DESIGN GAMES AS A PART OF SOCIAL PRACTICE DESIGN: 
A CASE OF EMPLOYEES ELABORATING ON ORGANIZATIONAL PROBLEMS

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Abstract

This paper describes the experiences of practicing ‘social practice design’ with two user groups in a small company producing virtual electronic components. Based on an ethnographic study of ongoing production work and meetings in this company we identified several core problems which were expressed in terms of ‘how can we overcome this problem’ questions, among them: ‘How to acquire a business management culture’ and ‘How to change from being sophisticated contractors to a profitable brand’. These questions were addressed by the two user groups in the form of two design games – the organizational kit game and the creative product design game. The paper describes how these design games facilitated vision creation, enabling participants to act as change agents. The design games helped them voice their concern and get a common understanding. The physical objects that served as game elements supported their engagement. Image cards and organization building blocks served as thinking tools – we could observe participants selecting, picking up, moving, labeling these elements, thereby enacting ideas whilst talking. The playful and fun aspect of a game activated participants to engage, explore options, and enter the realm of the imaginary. They also helped establish a situation of trust and confidentiality. Moreover, participant’s adoption of the organizational game kit as a ‘modeling tool’ contributed to defining the features of such a tool as being object-oriented, mobile, and portable, user and environment friendly, supporting the creation of visual scenes, with an activating and playful element that invites participation.

Keywords: design games, participatory design, organizational change, modelling
1 INTRODUCTION

As described elsewhere, social practice design (SPD) seeks to ensure that the potential benefits of envisioned novel technologies can be realised. It is well known that social practices cannot be ‘engineered’ but that they are evolving as part of people’s activities of integrating a new technology into their ways of doing. This is a process that requires a transformation of organisational and work practices and sometimes even of the formal framework in which they are embedded. We consider SPD a methodological extension of Participatory Design (PD) to the implementation phase of information systems (see also Jacucci et al. 2007). It pays attention to the concept-based and participative introduction of new things to do or of new ways of doing things.

This paper describes the experiences of practicing SPD with two user groups at VCP, a small producer of virtual electronic components, with two branches (VCP1 and VCP2) located in different cities. This experiment took place within the context of EU project MAPPER (Model-based Adaptive Product and Process Engineering) (IST-016527). Its focus is on the development of tools that allow users to model their own organization or work processes. Being committed to participatory design we visited VCP, one of the user companies within the project, altogether three times. The first time, which was dedicated to ethnographic work (observations and interviews), we mainly observed ongoing production work but we also participated in several face-to-face and distributed meetings. Engineers at VCP work in co-located project teams – four to five in one room – and they cooperate with a series of external distributed partners. They are engaged in four different types of activity – they provide design services to other companies, they produce different types of virtual components, and they provide pre-sales and post-sales support for their customers. We found a strong engineering culture at VCP, with engineers’ coordination, communication and interaction, internally and with distributed sites, being extremely effective. One of the main problems we identified was the lack of a business management culture, which may be explained by the fact that their core activity – virtual components – is almost completely controlled by an US-based distributor. We again and again came across the question of how VCP may build their own identity on the international market (Jacucci et al. 2006 and 2007).

While our second visit to the company was dedicated to cooperative prototyping, we returned a third time to work with users on the task to identify problems and constraints in their organization and in rethinking it. They also were invited to invent a profitable ‘niche product’ for their company. This paper provides an account of this event from the point of view of social practice design. It first describes our approach, including the design games we had prepared for facilitating users’ work, analyzes our observations and arrives at a set of conclusions concerning the use of design games as part of SPD.

2 DESIGN GAMES AS PART OF SOCIAL PRACTICE DESIGN (SPD)

The Participatory Design (PD) approach consists of a conceptual framework and a diversity of methods in support of participation in design (Bodker et al. 2004). The methods are grounded in intense participation with users and they combine the use of ethnographic techniques with creative design and intervention. PD research has over the last 20 years developed activities in support of a stepwise decision-making process in the overall design process. What practitioners of PD have less focused on is the implementation phase of IT, when users have to integrate the technology in their work, in many cases changing work practices. They also, with some exceptions, have not looked systematically into the organizational environment probing together with users how to support the potential of IT through organizational measures.

