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SYSTEMS-ORIENTED DESIGN AND DEMOCRACY

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ABSTRACT

This paper introduces a discussion about systems-oriented design (SOD) as a method to design for democracy. The context for the study is master-level studio-based SOD education. We have analysed student projects produced at three SOD courses, at the Oslo School Architecture- and Design (AHO), one course a year from 2016 -18. The main theme for all three courses was Design for Democracy, with three subcategories: 1. participative democracy within a municipality, 2. workplace democracy, 3. representative democracy and how to engage young people to vote. This analysis led to the description of the application of eight pre-existing tools and techniques in the students' democratic design projects. These are rich design space, giga mapping, ZIP analysis, systemic relations, systemic evaluation, leverage point analysis, expert networks, strategy- or synergy mapping. These techniques are in extension described and discussed up against theory on democracy to converse about design as a praxis to understand, develop, maintain, and design for democracy.

Keywords: Systemic design, systems-oriented design, design method, strategic design, design for democracy, democracy design compass

1 INTRODUCTION

This paper discusses systems-oriented design (SOD) as a democratic design technique. The context for the study is a student course on master-level in design education with an emphasis on SOD. We have explored the student praxes and projects to identify and describe democratic design processes and strategic planning. Our main interest has been the democratic design praxis. SOD can be described as the combination of systems theory and design practice, has provided perspectives and techniques that students can utilize to understand and handle data, structures, systems, relationships, dynamics, complexity, and holistic perspectives as design dimensions. The students used the visualization technique of giga mapping to synthesize, analyse, and design in cooperation with the stakeholders. It is the students' praxes of designing through giga mapping and the subsequent results that the praxes produced that are discussed as democratic design techniques. The SOD course Design for Democracy introduced techniques that designers could use to change society on a systemic level. The students got an introduction on how democracy works as a system with its dependencies and imperfections. Design research has developed various methods that can be considered democratic in that they build on participatory, cooperative, and inclusive processes. However, these methods do not address or contribute to the understanding of complex systems, nor does the theory they are based on recognize the society or democracy as exceedingly complex [1] designers thus, lack techniques that enables them to work with this complexity. It is therefore a paradox that such complex contexts are typically approached with the above-mentioned methods. We have studied design for democracy through the research question of; how to create democratic design processes? Our intention with this exploration was to identify techniques that students used that in different ways facilitate democratic processes. By categorizing these techniques within a matrix with praxes describing various dimensions and types of democracy, we could also identify areas that the techniques used did not cover. Thus, areas have been identified that by description may serve as potential new techniques.

1.1 Course description

The three courses (24 ETCS, on master's level) that make the empirical data for this research was executed between 2016 -18 with the theme of design for democracy, with three subcategories:

1. participative democracy in urban planning with a municipality in Norway, 2. workplace democracy with UDI – the Norwegian Directorate of Immigration and Gjensidige, Norway's biggest insurance company, 3. representative democracy and how to engage young people to vote in collaboration with Norway's business newspaper, Dagens Næringsliv. The students were given an open brief with an intent to create innovations and interventions to improve and redesign democratic processes. The students studied texts on democracy by choosing literature from different sources and particularly from a compilation of literature, The Democracy Files, collected by Nelson and Sevaldson [2]. The students conducted additional steps in the SOD methodology, such as ZIP analyses and the creation of rich design spaces, to grasp more of the complexity of the developed problematiques [4]. The projects included very rapid learning processes to assess the high complexity tasks involved through a full SOD process that includes the design and co-design of numerous giga maps guiding knowledge acquisition and desk research, fieldwork, mapping dialogues together with experts, and the involvement of users eliciting experiences from stakeholders. Despite these rich and intense knowledge processes, it is that, within the timeframe, their ability to reach a state of deep insight was limited. It was not our intention to teach deeply about democracy but to enable designerly action for and within democracy. Therefore, the students were challenged by us, the teachers, and researchers, to design for democracy as a design topic and hence as a situation designer´s can handle based on their limited theoretical and scientific knowledge. The students who chose the course out of interest were naturally aware of the recent decrease in the cultural conception of democracy and in the measured rating of democracy [4]. We discussed the recent fast developments of IT, big data, and the exceeding amount of information channels, targeted information filtering, and the current trend towards more authoritarian leadership in numerous countries. Design for Democracy has a history reaching back to the 1970s, as stated by Victor Margolin in his lecture [4]. The course is meant for the students to discuss their projects considering theory on democracy and thus be more aware of what democracy is and how it can play a role in a design project and subsequently influence users of designed services but most of all to equip students with SOD methodologies to design projects that contribute to a democracy society.

