You are the real experts!
- Studying teenagers’ motivation in Participatory Design

Elin Irene Krog Hansen
Aarhus University
Helsingforsgade 14, 8200 Aarhus N
+45 22 92 0321
elin.ikh@gmail.com

Ole Sejer Iversen
CAVI, Aarhus University
Helsingforsgade 14, 8200 Aarhus N
+45 50 54 67 78
oiversen@cs.au.dk

ABSTRACT
Participatory Design (PD) engages those who are affected by a future design artefact in the design process. Participatory Design literature mostly describe how users are engaged in the process and tools, techniques and methods for facilitating the process as one of mutual learning. Nevertheless, the study of how users are motivated in engaging with the design process is still uncovered.

This paper examines how PD researchers motivates teenagers to engage in a Participatory Design project. By analyzing the core activities in a PD project, we will present the means used for motivating teens to participate in the design process.

Keywords
Teenagers, Participatory design, motivation, means

1. INTRODUCTION
It is widely recognized within current IDC research that an element of user involvement is needed, for further understandings of the end users needs and wants. Accordingly, numerous methodologies that engage users in the design process have been developed and refined for interaction design with children e.g.[6]. Especially Druin’s seminal work on Coorperiodative Inquiry [5, 6] and the Scandinavian approach to Participatory Design [15, 18] have gained acceptance in IDC. As we recognize the importance and applicability of both approaches, this paper mainly focuses on Participatory Design as we introduce an investigation of how teens are motivated to participate in these mutual learning processes. The main contribution of this paper is to provide an understanding of means that the PD researchers can use to motivate the teens during a PD process. This effort comes about as we recognize that teens as a user group differs significantly from the blue-collar workers that PD originally was intended for.

In the 1970s the Scandinavian Participatory Design began as a result of research projects with workers who analyzed the effects of the introduction of IT at their workplaces [9, 16, 20, 21]. Ehn framed this as the design of an emancipatory practice [9] emphasizing that ‘democracy’, ‘quality for work’ and ‘skillfulness’ was at the core of every PD practice. The workers’ primary concern was how to keep their jobs [16]. Therefore their motivation for participating was to make sure that their job would not become unnecessary. As Pelle Ehn [8] states: “A complementary reason for participation, and in the long run probably the strongest motivation for its use in many organizations, was to ensure that existing skills could be made a resource in the design process.”

Today, the main field of PD is no longer at the workplace and the user group has changed. PD is now engaging new user groups such as children [5, 18] and teens [15, 25]. As the user group has changed, so have the participants reasons for participating in the process. Given that the political aspect has been moderated in PD, the motivation for participating in a PD-process has changed. The motivation for the participants is not only how to keep their jobs. Previously, it was the democratic aspect that was the motivation factor for participating. Today other factors are crucial. As Füller et al. [12] describes, the users hope to help create an improved product that meets their personal needs better. The challenges in PD have evolved into how to motivate the participants to take part in the design process. How do we motivate them to participate? What are the means in the PD toolbox, which PD researchers use to engage teens? In the following, we will provide a case study from a recent PD project in which we study how researchers motivate teens during the design process. We looked at what means the PD researchers used to motivate the teens during the design process.

2. RELATED WORK
Motivational studies of users are often used when evaluating the final product and especially when the subject is in regards to computer games [4, 10, 17, 19] and how to motivate teens to be physically active by using digital technology [2, 7, 24].

In recent years the interest in how to motivate non-adult users during the design process has increased. Alvarado [1] describes a case where he used the co-design technique Embodied Narratives to understand what motivates and entertains children while they work together in the creation of a social game. The technique Embodied Narratives exploit children’s natural playfulness to boost children’s motivation through fun, spontaneous, and open-ended tasks. Toth et al. [25] presents a case where they engaged with teens in designing a mobile solution to change teens’ attitude and behaviour towards energy. Over 90 teens participated in the process. To engage the teens in the project they used multiple methods such as diaries. They told the teens to write stories and then let them participate in focus groups. Edwards, McDonald and Zhao [7] motivated teens to engage in co-design by rewarding them a gift worth £100.

This paper will investigate what kinds of implicit means PD generally uses to motivate teens to participate in the design process. In the following section, we will account for our understanding of motivation deriving from experimental psychology.
3. MOTIVATION
In this section we will briefly provide our understanding of motivation. According to Csikszentmihalyi all human actions are motivated by a combination of two types of rewards: extrinsic and intrinsic [3]. An action is extrinsic motivation when the rewards do not come from the activity itself but from the outside. A person is acting in the interest of intrinsic rewards when the performance itself is worth doing for its own sake. For example, most sports games and artistic activities have intrinsic motivated rewards. Apart from a few professionals, many get no reward for performing the activities except of the experience itself. Normally we are motivated by both external and internal rewards at the same time.