Ciborra (2002) strongly argued in favour of an organizational view onto IT implementation and stated that the unveiling of real world organisational forms requires a different analytical approach from the one especially common in industrial organisation research: “The gap between what theoretical, ex post explanations and models can deliver and the actual garbage-can style of managerial choice is considered to be a fact of life by practitioners, and an unavoidable result of the limitations of any modelling approach by scholars” (p. 174). Weick and Quinn (1999) speak of ‘episodic change’ as
being contemplated, when adaptation, e.g. to IT implementation, begins to lag. Episodic change tends to be dramatic change, as Lewin made clear: “To break open the shell of complacency and self-righteousness it is sometimes necessary to bring about deliberately an emotional stir-up” (Lewin 1951, quoted in Marshak 1993:400). With reference to Prochaska et al (1992) who distinguish four patterns of change - precontemplation, contemplation, action, and maintenance - Weick and Quinn stress that the episodic change process is not linear but rather follows a spiral pattern. They also contend that organizational change requires changing the meaning system – to speak differently, communicate alternative schemata, build coordination and commitment.

The notion of social practice design springs from reflections such as these. SPD makes room, in the implementation phase of PD, for the design of social practice and for the social design of practice in the organisation, in general to ‘make place’ for IT (Ehn et al. 2007). SPD is a form of intervention research or action research. It recognises the epistemological postulate that we can learn about the real world only by trying to change it (Lewin, 1946). When implementing IT within an organization often concerns beyond making the technology work come to the fore, such as the necessity of interventions to solve organisational problems. These interventions and the solutions they support may or may not entail the implementation of IT, or they may, but not as a central ingredient. In fact, SPD can be rooted in visions of technology as ‘inscription’ (Latour 1992), so that reflexivity on this issue is the key to good implementation of social practice. We advocate making place for IT by designing social practice to achieve sustainable design of people computers and work. It is a necessary analysis and design activity in designing sustainable IT usage.

How does SPD proceed? Here again we recur to Ciborra, who wrote: “I suggest that the information systems field, with its rational views of knowledge, decision making, strategy, and orderly systems development, is based on a narrow model of rational, ideal actors. In this book, by focusing on the mundane and the existential, I want to contribute to a transition of the field towards …passion and improvisation; moods and bricolage; emotions and workaday chores; existence and procedures will become integral to systems design and use, casting new shadows and lights on the unfolding world of technology (in its deployment and management in organisations and society)” (2002, p. 9) This echoes a trend in theories of organizational change that emphasizes improvisation, as a characteristics of successful firms that “had well-defined managerial responsibilities and clear project priorities while also allowing the design processes to be highly flexible, improvisational, and continuously changing” (Weick and Quinn 1999, p. 371). Orlikowski (1996), in her study of changes in an incident tracking system, found repeated improvisation in work practices that then led to restructuring. Moorman and Miner (1998) argue that “the more improvisational an act, the narrower the time gap between composing and performing, designing and producing, or planning and implementing”.

SPD reflects this vision, advocating for a design oriented approach, with researchers preparing the grounds through ethnographic work, defining key issues around which to organize change processes around IT implementation, and participants analyzing, co-constructing, and performing, and this more in an improvisational than a ‘rational’ mode. It can roughly be described as proceeding in a series of steps:

- Interviews opening the process of interaction with users to understand their declared objectives
- Ethnographic field study, analysis of the data in terms of ethnography based concept development expression of resulting problem areas in terms of ‘how can we overcome this problem’ questions
- Invocation of appropriate social science theories – action research, CSCW, theories of organizational change, group dynamics, ANT, PD and the host of literature on creative design (e.g. Gaver et al. 2002), identification of appropriate principles to leverage for the ‘how’ questions above
- Conception of a vision for the solution of the problem at hand – including instructions to people, additional work processes and supporting technologies – to be captured by training modules and technology mock-ups
- Elaboration of strategies, by mixing visions with results of interviews, for designing further meeting sessions with the people concerned - workshops for co-construction of the social
practices solution of the problems identified, as well as training sessions for the managers that will plan for and moderate change.

As already mentioned, in our first field visit to VCP we had carried out an ethnographic study of work practices, including interviews with key persons in the company. Based on this material we developed a set of ‘How questions’, which translate the major observations in the field into questions requiring action. They reflect some of the central findings and they were selected because of their change potential for the company. Each of these ‘How questions’ was detailed, based on the findings of our previous field study on the one hand, on concepts taken from different social science theories on the other hand.

Instead of addressing these questions directly, we, in the spirit of PD and creative design, designed a set of design games. Eva Brandt (2006) among others argues that exploratory design games are a valuable framework for organising participation: “Participants in exploratory design games often have different interests and preferences but instead of utilizing this by competing the aim is to take advantage of the various skills and expertise’s represented and jointly explore various design possibilities within a game setting”. In our context, we use design games to facilitate productive and imaginative responses to ‘How questions’.

