Assignment 3: Participatory Design in Small Versus Large Scales

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Introduction

It is becoming increasingly critical to integrate users in the design process of IT projects [6]. Early user involvement can mitigate the risk of failing the end-users' requirements and needs of the technology system to be developed. The design approach participatory design (PD) is about giving users a voice in the design process of a technological product they are using or will be using. Its roots derived from trade unions who strived for more democratic values in the workplace and for workers' emancipation [11]. Later, the design approach evolved from "democracy at work" to "democratizing innovation" [1]. Having a say in the technology design is necessary for a real change to take place, so that products finally adjust to the end-user's needs rather than vice versa [7]. The goal hereby is equalizing power relations between the participants and endorsing mutual learning [13]. Users can learn about design and technological issues and designers can obtain an insight about the user's workplace and activities and skills [15]. But, including end-users can be difficult and PD approaches for small-scale projects do not automatically scale, which means they cannot be applied in the same way in larger, more complex environments and there is little research on what factors prevent this to happen [12]. In contrast to small-scale projects, large-scale projects encompass a broad spectrum of stakeholders with different requirements, needs and use contexts of the system to be designed. PD has been successfully applied to small projects [3], but since IT projects nowadays grow in size and organizational complexity [12], it is vital to discuss participatory approaches in large applications.

Discussion

Empathic relations between users and designers in large-scale projects

It is important for participants of design workshops to be able to understand the process, fully engage with the design and openly speak about their requirements and needs. Therefore, user involvement in projects is often accompanied by facilitated design activities [4]. The person leading those activities can be referred to as a facilitator [18]. The competence of the facilitator can influence the opportunities for a user group to become engaged in the design process [9]. One of his or her objectives is to equalize the power relations among the participants.

Lindsay et al. (2012) have emphasized the benefit of developing close relations among the stakeholders who take part in a PD process [8]. Empathic relationships are central for the participants to speak openly and for the facilitator to collect information on possible sensitive topics [4]. By establishing trust between designer and end-user, it is easier to share opinions. Moreover, a better understanding of the viewpoints expressed by the end-users can be formed. Three aspects are central for designers to develop an empathic relationship with participants [17]: (a) the designers' orientation to the participants and whether they are motivated to understand and help, (b) their attention to the affective and emotional in relationships and (c) whether it is likely for them to provide opportunities to the needs and emotional responses of the users.

But, applying trust builder strategies means investing a considerable amount of time together with the participants in the environment the technology to be designed is supposed to be applied. Dahl & Sharma (2022) interviewed experts with an academic background in PD and facilitation experience to get a deeper understanding of the facilitator role [4]. One of their respondents said:

> "I spent three or four months doing field work in a care center, sitting there on a daily basis eating lunch with elderly [participants], talking to the staff, observing, being present, becoming familiar with them and confident with them. They became confident with me. I got an idea about who they were, and they got an idea about who I was."

The expert described his long-term engagement in the design project, applying the strategy of Lindsay et al. (2012) by trying to bridge the gulf of experience and gaining the participants' trust by becoming part of their daily work life [8]. These actions taken by the facilitator are possible in projects where the group of stakeholders is small and almost homogeneous. So far, endorsing user participation through participatory design methods in small-scale and micro-level IT projects was relatively successful, but applying it to large-scale projects at company level was generally unsuccessful [14].

Investigating studies implementing PD practices in special needs groups [7, 11] gives further insight on the amount of time that needs to be invested by the facilitator to create active involvement by all stakeholders as co-designers. It takes time for participants to get accustomed to the role as active users who hands-on collaboratively design the product [5]. To create a more comfortable environment the groups chosen for the project often knew each other before. Moreover, they were able to get to know each other before the design process started [8]. The facilitator had consistent contact with often only one person in particular and tailored activities to their needs. In general, there is a need for patience and extra time budgets for power relations to be adjusted properly and to prevent miscommunication [5].

