice and agenda and include: social innovation and design for social innovation, social design and transition design.

Social innovation can be described as the development and implementation of products, services or models that meet social needs and aim to improve human well-being. It is social both in its means and its ends, involving various stakeholders such as citizens, organizations, communities, businesses and public servants and services. It is described as a process ranging from identifying social needs, developing solutions, assessing their effectiveness and the scaling up of effective solutions (European Union, 2013, p. 6). In the EU Commission report, social design is described as an approach to social innovation that also empowers people at a local level to participate in inventing solutions. It guides public administrations through collaborative working, experimenting and prototyping using various techniques that are typically looser and more interdisciplinary than the more formal methods of planning traditionally used in the public sector.

Manzini distinguishes design for social innovation from social design in that design for social design addresses issues concerning social forms, while social design refers to especially problematic issues in society to which the market and the state fail to provide solutions (Manzini, 2014, July 25). Further he describes that social design in its original interpretation deals with the issues of people without the economic or political means to create demand, and as such is operating on charitable terms as opposed to normal design which operates in economic terms. Design for social innovation is defined as dealing with social forms, producing meaningful social innovations, and dealing with all kinds of social change towards

sustainability, not only those pertaining to the poor.

In a special issue of *The International Journal of Design*, an attempt was made to take stock of the current standing and definition of social design (Chen et al., 2016). Based on the theoretical background used for the papers, they were informed of the writers' framing and conceptualization of social design. The papers drew on different material including action research, organizational research, participatory design research, social innovation research and the DESIS network and systems theory. One paper divided social design in three groups depending on the theoretical and ideological background of the designer, manifested through the methods employed. The three categories were utopian social design, molecular social design and sociological social design (utopian). Utopian social design uses large scale transitions to address societal issues exemplified by population growth, ageing and climate change among other things. Molecular social design deals with incremental change and is less preoccupied with the greater societal structures and issues. Sociological social design is characterized by its adoption of theory from the social sciences, enabling it to frame the society and issues differently than other approaches, more in line with the social scientists who have shaped many of the structures in society.

Designers work well in what in sociology is called mechanical solidarity, found in smaller, less complex communities. The approach of designers function less well in larger, more complex societies where there is organic solidarity, and consequences of actions are harder to understand and predict. The governing structures of state and markets are important actors in the constitution of social problems, but designers lack the tools to deal with them. Transition design and paradigmatic innovation is moving towards these complex systems (Chen et al., 2016).

Transition design has a more radical approach than most other types of design (Irwin et al.,

2015). Transition design attempts to tackle large-scale issues, much like utopian design, but uses some other approaches. It highlights the need for societal transitions to more sustainable futures. Also, transition design engages both on a grass-root level as well on a higher level. Transition design draws from several discourses concerned with transitional change in complex systems, and aims to act as an integrative agent among them. These discourses can be found in the areas of academia, nonprofit and community sectors. Transition design leverages several approaches to framing complex issues and possible futures, such as: living systems theory, futuring, cosmopolitan localism, social psychology research, social practice theory amongst others. It also draws on various design approaches, such as speculative and critical design and back casting in order to envision future scenarios.

As the systems the designer act upon become more complex, so does the relationships between stakeholders, and agendas and outcomes become ambiguous and distribution of power seem omnipotent (Bherer, Dufour, & Montambeault, 2016). Sanders & Stepper explains the emergence of multi-disciplinary design practices such as service design as a response to these challenges and their resultant new demands of the design process (Sanders & Stappers, 2008). Margolin & Margolin suggest using a multidisciplinary, collaborative approach as seen in the practice of social workers (Margolin & Margolin, 2002). As pointed out by Chen et al., some of the new emerging disciplines of design may still fall short of being effective in dealing with complex systems and issues as they move beyond the boundaries of the workplace and organizations and into the larger and more ambiguous public spaces (Chen et al., 2016). As mentioned there are some disciplines in design, such as transition design and sociological social design, where other concepts from other fields and sciences are adopted in an attempt to manage these challenges. One way of reframing the complexity of the relationships in such systems is through the lens of ANT as exemplified in (ant tele), which shows that simply selecting and engaging stakeholders might not

elicit the expected outcome, and that the results of any research or interaction must be understood in a broader context if it is to be utilized effectively. Sanders & Stepper note that designers have important skills for designing in complex systems, which can help them facilitate and run design processes. They can use generative design tools to elucidate future circumstances and design for them.