3 THE SCENARIO

Our main mission for the VCP workshop we had to make employees experience that they can develop into change agents in their company. This perspective clearly contrasted with the view of top management that experts from outside should be hired to solve the company’s problems. We had aimed at two different groups: the first group was formed of the four product line managers, including the head of development at the VCP1 branch of the company; the second group consisted of the new head of marketing, the marketing specialist, and two designers. For the workshop we had chosen three of the ‘How questions’:

- How to change from being sophisticated contractors to a profitable brand?
- How to acquire a business management culture (and construct a community of practice)?
- How to transfer knowledge and design to the market by translating technical descriptions into marketing-oriented documents with which to present our products and services to customers?

3.1 The Organizational Kit Game

The Kit consists of building blocks of different colours and shapes, figurines, stickers, and pencils.

Figure 1: Organizational Game Kit

The Kit game was used for addressing the first ‘How question’ about how to acquire a business management culture in the company. The instructions to participants were to first use these building blocks for creating a shared representation of the company as they see it now: „Use these building
blocks to represent your organisation in a creative way. You have little people for that. You can give them names. You have places. These places can be in this building or somewhere else. The round objects stand for artefacts, machines, documents, whatever” (IW). The second step was to represent constraints in the organization. Participants were given small image cards symbolizing a wide range of possible issues. As a final step, users were asked to think about what they would like to change and to 'act out' these changes with the building blocks of the Kit.

3.2 The Creative Product Design Game

This game was used for addressing the second and third ‘How question’ of how to change from being sophisticated contractors to a profitable brand and how to translate technical descriptions of VCP’s products and services into marketing-oriented documents. Here the idea was to creatively use a ‘How question’, which allows for many different interpretations in ways that would lead to an open and creative dialogue about these questions. The dice, on whose sides the various sub-questions were written, was used for the case that participants could not decide themselves what question to address first and to avoid a particular sequence of sub-questions. This element of chance focuses on how to get out of habits and experience new aspects. For this game another set of image cards had been prepared, with images that may act as a source of inspiration, evoke novel, creative, and surprising ideas. While some of these images referred to technical devices and symbols, others were taken from the arts.

Instructions were to throw the dice, take up the question on top, and to select images that may help find creative answers to the question, with participants sharing their associations and ideas, and finally selecting a common representation of the ‘profitable brand’.

![Figure 2: Dice and image cards](image)

On the first day both groups used the Organizational Game Kit for a critical discussion of their organization and for envisioning change. On the second day, which was opened with feedback from the research team for each group, they addressed the question of how to create a profitable brand. The workshop concluded with feedback from all participants concerning the method. As participants’ command of English is limited, we offered them the possibility of talking Polish while working together to then gives us a presentation after each step and the opportunity for questions.

These sharing and discussion parts of all four sessions were tape recorded. In parallel we observed the groups’ work and recorded their game moves on the table with a digital camera. This helped us understand and reconstruct the groups’ negotiations even without understanding what they were talking. While the language problem posed clear limitations to our documentation, it was amazing to experience how much one can grasp through observing participants’ interactions, the game configurations and moves they created, their engagement, points of dissent or debate, as accessible through their body language, tone of voice, laughter.
4 THE ORGANIZATIONAL KIT GAME

At the beginning of each session participants were given an introduction to the background of this workshop, the SPD approach, its focus on creating visions, as well as the method of design games as inspirational activities that should help participants come up with ideas, concentrating on ‘How questions’. We also described the particular sets of ‘How questions’ to them and formulated as the aim of the workshop to ‘test’ with participants design games as a specific method of practicing SPD and to help them create their own visions.

Due to the lack of space we here only describe the view of the first group of their organization. It consisted of the four product line managers and the head of development at VPC1. The ‘How question’ they were asked to address was: *How to acquire a business management culture (and construct a community of practice)*?, with the three steps: represent your organization, identify constraints, re-design. The group immediately started building a representation of their organization and they did this very fast. They were focused on the VPC1 branch, with its units and president (one of two), while the VPC2 branch was somewhat floating at the side.

The discussion focused first on the need to improve communication between the two branches and one of the product line managers, while talking, moved the head of development into a position between the two sites: “We need to analyze real problems in product life … and improve communication with VPC2, move towards the coordination of requests from the product line to VPC2; somebody should coordinate and prioritize in VPC2”. The group quickly found images representing problems in the organization or constraints and they agreed on a series of problems, of which we here only describe a selected few.