2 SYSTEMS-ORIENTED DESIGN

SOD is a methodology for handling complexity and creating and sharing a holistic picture of a problem or situation. Typically, we understand SOD as systems practice tailored for practicing designers. SOD is a design praxeology within the broader field of Systemic design [5]. Giga mapping is the main tool in SOD, and it is a technique for extensive mapping and visualization method that crosses perceived boundaries and scales. The intention is manifold, but we can mention the following: to build a deep understanding of the systems at hand and their environments and wider landscapes; to initiate a very rapid learning process; to uncover “unknown unknowns"; to serve as a dialogic tool across silos and disciplines; to engage stakeholders and non-stakeholders as well as affected bystanders; to cater for sustainability, life cycles, and circular economy issues; to serve deep creative processes; and to memorize large amounts of information and insights. SOD thus involves not only the Giga mapping and understanding of vast numbers of entities isolated but also the study of the qualities of the relations between them. Visualization may thus function as a major contribution to the understanding of systems. Visualizations make grounds for all stakeholders to see, share, follow, discuss, contribute, and influence the project together. That is, the information is created together simultaneously in a continuous manner by the group [6, 7]. Hence, the shared work produces much more shared and communicated information in comparison with various people reading reports alone before a meeting, SOD is thus interdisciplinary [8].

3 METHOD

The empirical data for this research consists of the student projects conducted in the three SOD courses Design for Democracy from 2016 – 2018 [9], a portfolio of nineteen projects. To perform the analysis, we developed a matrix with two axes, where the x- axis describes four modes of: design for, of, as, and in democracy [5] and the y-axis represents four different kinds of democracies: representative, direct, deliberate, and liquid (Figure 1).