4 DESIGN, INNOVATION AND PARTICIPATION IN PUBLIC SECTOR

There are many examples of design and innovation initiatives in government and public sector. Similar to the well-established iterative processes and prototyping in design, social policy experiments can be executed at a small scale in order to test and support social policy innovation (European Union, 2013, p. 18). It can also help in building consensus on what works. Design is being implemented in government and society through charities such as the Design Council which was established in 1944 and is the UK government's leading adviser on design, and EU programs such as Design for Europe which is co-funded by the European Commission. Among other activities, these initiatives publish informational material such as "Design for Public Services", a guide published by Design for Europe in collaboration with Nesta and IDEO. "Design for Public Good" (Council, 2013), is a collaboration between design organizations in several different countries published by Sharing Experiences Europe, also supported by the European Commission.

In a systematic review article, 122 records of social innovation utilizing co-creation or co-production in public service context, most of which originate from the health and educational systems, were studied (Voorberg et al., 2015). The authors found that social innovation aims to create long lasting social effects on society and changes social relationships, pursuing a "transformative discontinuity with existing practices". It also includes the stakeholders in both design process and implementation, and crosses organizational

boundaries in doing so. Social innovation encompasses both the outcome and process. It requires open innovation inside and between networks within the environment where the innovation takes place. The objectives for using co-creation and co-production in social innovation included increased efficiency and user satisfaction. However, more than half of the reviewed literature proposed no specific objective for including co-creation and co-production. Incorporating citizen involvement by itself was considered an objective. They also found that there were several instances of negative attitudes towards citizen participation among public officials, as well as risk-averseness in the public organizations. The willingness of the citizens to participate, depended on education level, family structure and personal characteristics. When citizens participate they get a feeling of ownership and agency, which further improve involvement. The authors reflect that maybe some of the added value of co-creation/co-production is symbolical or informative, aiming to increase acceptance and legitimacy of the institution.

In a special edition of the journal of civil society (Bherer et al., 2016), the participatory turn is discussed. The participatory turn refers to use of participatory practices used in several sectors and policy domains. It was originally associated with a strong critique of liberal representative democracy. Its mechanisms were meant to give citizens' opinions influence on politics and bureaucracy. Forms of participatory practice in governance include participatory budgeting, citizen councils and participatory planning.

Participatory practices are now often used as a social acceptance tool, or political legitimacy tool. The participatory practices affect the public's engagement in politics as well as the internal dynamics of the public. The authors find that the participatory practices have strayed from their egalitarian origin, and moved towards a user-centered approach focusing on user input without affording the user control. They also find that the participatory practice is characterized by extensive transmission of knowledge and

exchange of information, which led to a professionalization of citizens. While it can cause some people to become more engaged, it may exclude others. It is pointed out that alienation and distrust from the public towards the system can cause increased social activism which might not provide the best discourse for effective dialogue. Participatory democracy has several objectives, including restoring trust, opening up the decision-making process, fostering social change and including citizens. Participatory practices have been adopted by many different organizations with different agendas and different ways of framing participatory practices, but in sum changes in participatory democracy are incremental.

6 DEMOCRATIC CONSIDERATIONS IN DESIGN LITERATURE

The participatory design in the 70's was a strong critique of the lack of democracy in organizations. Binder et al. attempt to reinvigorate participatory design through the combining of participatory design and Actor Network Theory (ANT), specifically in the context of design, participation and democracy (Binder et al., 2015). The insights and methodology of ANT are used to capture the emergent agencies performed through the contemporary participatory design practices of co-design. This involves a transition from focus on objects to thinging, which is understood as socio-material assemblies, and a focus on citizens and publics, including non-human entities. Co-design is presented as a potentially important agent in the attempt to democratize democracy. Politics and power are not external things design can relate to. In co-design as thinging they are at the core of making things public. The authors propose a methodology for performing democratic design experiments, naming it *design thinging*. Design thinging combines collective decision making and collaborative material making when dealing with problems. Historically, Scandinavian participatory design formed a 'negotiation model' based on worker teams exploring solutions with the aid of designers, formulating scenarios and proposals for negotiations with management. The focus on

workers as active participants was adopted in research and practice through a shift in design towards user involvement and user centeredness. The lasting effect of worker as a protagonist in design however, was limited.