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<th>Figure 3: The most pressing problem of the president</th>
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The president was described as facing a mountain of problems:
- There are so many ‘messed up’ products and wasted effort - “someone has to coordinate the set of priorities between product lines”.
- Faster decisions – “sometimes we have good ideas how to solve problems, but the decision is not taken fast enough, as the president is taking care of everything”.
- The responsibilities are not clear – “who is in charge”; “we need a more fixed structure”

| Figure 5: Further issues: motivation systems, human resource allocation, scheduling |

- Improve motivation system – “after internship, people they fly away to other companies” because of low salaries and lack of interesting work.
- No strict allocation of human resources to product lines – “it is difficult to schedule anything, hard today I am a manager, without a fixed budget for a while.”
- Project managers do not like to track schedules, because there are a lot of changes in schedule of product life -
- We need a list of redundant tasks, more precise goals for each product for each quarter.
The most difficult problem is DUS (the US based distribution company):
- It stands between VCP and customers - “last time I had experience of a direct interaction with customer, it is unbelievable how much we can learn from customers”.
- DUS has not enough technical knowledge, sometimes very small details are essential for engineers – “we lose customers, and we do not know why, it is essential that we are aware why we lose a customer.
- “We are tied to them by a contract, we are very limited in making our own sales, is not possible for us to develop new things and go to the market”.

5 THE CREATIVE PRODUCT DESIGN GAME

The first question that came up with throwing the dice was: How does one create a brand? This group had no difficulties in thinking about how to invent a profitable ‘niche product’. This is their competence and it appeared that they had thought about this before. Here is their story:

The puzzle is connected with the product - we should have many products, then we can offer our customers complete solutions.

We interpret this as a measuring wheel – the new product must be best in some field: smallest area in terms of gates, lowest in power consumption, etc. If we have the best product compared to our competition, we can easier fight for customers.

As a general idea of creating a brand - to find the combination of well-known things. This could be initially strange but if it is attractive for customers, and if customers find in this combination an added value, then they pay for it, it is good for promotion and for general idea for creating a product.

The second question that came up was: How do we identify a market niche?

A hand, which needs help, which needs our product. I think that all the time.

Abstract object - this is just finding the blank fields in the market for our products, finding where we can put our fishing boat - another possibility to create a market: fishing is like trying to introduce a new product, which becomes popular and create a market.

There are some customers that need our product but we couldn’t
gadget - you sometimes produce imaginary things, things that are not really needed. But people like to buy these imaginary things.

Maybe you can get the gadget as an inspiration and then in a
products and sell them. find them, we have to keep our eyes wide open and look for customers. next step then you come to a product that is more ordinary product.

The third question the group addresses, throwing the dice, was: How to move forward once a niche product has been identified?

| To start just from the beginning to think on whole bunch of products and not on one product for a market niche which we would but we can start to think on a whole bunch of products to fill that whole in the market. |
| The eagle - once you identify your product, spread your wings and think the wind and fly, try to be faster that the others, be the first and cover as much of market as you can. |
| We have to run this machine, we have to start the production, to be ready on time, when everybody on the market is ready. This requires close cooperation of marketing with production. |

This last point led back to the previous discussion about organizational change. The group spontaneously took the Organizational Game Kit and a long and intense debate started, with participants, taking up building blocks to represent their ideas, talking while moving and rearranging organisational units, and people, writing on post-its, and so forth.

The second group, with two participants from marketing, found it difficult to think about a strategy in support of how to produce marketing-oriented documents with which to present our products and services to customers. They ended this session with a negative statement: “We don’t know enough about our competitors, we don’t know our competitors’ products features, most competitors have specialised lines of products, we have everything (exotic fruits, vs. all fruits, and not only fruits), good and bad – a long product list, but poor products, incomplete products, only core products with no added values, they may fail customer needs.”

Also the next question they addressed - Which language is to be used in our marketing flyers? - ended in frustration, although we had thought this an appropriate question to discuss for a marketing department. Their statement (and explanation) was – “you cannot invent something because you don’t know about the technical side of the product, if you don’t know the basics of the engineering you cannot work in this field. You cannot employ any marketing person if he is not an engineer. This goes also for the managers”.

