NARRATIVE: AN EXPERIENCE IN ORGANIZING PARTICIPATORY INNOVATION FOR A MEDICAL COMPANY

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INTRODUCTION

I am an university researcher engaged in the field of participatory design for dedicated medical workspaces such as operating theatres and intensive care units. To gain experience with different participatory design techniques and test my own ideas in practice I try to get consultative jobs at companies and hospitals and use them as case studies. In my previous project I was involved in a case of a medical company developing a new medical appliance. It was clear that the new appliance would to some extent change the daily treatment practice. However, we did not know how the new appliance should be designed, so that the new treatment practice would be optimal. Consequently, I was assigned the task to design a setup for user workshops to explore the "ideal" future use scenario for the appliance.

GOAL OF THE PARTICIPATORY DESIGN WORKSHOP

The goal of the user workshop was to develop together with the end-users (medical specialists) a detailed description of the "ideal" use scenario and get insight into the users decisions and trade-offs in the scenario. As a side-effect, we hoped that workshop participants would commit to the company. The most important

questions concerning the scenario involved which manifestations of a specific disease should be treatable by the product, who would do what in the treatment procedure (role allocation), where would the treatment preferably take place (setting), how long each step should take (durations) and what kind of user interface should provide access to the product's software. In addition, we wanted to know about the motivations of the participants for the choices they made in developing the ideal scenario and about purchase requirements (e.g., maximum costs and some use requirements).

PREPARATION

The medical company had recently redesigned the looks of their products. In this process they had developed an interest for usability and recognized a demand to make their products more user-friendly. The company came into contact with our research group to accomplish this goal and gain knowledge in the field of usability. We proposed to use participatory design workshops to match new product concepts with user experience and practice. The case described here is the second time we cooperated with the company. We already had successfully organized participatory design workshops for another project of the company. The

company explicitly gave us the lead in the participatory design part of the project.

When the business case for this project was approved, they decided to use the occasion of an international specialized fair in the area of medicine the appliance would be used in to execute the user workshop. For this fair, medical specialist from many different places were in one city and therefore easily accessible. The company invited ten clients to take part in what they called a "usability workshop". All of them were medical specialists with experience in the field the appliance would be used in. The workshop was planned to take about three hours, which was the maximum period of time our company contacts figured we could ask from these medical professionals.

We had to deal with an atmosphere of urgency when the project started, because the fair was only three month away. The company representatives sent us the business proposal for the future product and a preliminary list of requirements. In return, we presented them with a list of questions about the project. We hoped that the answers to these questions would reveal more detailed information about the project and what they were searching for in a user workshop. The company representatives were only available for a few

meetings due to other commitments and the large travel distance between the university and the company. Therefore most of the project coordination had to be done by phone and e-mail. We wrote a proposal for the setup of the workshop, suggested participatory design techniques that could be used and made a preliminary project planning. In a meeting with the company representatives the project plan was refined. Meanwhile, a contract for the cooperation was formulated and new company employees joined the project. As a next step we developed a questionnaire for two hospitals that were close contacts of the company. The goal of the questionnaire was to get some basic information about if and how a hospital would like to use the proposed product. Receiving answers from the hospitals via the company took longer than expected, which led to an increase in time pressure. As soon as the answers arrived, we developed together with our company partners several use scenarios for the new appliance in text form. These scenarios should be used in the participatory design workshop. We also hired an industrial design student who sketched digital storyboards of the scenarios. In the meantime, we wrote a script for the workshop. We invited the company partners for a general repetition of the planned workshop. In a final step, we adjusted the scenarios for the last time, using the company partners' comments.

SETUP OF THE PARTICIPATORY DESIGN WORKSHOP

My task in the project was to design the setup of the workshop. The company contacts were a bit anxious to use interactive analogue (glue and scissor) techniques, such as make tools or pivot games, because they felt they had their reputation as a serious company to lose. Therefore, we prepared a digital scenario approach in which a scenario "story" would make the use situation of the future product concrete and reveal possible problems. The idea was to present a digital storyboard of an initial use scenario by a beamer presentation. The digital scenario storyboard had several sequences which consisted of a small number of frames each. The scenario was kept very basic, so that it could be completely changed and fleshed out by the participants

during the workshop. To accomplish this, the storyboard was adaptable in several ways. Single steps in the procedure, represented by story board frames, could be added, deleted and reorganized. Frames could be adapted by adding illustrations of persons with specific roles or products such as appliances or accessories. The setting for the treatment step presented in a single frame could be changed by replacing the drawn background scenery.