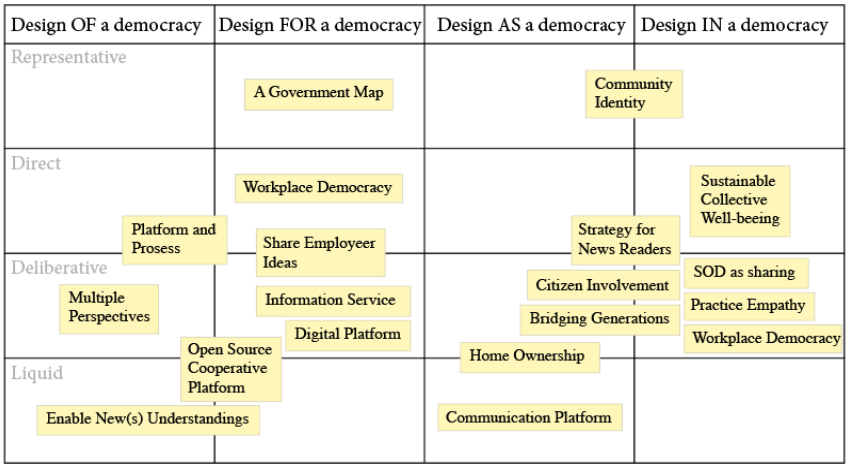

Figure 1. Design projects in relation to mode of design and kinds of democracy

We analysed the projects by positioning them within the matrix and thereby categorized them in relation to the two dimensions of democracy. The matrix provided fruitful information about the students' focus. However, our main emphasis is to explore the work praxis itself considering democratic functioning to identify techniques for democratic design praxis. To learn more about the role of the SOD methodology and process as a democratic process itself in this context, we sought the techniques that the students described that they used. A further look at the students' praxis revealed the following list of research and design methods that they made use of while working with design for democracy. The list is roughly categorized into nineteen categories of techniques, embracing subcategories gathered from the student reports that documented their processes and praxes. These are 1. field- and desktop research, 2. rich design space, 3. giga mapping, 4. ZIP analysis, 5. systemic relations, 6. systemic evaluation, 7. leverage point analysis, 8. user journey, 9. digital platforms, 10. SOD as sharing, 11. participatory design, 12. co-creation, 13. discussion tool, 14. expert networks, 15. prompting tools, 16. strategy, or synergy map, 17. critical thinking, 18. design thinking, 19. communication. Eight of these methods lie in the field of SOD (Table 1).

Table 1. Eight techniques placed in a matrix of four kinds of democracy

	Rich Design Space	Giga-mapping	ZIP analysis	Systemic relations	Systemic evaluation	Leverage point analysis	Expert networks	Strategy-, synergy mapping
Representative	x	x		x			x	
Direct	x	x						
Deliberative	x	x	x	x	x	x	x	x
Liquid				x		x	x	

This analysis led to the description of eight pre-exciting techniques as dimensions to understand and facilitate democratic processes. These techniques are then discussed against theories on democracy to study their effect in relation to SOD as a praxis and SOD as a technique for strategic planning for services, processes, and structures for democracy. These techniques demonstrate what we understand as design praxis [10], that is, specific actions, circuits, and interaction of circuits that the students took in the inclusion of others in the process in any way. By including the dimension of democratic design praxis in our study, we seek to describe the possible systemic influence the student praxis has on the process of involving and including others. That is, we consider the democratic dimensions of the process itself.

4 DEMOCRACY TYPOLOGIES

This chapter introduces the theory used to develop the matrix for analysing the student work praxes (see Figure 1). The activity of developing the matrix and the subsequent analysis served as an enabler for us to describe what design for democracy is, namely through describing the disclosed techniques that elicit democratic thinking, dialogue, and planning as design mechanisms (see Table 1). Margolin [5] recognizes the convergence between democracy and design in four respects: 1. Design of democracy which is about improving democratic processes and the institutions on which democracy is built. It

addresses the structural elements that function as frames and regulators of human action in a democratic system. It focuses on institutions, such as branches of government, agencies, bureaus, courts, and offices, and procedures, such as laws, regulations, rules, and protocols. 2. Design for democracy enables more people to participate in the democratic process, especially using technology. It increases the opportunities for citizens to participate in deliberate processes. It focuses on transparency which enables citizens to be aware of on-going processes of governance and deliberative methods, which can be understood as the opportunity to be involved in decision-making processes. 3. Design in democracy builds access, openness, and transparency into institutions in ways that assure equality and justice. It refers to all design initiatives that are particularly responsive to the goals of democracy. It may deal with the provision of human rights and fundamental freedoms (such as access to food, shelter, healthcare, and education) and, more in general, with the transition towards a more resilient, fair, and sustainable society. 4. Design as democracy is the practice of participatory design, which constitutes the possibility for diverse actors to shape our present and future worlds in fair and inclusive ways. It sets a stage on which diverse actors can come together and democratically collaborate in shaping their present and future worlds. It engages diverse people and publics in co-designing and co-producing processes concerning different aspects of their everyday life.