Hedegaard [13] distinguishes between motivation and motives. Motives are structured in a hierarchy of dominant, meaningful and stimulating motives. The dominant motives are associated with the types of activities that are central and important to a person's life. For preschoolers, playing is a motive that dominates, and for school children in schooling age it is the exploration of roles and being like the adults that dominates. For the teens it is the acceptance by peers and success that are the dominant motives. Dominant motives are always meaningful, but a number of other meaningful motives can be present without being dominant. As an example, teens still have 'learning' and 'play' as meaningful subjects, regardless of their dominant motive being social acceptance. A stimulating motive is a motive that makes sense in a different context, but is placed into a new activity in which it will attempt to motivate the new activity. Stimulant motives are often used in school contexts to put an activity, which is not by itself motivating, into progress. This theoretical approach to motivation has previously been discussed in interaction design research by [23].

4. CASE: THE LiTiRUM PROJECT
The LiTiRUM project was a six-month project that took place in the fall of 2012. The objective was to develop a new social technology application and an augmented school installation to support informal learning in public schools. LiTiRUM was an interdisciplinary research project engaging researchers from interaction design, anthropology, architecture and pedagogical research. Also, LiTiRUM included two industry partners. The development of the ‘Narrify’ application and two interactive installations were conducted in a Participatory Design process with seven key workshop activities. The project mainly involved pupils (aged 12-14) from two different public schools. Each workshop engaged 16–80 pupils and 5–10 teachers and school administrators. All in all, about 150 pupils and 25 teachers and administrators took part in the LiTiRUM project for longer or shorter periods of time. The pupils participated as experts in being pupils [14]. The outcome of the project, the Narrify application, is a social technology that runs in a web browser, on tablets and smart phones. The application promotes a knowledge-sharing environment that engages pupils, parents and schoolteachers in a digital context for sharing formal and informal knowledge. Moreover, Narrify is also integrated into two physical installations in which pupils and teachers can engage with the Narrify software through Natural User Interfaces. To investigate how PD researchers motivated the teens, we engaged as participant observers in LiTiRUM’s seven design interventions. Field notes from these design interventions were combined with semi-structured interviews in our analysis of the means by which teens were motivated to participate during the design process. The LiTiRUM design process is further described in [22]. Below, we will present how PD researchers motivated teens to participate and contribute to the LiTiRUM.

5. MEANS OF MOTIVATION
During the LiTiRUM project the PD researchers used several means to motivate the participants. In figure 1 the means are classified and given a headline that is described above. The means are divided into material or immaterial means. The axis of x indicates if the motivation is an extrinsic or intrinsic cf. Csikszentmihalyi [3]. The axis of y indicates if the motivation is material or immaterial. The material was tangible artefacts’ that the participants were given to use during the workshops. The immaterial means were social values. In the figure the means is placed based on whether they are mainly a reward in itself or if they need a reward from the outside. Incitements, tools, technology, identification and cooperation did not seem rewarding in itself but the rewards have to come from the outside whereas endorsed as experts and performance are rewards in it self. In the figure the material means used in this case is extrinsic rewards, while the immaterial means are intrinsic.

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5.2 Tools
The PD researchers applied tangible tools to inspire the participants. Before the first workshop the participants had done some homework. They had to draw a storyboard of a situation where they have had a good learning experience. The participants were given some cardboard cards, where they had to write down what motivated the learning situations based on the storyboards. The cardboard cards were now used as motivational cards. In some of the workshops the participants had a box full of “tools to think with” that consisted of different types of primitive artefacts that could help inspire the participants to design a new type of product. Participants used their imagination to come up with some new functions for the artefacts or used the artefacts as inspiration for totally new inventions.

5.3 Technology
The use of modern technology encouraged the teens to participate in the process. During the workshops the participants used different types of technology. They used video cameras and iPads to film short video clips that they uploaded in a Facebook group. The participants also used cameras to take photos with, which they printed by AirPrint afterwards.

5.4 Identification
Identifications were used to motivate the participants by giving them a sense of belonging to the project. Each participant got a T-shirt that indicated that they all belonged to the workshop. When the participants wore their T-shirts they had free access to the workshop facilities. In later workshops the participants were given key hangers to indicate that they took part in the workshops and a nametag. In some workshops the participants acted in a role-play and the key hangers were used to show their part in the role-play. One part in the role-play was to be a ‘Toponaut’. A Toponaut was a role invented for the occasion. As astronauts explore outer space, the toponauts were sent off on expeditions to explore the local place, or ‘topos’ in Greek. The key hangers gave the participants unlimited access to the whole school and the surroundings.