The initial scenario was also going to be presented to the participants in text form one day before the workshop, together with a letter describing the goal of the workshop. We hoped that this would stimulate the participants to think about the product use in advance. All ten medical specialists were invited to take part in a collective workshop. The workshop was supposed to start with an introduction by a workshop moderator and afterwards the participants were supposed to engage with the scenarios. Participants were going to be asked to fill in roles first and then step by step, adapt the other aspects if needed. After completing a sequence, specifications were going to be made to that sequence, such as defining a maximum acceptable duration for the task presented in every frame. These durations would be written down on the scenario frames. After one sequence was completed, the following sequence could be opened. The workshop was going to end with a general discussion about issues that came up during the workshop.

The team from the company and university that was going to attend the workshop consisted of a moderator (a project manager from the company), an observer (a company representative) and a "media assistant" (me). I was going to handle the digital storyboards on a PC and adapt them according to the suggestions of the participants during the workshop by showing and hiding elements and persons, by changing the background scenery and by writing comments or by drawing directly on the storyboards. In addition, I was going to be responsible that all frames were completed by the participants.

DILEMMAS

Shortly before the workshop started, I was confronted with the first dilemma:

in an attempt to make the workshop enjoyable for the participants, the company organized a whole meal of several courses which were served during the workshop. No need to mention that this did not help the participants to focus.

During the actual workshop several problems surfaced. Some of them were foreseeable whereas others resulted from deviations from the original workshop setup. First of all, the moderator did not stick to the original setup. He made a last-minute decision that the workshop setup was not suitable for the participants and omitted it, but did not inform the rest of the team about his choice. He thought, based on a brief conversation with the participants prior to the workshop that the level of detail in the workshop setup was too high for the participants. He decided not to go through the scenario in detail, but to present it in big blocks, per sequence instead of per frame and to introduce the sequences only in a sketchy way. As a result, the workshop became a mere discussion workshop, rather than a participatory design workshop. Hardly any changes were made to the suggested scenario. Furthermore, the discussion was led by a few extrovert participants, while the more introvert participants expressed their ideas to the moderator only after the workshop. In addition, two higher ranking company representatives joined the workshop spontaneously and acted as moderators. These company representatives were not familiar with the workshop script and used the workshop as a forum for discussing items they personally considered important. In effect, the discussion jumped between different topics and levels of detail. A main topic of the workshop became how the treatment procedure that would include the new appliance could facilitate reimbursement of the doctors by insurance companies. Finally, people had to leave before the end of the three hours and as a result, the workshop had to be sped up. Unfortunately, this time pressure was communicated to the participants by the moderator very explicitly.

RESULTS

Was the workshop a success? Yes and no. Yes, because the company representatives were generally satisfied with

the results. No, because a) we did not gain as much information about the product requirements for the company as expected and b) from a research perspective we did not gain insight into the use of adaptable storyboards in participatory design in practice.

While the scenarios were not used as planned, they offered several advantages. The participants had the "story" in front of them and could refer to it (although they hardly did). As a result, there was a lively discussion going on during the workshop, which was inspired by the scenario. Furthermore, the scenario worked as an aide memoire for the moderators to ask the participants questions. In the reflection with the company partners, which took place in passing after the workshop, they concluded that the workshop, even though not executed as planned, had helped the company to retrieve relevant information. We learned for example that the product should offer a database of different treatment protocols and that there should be a possibility to prepare treatment plans in batch. Another positive conclusion about the workshop results was that the clients would remember the workshop for being different from common meetings. This was positively mentioned by several participants after the workshop.

Unfortunately, the gained information was mostly related to reimbursements instead of actual product requirements. For example, it was agreed that the medical specialist himself should see the patient once in five treatments, as that would be financially advantageous, when dealing with the insurance company. In addition, the expensive preparation of the adaptable digital scenarios could not deliver any additional information because the functionalities were not used. My job as media assistant during the workshop was therefore pretty much obsolete. Personally I was pretty upset and disappointed directly after the workshop. In my disappointment I send an e-mail to my research supervisor one day after the workshop and wrote: *"Yesterday did not go as planned. The moderator did not explain the scenario by using the story board but just started a discussion. I told him not to do this, but he simply proceeded, and from this moment on*

nothing went according to the workshop script. […] The workshop generated a lot of information about reimbursement which seems to be useful but this could probably have been obtained in an easier way. […] The workshop was a disappointment for me, because on the one hand it was not really a participatory design workshop and on the other hand because all my late hours of work to make the digital scenarios functional were redundant - and because I, in my job as media assistant was redundant as well."

From a research perspective it was pity that the company had not allowed filming or recording of the workshop, because they feared that their clients would not like it.