The second axis represents a synthesis of different types of democracy. Most people think of democracy as consisting entirely of the voting process in a representative democracy. Naturally democracy is formed by much more than that. However, for this exercise we found it practical to operate with four basic forms of democracy, indicating principal differences in how democracy might be structured: representative, direct, deliberate, and liquid democracy. 1. Representative democracy is what we normally think of as democracy, voting for representatives to represent us in a dialogue that goes on in a parliament or something similar on levels spanning from municipalities and regions to nations and federations like the European Union. Representative democracy is a form of indirect democracy. 2. Direct democracy describes a system where issues are voted on directly. This is practiced in smaller organisations and in a few cases on municipality and Nation level. Switzerland is an example of a country that to a large degree is based on direct democracy. 3. Deliberative democracy, also called dialogic democracy, describes participatory processes in society, spanning from hearings to involving all parts of the (organized) civic society. This is practiced on municipality levels where participation is regulatory in Norway. However, these processes are rarely working very well and need rethinking. 4. Liquid democracy describes the role of digital media, big data, and how networks allow new forms of democracy to emerge. It combines direct influence with representation [3]. The modern forms of liquid democracy are interesting because it indicates that there is a potential in digital technology to enhance democratic processes and on the other side that democracy is under pressure from the digitalisation of society.

5 DISCUSSIONS

We categorized all the nineteen projects within the matrix (Figure 1). The categorization shows that most of the projects are positioned within the area of deliberate democracy. The finding is interesting and perhaps expected, as it shows that design students who use user-oriented design methods and facilitate participation processes that themselves are highly deliberative. This is also coloured by the fact that participatory design and co-design are central methods in contemporary design discourse. These approaches demonstrate the democratic nature of modern design methodologies and hence partly imply design as democratic. However, this was not necessarily stated very clearly in the projects. The projects helped us to crystallise these insights and build our own knowledge about design for democracy. The orientation on direct and deliberate democracy may also illustrate a lack of systemic thinking in that considering systems theory supposedly would lead to considering information and communication as having an integral function in society, such as within the understanding of liquid democracy. While analysing the students' projects within the matrix, a question emerged. What can designers contribute that political science cannot when taking care of, maintaining, developing, and designing democratic processes? First, design is a practice profession which is about change. While most sciences are predominantly about describing and theorizing *what is*, design is about creating *what ought to be*. Ideally, we would want to establish a transdisciplinary approach including different knowledges like political science, sociology, and others. Designers are proficient facilitators of co-design processes and are experienced in bringing people together to grasp their different perspectives, combined with a designer's skills for visualization in, for example, giga mapping. That led us to categorize the student's

work with emphasis on praxis within different types of democracy and look for patterns in their use of methods and techniques.

5.1 Typologies of Democracy

In Table 1 we show eight of the nineteen research- and design methods the students reported using while studying design for democracy. Our scope is to understand SOD in relation to democratic processes, so we extracted these eight methods that lie specifically in the SOD methodology.

5.1.1 Representative democracy

Table 1 shows that we have placed the following SOD techniques in the column of representative democracy: rich design space, giga mapping, systemic relations, and expert networks. The rich design space represents all your data, research, and insight and can include the perspectives of others that are present in this space while the person does not have to be. The rich design space also holds space for the three next techniques included in representative democracy: giga mapping, systemic relations, and expert network. A way to start using these four techniques combined could be to start with stakeholder mapping to build an expert network for the project and to invite those experts in to have a common giga mapping session. Further, the group could build on the initial giga map and try to identify relationships in it, and in the next step search for new understandings of those relationships. This process will usually lead to several maps. All those maps belong in the rich design space and will represent the current state of knowledge within the group investigating a problem. A well-curated rich design space could express and communicate the current state of knowledge on its own. However, they rarely do, and one of the experts within the group would have to be present, and present and represent the project content to an outsider.