External influences like contract limitations can for example set a strict deadline resulting in enhanced time pressure for the PD activity. This can then again lead to limited user involvement because not every voice can be heard within a short time due to user group and opinion diversity [19]. Therefore, the actions taken for creating empathic relationships in the studies mentioned prior could exceed the limits set for the project. A major challenge is to manage and align the motivations and interests of multiple stakeholders of large-scale projects [12]. A number of different actors from different organizational levels want to have a say in the design of the technology. One facilitator can not give their full attention to every single participant in large groups. Consequently, strong relationships cannot be built when there is a large and diverse user group. Moreover, working with a heterogenous group can imply that the participants didn't know each other beforehand and, due to time constraints, will not get the opportunity to form stronger relationships. Since the relationships between the participants and between facilitator and participants cannot be strengthened before or during the process due to the constraints mentioned, users could have problems with openly expressing their opinions and working collaboratively to find a solution to a common problem. Here, it is important for the facilitator to create dialogues between the stakeholder groups and hence enable collaboration. He or she might not be able to create deeper connections with the end-users like in small-scale projects, but is still able to navigate the stakeholder groups' discussions and facilitate co-designing through the usage of materials (artifacts, prototyping materials, etc.) and instructions to set boundaries for participatory activities [4]. If time is given, the facilitator can meet with each stakeholder group separately before the design process starts to build a better understanding of

their requirements and needs without being interfered with by other stakeholders' opinions. Sometimes, possible tensions between the groups may be even beneficial because they provide deeper insights into the conflicting values [6]. In this case, it is the facilitator's responsibility to keep the discussion fair and accepting.

Challenges of PD applied in large-scale projects

Besides the difficulties of building empathic relations between users and designers, more challenges must be faced when applying PD in large-scale IT projects. Large projects are more often affected by external influences, like organizations and their agenda, developer organization, software development methodology and more [19]. They can lay constraints on the PD activity through prior defined rules and organization structures. Those elements can influence decision making in a project and can be defined as boundary conditions [2].

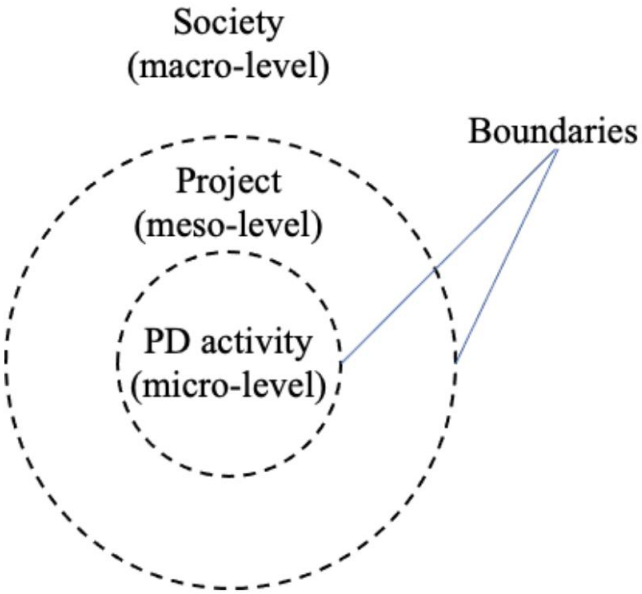

Figure 1: Visualization of the boundary conditions of a PD project activity [19].

Figure 1 shows the boundary spheres that can occur at a PD activity. Influential factors can be closer or further from the PD activity, relating to different boundary spheres. The PD activity itself is taking place on the micro-level, project boundaries or the facilitator's agenda take place on the meso-level and social aspects like rules and regulations are defined as macro-level. The PD activity is shaped by those conditions and they can have a significant effect by either supporting participation or impairing user involvement. Several boundary conditions can come into play when influencing one specific aspect of the PD activity. [18]