The authors claim that representations are always made in both science, in the form of references, and in democracy. Participatory design can be described as experiments with thinging and publics. It is not necessary to abandon representation, but to develop new forms of public engagement and representation. An example is given of a temporary sewing circles were used in a project where people embroidered issues, while discussing them. This is drawing together and making publics.

Moving from prototype to implementation means a decision has been made, as well as signaling a move from participation to appropriation, which may raise the question of who has been represented. Co-design practices are considered to mobilize and align collaborators. It is argued that the reinvigoration of participatory design must nurture and expand the making of design representations typical to the participatory design tradition, but also embrace the controversial ambiguity and contingency of the objects of speculative design, as well as design activism's driving of democratic agency through design mediation. This constellation is compared to a laboratory that is less interested in impacts and more concerned with the open unfolding of the experiment.

An example is provided in the form of a doctoral thesis in which there is a collaboration with a municipal library and community centers in a 'Network Lab', aiming to place citizenship and co-production within the transitions the institutions were going through. An activist approach is taken, and the lab is staged as open-ended encounters between citizens, staff and politicians, using a full spectrum of participatory design representation tools such as games, probes and enacting. These are used as inventive methodologies that provide participation as a mode of citizenship. An

argument is made for activism from within and design thing-in-the-making is considered as epistemic artefacts that let future potentialities become possibilities within reach, and shows how the fostering of what the author calls 'unheroic citizenship' becomes methodologically present in the encounter. She uses the participatory practice as epistemic tools for scoping potentials as possibilities.

The authors go on to propose a design agenda to form issues and publics. They propose a design research program about how design experiments can challenge the way issues and publics are being designed together. They believe that the heterogeneous entangled intents in ANT seem to be aptly applicable to the stakeholders of co-design, where identifiable stakes are fundamental to identifying participants. These concepts of stakes and stakeholders however, originate from the context of organizations, and might not apply equally in a societal context.

Another article addresses the concept of democratic innovation (Björgvinsson et al., 2010). It informs that according to innovation and management research, innovation has been democratized through an increased accessibility to production tools and lead-users, and proposes an alternative definition of democratic innovation, closer to original definition of participatory design, based on Malmö Living Labs experiences. Defining innovation is promoted as an important battleground in society today. The article deliberates on the fruitfulness of the concepts of "Things", "infrastructuring" and "agonistic public spaces" in relation to participatory innovation and democracy. Things are defined as socio-material "collectives of humans and non-humans" through whom "matters of concern" can be addressed. Innovation often requires collaboration over time, between many stakeholders. Infrastructuring is needed in order to facilitate these requirements. Infrastructuring can be understood as an ongoing alignment between contexts. It goes beyond a design project phase, and aim to create long-term relationships of continuous co-creation.

One of the case studies in the article involve a grass root hip-hop youth organization, RGRA, from Malmö where many of the members from immigrant communities felt marginalized and stigmatized. Open-ended explorations resulted in several Things that explored how they could communicate to and with the rest of society through mobile video broadcasting. In an effort to increase visibility for RGRA in the public, a collaboration with the bus company and tech companies was established in order to broadcast the hip-hop organization's content on local buses via bluetooth. The experiment was a Thing, aligning different matters of concern, as well as controversies and conflicts. A collaboration with a game design company and others, resulted in a game for exploring new urban areas through text quizzes, with content made by members of the hip-hop organization. This Thing dealt with the matter of concern of which parts of the city is worth exploring, and which stories should be told within the game.

In the other case, the goal of including marginalized groups led to a collaboration with local women's organization. This organization had goals such as raising the women's self-esteem and having study circles on social and sexual issues and crafts. The Living Lab aimed to explore how their competencies could be acknowledged and valued in Swedish society. This was based on the women's ideas. They initiated a collaboration in which the women in the association made food and socialized with refugee children. This got very positive response from the children, but also emotionally stirring for the women. They proceeded to hold a cooking class for the children. They also started a service where they cooked their traditional food for local companies. This brought up dilemmas such as competition levels compared to other companies and different tax levels.