FOLLOW UP

The workshop was supposed to be complemented by one or two additional similar workshops at hospitals. It was decided to use the same setup for these workshops. The hospitals were chosen for their vanguard position in the field of medicine the appliance should be used in. Therefore, the company representatives expected that the level of detail of the workshop set-up would not be too high for the participants at the hospitals, in contrast to the participants at the fair.

As a next step in the project, follow-up workshops were planned that should deal with detailing the design of the appliance. We had already written a plan for the follow-up workshops. As the company had announced that they would like to engage a design agency for the product design of the final product, we were also considering how a good cooperation with such a design agency could be accomplished in the follow-up of the project. However, this plan has not been executed though the company representatives were very positive about our co-operation. The only reason for the termination of the project we were told by the company was that the company management had reservations regarding working together with university researchers.

REFLECTION

In retrospect I had to make a lot of concessions to my own participatory design principles. As the group in the workshop was quite big, the time avail-

able very sparse and the company representatives afraid to scare off clients by the use of "too childish" participatory methods, there was no room for a more interactive technique such as a pivot game to explore the scenario. I would have preferred the latter technique to a story board method because participants could not directly push buttons to alter the scenario themselves. The scenarios had probably been set up in too much detail, but explaining the scenario's in the beginning of the workshop in more detail would have created a common background and would have brought more structure to the discussion. As the moderator had no experience in guiding participatory design workshops he did not consider that option and went directly into a too general discussion. In addition, I suspect that he was a bit anxious because higher company representatives decided to join the workshop.

This experience taught me to invest even more time in introducing the partners I work with to the principles and benefits of participatory design. It is important that they understand how to work towards a common ground in a workshop, what precisely the benefits of participative interactive workshops are and what the results can be. It is also important that they understand what resources and time it takes to achieve those results. We provided large amounts of written information on these issues, such as script books and rationales to the company representatives. However, the company partners did not always read the documents we provided them with, and in the meetings there was not enough time to discuss all the relevant aspects of participatory design in detail. Next time, I would not take the risk in assigning the role of the moderator to a company representative without giving him or her proper training.

In addition, in a following project I would take care that the setting of the workshop is different. It might be better to visit only a few end users at their "home base", instead of meeting a large group in a busy fair atmosphere. Furthermore, even with a group of valued clients there need to be some rules in the workshop, such as taking turns, to make sure that not only the extrovert participants get heard during the

workshop.

Furthermore, in the workshop many of aspects of product use were already built into the initial scenario; therefore the participants were not completely free to make their own decisions in setting up the ideal scenario from scratch. However, this setup was chosen as a compromise because of the limited time the participants were available. A scenario setup from scratch would have taken significantly more time. The problem emerged, when participants only discussed the initial scenario instead of adapting it, because the workshop script was omitted.

The most meaningful positive moment in the project for me was when I realized that, though the workshop set-up was changed on the fly by the facilitator, the scenario did help the participants to envision the use of the future product. Unfortunately I did not have a chance to evaluate the session together with the participants, therefore I do not know what the workshop meant to them. However a few participant told me that the session format was new to them and they thought it was really interesting, when they left the workshop. Looking back, an important intention of the workshop was to explore product requirements to make a product ready for the market, instead of answering to a need and developing a new product according to this need. The only need of the medical specialists that was triggered during the workshop was the need to make money. As a result, reimbursement was a main topic. Meeting prospective future users for just one session to elicit information does not comply with the principles of participatory design. Participatory design aims at including stakeholders during the whole design process with the aim to empower stakeholders to give form to their own (work)situation. Our project did not meet these conditions. However, for companies it can be difficult to include users over a longer period of time in their design processes when the initiative for product development comes from the company. In that case users should be somehow rewarded for their commitment. A longer cooperation with stakeholders may be possible they they are rewarded in a different way, for instance with the opportunity to test the first prototype of the new product. It could be interesting to think about a new model for cooperation in this format. However, when a researcher wants to use genuine participatory design it is simpler and probably more rewarding for a researcher to work with projects in which the initiative comes from a hospital and the stakeholders have a clear need.

More generally, we also had to deal with typical dilemmas that surface when university researchers are working on a commission basis. When the project started there was a lot of hurry. There was a clash between producing quick practical results and a time-intensive in-depth analysis resulting in the use of well supported methods. In addition, there was a clash between getting the opportunity to analyze workshops and publish details about them and protecting the company's interests in keeping the project details classified and protecting the privacy of the clients by prohibiting video-taping. In a next project I would make clearer arrangements on these aspects.