5.1.2 Direct democracy

Table 1 shows that we have placed the following SOD techniques in the column of direct democracy: rich design space, and giga mapping. Both techniques include the perspectives of a variety of actors in this visual space, and their voices are present in the giga map as well as in the rich design space. As a facilitator of a design process, one can invite people in to have a direct influence on the mapping process and the creation of knowledge and to make sure their voices are recognized to have an impact on different issues described in a giga map and the rich design space. The visual representation in the giga map and the rich design space provides immediate communication about the different issues at hand, and the observer can have direct influence and give feedback to the information at hand.

5.1.3 Deliberate democracy, participation and dialogue

Table 1 shows that we have placed the following SOD techniques in the column of deliberative democracy: rich design space, giga mapping, ZIP analysis, systemic relations, systemic evaluation, leverage point analysis, expert networks, strategy- or synergy mapping. Considering deliberative democracy, the students made use of all the SOD approaches. Just to mention some interesting techniques that the students came up with, a hugging festival, designing for conversations between youth and elderly, creating a rich design space at the collaborating partner's office, a Future Fest: where architects, and urban planners and the public are invited to have debates and conversations during a festival week.

5.1.4 Liquid democracy, a combination of direct and representative

Table 1 shows that we have placed the following SOD techniques within the landscape of liquid democracy: systemic relations, leverage point analysis and expert networks. To design for liquid democracy understanding relationships and actors, - building expert networks are relevant, as networks allow new forms of democracy to emerge and further self-organize. When performing a leverage point analysis considering liquid democracy, one can acquire a holistic overview of the dynamics of the system at hand, and when intervening the effects can change whole systems. An interesting example of a student technique was the use of open source: how citizens can add and edit the information into the objects and spaces to redefine the meaning of their own space and combine direct influence with representation. Hence, it served as collective decision-making.

6 CONCLUSION AND FURTHER RESEARCH

This research has described SOD as a democratic design technique, which in turn inspired us to consider democratic design praxis as equally important to the design projects or that an emphasis on democratic design praxis may lead to projects that function in accordance with the democratic goals for the project. This analysis led to the description of several techniques as dimensions to understand and facilitate processes for and to design for democracy. These are rich design space, giga mapping, ZIP analysis, systemic relations, systemic evaluation, leverage point analysis, expert networks, strategy- or synergy mapping. These techniques are further discussed against theories on democracy to study their effect in relation to SOD as praxis and SOD as a developing process or strategic tool for democratic service design. We find these groups that are in detail described in the appendix to be of particular interest for the planning of design projects for democracy and further research. In this instance, we would like to focus on the democratic praxes of giga mapping when it comes to the planning of education and design projects as well as future research. These praxes are collaborative giga mapping, observing rich data in giga maps individually and collectively, SOD as a technique for managing complexity. Others are sharing by giga mapping, giga mapping as a tool for discussion and generating consensus, collective sense-making, conversation overview, information access, constant and immediate feedback, scenario thinking, and collection of research, systems, and information. The matrix developed in this research may serve as a strategic compass as well as a pedagogical approach and a design tool. The research so far shows the functioning of the matrix in analysing student projects and their positioning within different types of democracy landscapes, and which mode of design for democracy to activate. The matrix may help to reveal which stakeholders to activate, which networks to work with, what mechanisms of democracy to emphasize, and according to Meadows' 12 leverage points, places to intervene in a system [11]. The intervention may represent change of governance on several levels within democracy, whether it is activating individuals to take a stance, bringing about structural changes within the government, or changing existing paradigms. The design for democracy matrix or compass demands a thorough thinking process to position a project in the democracy landscape described by the two axes. The compass may also stimulate more reading and facilitate reflective discussions that lead to strategic planning. Several perspectives are yet not covered in this article. For example, we have not discussed how to include outsiders, affected bystanders and non-human actors. For future research, we also suggest including feministic design approaches [12], which involve the study of the suppressed as stakeholders. This may serve as an important factor for democratic design methods. The fields where the students made use of, or created techniques for the designing of democracy, such as the categories of direct and liquid democracy, may point at a need for the development of new techniques. We suggest these as fields for further research.

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