5.5 Cooperation
By cooperating in teams of peers the teens were motivated to take part in the workshops. In every workshop the participants were divided into smaller groups of approximately five participants. In some of the workshops the participants took part in a role-play where they were acting as Narrifyers, Toponauts, journalists or designers. The role of a Narrifyer was to find a good learning experience and find out what motivated them in this situation. From the specific learning situations the Narrifyer had to write down some motivational cards. Each Narrifyer presented their motivational card while the others announced whether or not they agreed by making a thumb up or down. The Narrifyers placed their motivational cards on the floor and by doing so; they made “the garden of motivation”. In the garden of motivation the participants could walk among the motivations and write down their names on the motivations they agreed with. As a Toponaut the participants took part in a Toponaut Corps of four group members. The toponauts had the duty to explore the local places. In each Toponaut Corps, there were four roles to play: A photographer, a videographer, a journalist and a captain. The team members took turns being captain, i.e. find a place at the school, which was their 1) favourite place 2) disliked place 3) mysterious place. Each role had its own task: a) the captain marked with a sticker site colour (green = favourite / red = dislike / yellow = mysterious). b) The photographer took a picture of the captain, holding a sign of the appropriate colour in place, with its name and the type of place. c) The videographer recorded a video of 10 seconds where the captain explained why he had chosen the place and d) the journalist wrote captain's explanation down on a post-it.

5.6 Endorsed as experts
An important motivation mean in every workshop, was that the teens was endorsed as experts. During the workshops the PD researchers continuously emphasised that the participating teens was not invited as ‘pupils’, but as experts. As stated at the opening workshop by the research manager “Teens are experts in their everyday lives. We cannot design future technology to teens without involving these experts”. When the participants shared their point of views the PD researchers treated them with great respect. The PD researchers didn’t use pedagogical means to make the teens participate but told the participants that they themselves had the responsibility to gain something from the workshops. In return the PD researchers gave the participants recognition, which in itself was motivating for the teens. The teens were taking seriously, which gave the teens courage to participate.

5.7 Performance
As a motivation factor the PD researchers tried to make clear to the participants that they were being listened to by replying to the participants’ comments in verbal and in the Facebook group. In every workshop the participants had to make presentations. It varied if the presentations were verbal in plenum, in writing in the Facebook group or if the participants made a video presentation they posed on the Facebook wall. By drawing the storyboards the participants had their chance to tell their own story and share it with each other.

6. DISCUSSION
As noted by Csikszentmihalyi, all human actions are motivated by a combination of extrinsic and intrinsic rewards [3]. In this project the fact of the matter is that the material means are placed at the extrinsic part of the axis of x and the immaterial means are placed at the intrinsic part. For analyzing the means of the project we will use Hedegaards’ hierarchy of dominant, meaningful and stimulating motives [13]. In this paper we discuss the motives she set up for teens. For the teen it is the acceptance by the peers and success that dominates his or her motives. ‘Learning’ and ‘play’ are meaningful motives and the stimulus motives is a subject that makes sense in a different context, but placed into a new activity in which it will try to motivate the new. The stimulating motives are not established but may change depending on the teens.

By looking at the means from before, we can see if they fit into these motives. The encouragements such as sweets and rewards are known for motivating in other contexts than in a design process and can therefore be considered as stimulating motives. Also technology and Identification use elements that are known as motivating from other contexts. The meaningful motives are ‘Learning’ and ‘play’. During the two projects the participants took part in a role-play and they used “tools to think with” that is based on their ability to play. For the teens the social values as acceptance by peers and success are the dominant values. In the figure 1 the endorsed as experts and performance is the social values that represents the participants’ social behaviour and how their surroundings think of them.
The means used in the LiTiRUM project are shared among the three different types of motives. In figure 1 the groups of encouragements, technology, identification and tools fits into the stimulating motives. Coorporation fits into meaningful motives. At last endorsed as experts and performance fit into dominant motives. If there is a majority in one of the categories it may be a problem for motivating the teens. If there is a majority of stimulating means it can cause a “here and now” motivation for the participants. It is fun to participate in the moment, but is easily forgotten. On the contrary a majority of the dominant means, can cause the participants not to be able to keep their spirits up to participate. In the LiTiRUM project the means were distributed very evenly in the hierarchy. A small majority of the means were stimulating motives.

7. CONCLUSION
In this paper we have analyzed core activities in the PD project LiTiRUM. We have presented the means used for motivating teens to participate in the design process and categorized them into extrinsic or intrinsic motivations and divided them in material or immaterial motivations. Afterwards we used Hedegaards’ hierarchy of motives for teens and found that it fitted on top of the categorization. The means in the project were distributed very evenly but there were mainly stimulating motives in the project. They gave a “here and now” motivation whereas the meaningful and dominate motives are more long-term. The project could have used more means that led to meaningful and dominate motives. This would have the advantage of entailing a more sustainable design. The means engaged the teens to participate in the workshops and therefore some effective tools in the PD toolbox.

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9. REFERENCES