Stakeholder group complexity

When moving from participation in small-scale isolated systems to participation in large system innovation projects, several challenges arise. One major challenge is in many cases the

large number and variety of stakeholder groups, spanning different organizations and organizational levels [13, 15, 22]. This problem was mentioned prior because of its influence on the empathic relations between the users and designers. The more groups participate in a project, the larger the problem of interdisciplinary understanding becomes. The asymmetric relation between participants' knowledge and communicative practices makes mutual understanding between the groups extremely difficult [10]. The facilitator has to align the motivations and interests of the stakeholders to build a common ground for the PD activity. But, the time limitations of the projects can make it difficult to include all user needs as they emerge. Due to these issues, group discussions between different stakeholders turn out to be insufficient and the need for reflection, discussion and alignment of perspectives on relevant subjects arises [19]. More time for planned follow-up meetings with specific stakeholder groups is needed to better understand the misunderstandings and concerns and to even out power asymmetries. Further, co-reflection on the design process together with a facilitator is needed to adjust the design methodology if needed [19].

Group discontinuity

Another challenge concerning the structure of the users participating in PD activities is the lack of group continuity [19]. Throughout a project that is planned for several years, it cannot be ensured that the representatives of the stakeholder groups attend every PD meeting. But, continuous participation is vital for establishing common ground for effective collaboration [19]. Large-scale projects call for a focus with regard to which parts of the system and its use context should be the subject [12]. If the structure of the group of participants changes regularly, knowledge of prior discussions and the current status of the project cannot easily be transferred to new participants. To improve peer interaction, more stable teams need to be formed [19]. Moreover, to ensure every participant has a similar prior knowledge about the topic, sensitization methods, like co-design idea cards, can be utilized by the facilitator before the PD activity begins [16]. Sensitization is used to familiarize users with the topic, endorsing the process of idea creation.

Contractual regulations

Contractual issues on the macro-level boundary can also create difficulties for PD activities in large-scale projects. Contracts can regulate the relationships between stakeholder groups, creating hierarchies amongst them and setting constraints for the budget available and duration of the project. When discussing important design decisions, contractual limits and predefined power structures can disrupt the PD activity. If participants have a limited understanding of the boundary conditions given by the project, they cannot find common ground easily, since they are not aware of any restrictions they might have to take into account when making design decisions. Further, the time that is needed to discuss the conditions during the PD process is lacking when coming to design decisions. Therefore, the boundary conditions framing the PD activity have to be elaborated by the facilitator before the activity. [19]

Summary

The emergence of complex information systems with interdependencies across user groups and organizations challenge the applicability of traditional PD practices. PD is a democratic and

empowering design approach, building empathic relationships between users and designers is therefore important to be able to fulfill those values. The facilitator's strategy is to gain trust from the participants and thus create open and sincere discussions between end-users. But, this cannot be fully ensured in large-scale IT projects due to the increasing complexity of stakeholder groups, as well as group discontinuities and contractual boundaries like time and budget limitations and pre-set hierarchies between stakeholders. Several possible solution strategies were discussed. Follow-up meetings after the PD activity and co-reflection on the design methodology could eliminate misunderstandings and concerns. More stable teams need to be created and interaction among the domain experts needs to be enhanced. Sensitization methods can be used by the facilitator to familiarize the stakeholder groups with the topic before the PD activity. Boundary conditions should be stated clearly by the facilitator before the PD activity to ensure every stakeholder group is aware of possible limitations.

Conclusion

There are several limitations arising when applying PD methods once projects become larger and more complex. This is why the design approach could possibly not fulfill its overall values of being empowering. But, there are ways to overcome those challenges or at least ways to mitigate them. PD can help large-scale IT projects to overcome hierarchies within diverse stakeholder groups. PD practices can show participants how to effectively work together and how to form a shared solution out of different problems. Through different facilitation methods PD can empower stakeholder groups to speak openly about their requirements and needs. The PD activity can broaden participants' perspectives on how project decisions can be made as equals, albeit having different knowledge, cultural or social backgrounds. Project organization methods of large IT projects are already progressing to be more aware of user involvement and asymmetries. Within this progressing environment, PD practices can be applied more easily than in contrast to the traditional way of "design first then implement" [12]. IT projects consist of stepwise implementation processes that can involve a series of PD experiments. Their organizational structures can shift from contract towards customer orientation. The strategies discussed have potential to successfully involve PD activities in large-scale projects. However, their practical effects need to be further investigated.

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