6 DISCUSSION

6.1 The value of design games

The relevance of the ‘How questions’ we had prepared was confirmed by the fact that participants seem to discuss exactly these questions amongst themselves. Both groups – from marketing and development - basically agreed in their analysis of problems at VCP and they have lots of ideas on how to change the company. Still, the design games helped them in several ways: First of all, employees at VCP are rarely in a situation of being encouraged to have an open debate, without censorship, and with full acknowledgement of their competence. Usually their conversations remain ‘private’. The design games helped them voice their concerns, get a common understanding, and even go a step further beyond ideas they had already addressed amongst themselves. The physical objects that served as game elements supported their engagement. Image cards and organization building blocks served as thinking tools – we could observe participants selecting, picking up, moving, labelling these elements, thereby enacting ideas whilst talking. The playful and fun aspect of a game
activated participants to engage, explore options, and enter the realm of the imaginary. The design games also helped establish a situation of trust and confidentiality. We observed that participants not only closed the door but also locked it with a key, keeping the key inside while they were engaged in a session. This clearly shows to what degree any shared workspace should support privacy.

With regard to the organizational change question both groups felt supported by the Organizational Game Kit – they immediately adopted it and were amazingly productive. Cooperatively probing options confirmed their competence as change agents in their own company. The creative product design game resonated well with the first group – they quickly selected images and had no difficulty producing ideas. Some of them had problems, however, to work with inspirational material – they were already fixed on an idea and then looked for a fitting image. The second group had considerable problems with responding creatively to questions related to their own task as marketing people (supported by two designers) – describing products, comparing them with those of the company’s competitors, creating a ‘brand’. The design game brought these difficulties to the fore and this created a lot of frustration which would otherwise not have become as apparent. It also made the low involvement of engineering in marketing questions, as well as the lack of time of product line managers for planning new products visible.

Donald Schön is probably the researcher that through his books on the reflective designer (Schön 1983, 1987) has offered the most influential account of design practice. Classical are his descriptions of how designers learn and conduct professional artistry through processes of reflection-in-action. From this he distinguishes reflection on action, pausing to think back over what one has done in a project, exploring the understanding that one has brought to the handling of the task. In a third kind of reflection, reflection on practice, the designer may surface and may criticize tacit understandings that have grown up around repetitive experiences of designing. In Schön’s language we can look at participants’ use of the design game as reflection on practice. The design games facilitated vision creation, acting as change agents. This is in contrast to the top down approach of top management, whose vision is that outsiders will be needed to rescue the company. The design games clearly enabled participation – they supported participants in engaging in social practice design. As part of SPD, design games form important part of a cycle of ethnographic fieldwork – formulating ‘How questions’ - probing solutions, finding new solutions – feedback.

6.2 The Organizational Kit as a tangible modelling tool

Interestingly, the Organizational Game Kit was immediately adopted as a modelling tool – participants were enthusiastic: this is how modelling should look like. This for us was a ‘surprise’ finding but particularly useful as MAPPER seeks to introduce computer-based modelling tools. Users, contrasting the Kit with prototypes of these tools contended that it has all the features of a good modelling tool; it is:

• Object-oriented – the possibility to use different types of objects (elements of different shape and colour for people, activities, objects, places; stickers for naming; image cards for problems, visions, etc.) and to improvise by e.g. using post-its, sketches, cutting out additional shapes from card board, and so forth

• Mobile and portable – the Kit can be packed into a small box, reusable – the flexibility of building blocks allows for re-use, as well as customisable – for example, participants put people in a higher position by simply ‘elevating’ them onto a stack of building blocks – new combinations of elements can be invented ‘on the fly’ and easily interpreted

• Supports the creation of ‘visual scenes’ – building blocks and image cards help visualize very complex ideas and relations; inspirational objects allow for implicit ways of visualizing

• Contains an activating and playful element – participants use building blocks and image cards as thinking tools, they enact ideas rather than just talk about them; there is a strong exploratory element, space for unusual and/or surprising moves and ideas
• Invites participation – corresponds well to the notion of user driven modelling, invites cooperation – the elements spread out on a table invite all participants sitting around the table to pick up an element and enter the ‘modelling’ session; the arrangement makes evident that representing more complex ideas requires cooperation

• And is user and environment-friendly – the Kit is easy to understand, easy to handle, easy to extend, as well as simple and made from environment-friendly material.

This made us think of the Kit as a tangible user interface to any modelling tool, an idea that has to be further explored.

7 CONCLUSION

We have experimented with design games as one of the possibilities of practicing SPD. This was of course only a modest intervention of what in reality should be a series of workshops helping participants to co-construct new organizational forms and practices. Also, in this case, participants’ focus was not on IT implementation but on issues that seemed (to us but also to them) crucial for the survival of the company.

Acknowledgement

We wish to thank Gian Marco Campagnolo and Cristiano Storni (UniTN) for preparing the design games and all the participants at VCP for their patience and creativity.

References