The democratic framing used is an "agonistic" approach. It has a goal of supporting many opinions and voices in constructive discussion and to transform antagonism to agonism. It is argued that a antagonistic view on democratizing

innovation is continuation of traditional participatory design. The temporary assemblies that occur in the collaborations transform the actors. Connecting actors together has given them insights and new competencies, allowing them to produce value to society and gaining self-esteem. The designers role becomes infrastructuring agnostic public places by designing Things which facilitate sustainable collaboration and exploration.

7. DISCUSSION

To what extent do designers deal with democracy and politics? If we consider political activity to have the meaning of making decisions that affect a collective, and democracy by the definition of rule by the people, then designers act politically and facilitate democratic activity. Many of the professional decisions a designer makes will eventually affect society and the public, meaning the designer does act politically. Through the facilitation of collaborative practices, they create a temporary, localized democratic processes.

For several decades designers have collected the input and insights of end users to inform them and aid them in framing the market or the space in which they are designing (Sanders & Stappers, 2008). Journeying into more complex systems and public sector presents new challenges for designers, and the existing tools in the designer's toolkit may come up short in framing the relationships existing in these systems and contexts (Chen et al., 2016). Designers have responded by drawing on the methodologies other scientific fields and making cross-disciplinary collaborations, often acting as an intermediary, facilitating the collaboration between other experts (Irwin et al., 2015; Koskinen & Hush, 2016).

Investigating the field of design research in relation to democracy revealed a limited amount of contemporary research addressing this connection explicitly. Much of the literary research that do exist seem to be focused in certain milieus. The existing literature frame the relation between design and democracy by

considering the artefacts of design from new perspectives (Binder et al., 2015; Bjørgvinsson et al., 2010). The case studies focus on the context and facilitation of collaboratory practices in a democratic setting. Though the context is one of the greater society, the number of citizens involved in the cases are limited. Although the concepts and practices might translate well to a context of participation in greater populations this aspect remains unexplored. In the context of the complex systems and emerging disciplines such as social design and transition design addressed in this article however, the possibilities of application remain untested and further research is merited.

The democratic system today is predominantly representative. This is a consequence of practical constraints making it difficult to employ direct democracy in the large societal units of government in modern society (Britannica Educational & Lowery, 2014). If we continue the comparison between collaborative practices and democratic systems, the experts in fields of science can be likened to the lead users in co-creation. As with the traditional lead users, employing experts when addressing issues in complex systems may be more effective and time efficient, but the results may not represent the opinions and the wants of the public. There are arguments, besides the purely logistical ones, as to why it may not always be wise to engage citizens directly in political decision-making. One reason being that that the public may not be interested. There are also issues with public distrust in the government and people consequently turning to social media and activism. Another reason could be that the public may not be qualified enough to make valid decisions in some cases. Some evidence however, indicate that participatory practices can trigger a significant acquisition of knowledge and a professionalization of the participants (Bherer et al., 2016). It can also lead to greater engagement and perception of agency in the public. Participatory practices are used today as a means for government to increase approval ratings, which may reduce the occurrence of dissidence in

society. There will necessarily be limits to the level of participation that can be achieved, but those limits might be pushed towards greater participation, while increasing interest and competence in the public and increasing the approval rating of governments. As professionals in visualizing and making information accessible and usable, as well as facilitating collaborative and participatory processes, designers could have a central role in affording citizens a more active engagement in politics and government by designing the process of democratic participation in a way that increase the ability of the public to partake.

8. CONCLUSION

When designing solutions and products applicable to large, complex systems and in public society, the designer is making decisions that will affect the public society. These decisions are influenced by the designer's biases. My contention is that the designer ought to be acutely aware of this and arguably strive to confirm a democratic support for those decisions. The existing literature does not address the implications of design practices in such complex systems satisfactorily. Designers are experienced in facilitating participation in design processes. This expertise could be leveraged to improve democratic participation by designing and facilitating democratic processes beyond the scale of the of participatory practices seen in design today.

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