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FACILITATION WITH DIGITAL TOOLS, PICTURES AND TANGIBLE OBJECTS IN FACE-TO-FACE WORKSHOPS

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1. Introduction

This paper aims to develop understanding of the facilitation possibilities that digital technology, pictures and tangible objects can offer into face-to-face workshops. The research question is; how do we experience digitalisation, usage of pictures and tangible objects in a creative facilitated workshop by using three case examples?

Facilitation itself is a phenomenon that grows rapidly as horizontal organisations and matrix organisations are becoming more and more existing in the modern world. Facilitation in the broadest sense can be understood as an effort made for developing working societies. Further more facilitation can help organisations to benefit from their different abilities with better communication and more efficient usage of time. Facilitator is the person who is responsible of guiding a group of participants through the meeting process. Being neutral about the substance is also one of the key competences of facilitator. Therefore facilitator is a process guide neutral to substance. Tangling into the substance affects the participants in a negative way and this appears through participants starting to wait the solutions from the facilitator and they also might feel judged of not being able to produce ideas.

This paper divides facilitators work into three different categories, process, methods and tools/space. Even though the tools/space is under the focus of this paper, it's essential to know about the process and methods first as they determine the tools and space. All three are important to be able to create an efficient workshop for different participants. Process is created by facilitator according to participants' current case and varies through the amount of time available, group size and space/tools used in the workshop. Process in other words is based on the thinking of facilitator and is the broadest way of seeing the workshop. Process links different methods to each other so that they support the outcome and pull together the entire workshop. The process in this paper focuses on Creative Problem Solving process, CPS. CPS is one of the most common creative ideation processes that exists and always has three main steps in it; problem definition, solution finding and solution implementation. These three steps can be later put into three separate diverging and converging steps. When diverging, participants only produce ideas, they don't' judge, choose or analyse them. When converging, the participants choose the best alternatives from the ideas produced for further development.

Methods are built into the process of the workshop and this paper focuses on solution finding. The most relevant methods are; Osterwalder's business modelling canvas, which works as a platform for the process, and POINT-method which is used to react into ideas and develop them further. The new experiment with POINT is introducing acrylic pieces that are formed into different shapes and used on a table. Other tools and space related things are touchscreens, a 'cave' type room allowing ¾ of the walls to be projected into pictures, and pictures printed on paper. Touchscreens also have software that allows using Osterwalder canvas in a digital form.

The case is a real business case about six participants from the medical industry developing new business opportunities. These participants are ideating in two workshops where the first one is held in a normal conference room, and the other one in a fully digital environment offered by a company called Insight Spaces.
Empathic user research methods are used as research methods. The participants have filled a design probe package before participating the workshop. Ethnographic observation is used during the workshops with field notes and video recording. After the workshop 5/6 participants were interviewed with materials from the design probe and pictures from the workshop.
The results of the case show very personal opinions and feelings about the usage of digital tools, pictures and tangible objects. Digital environment was generally more passive than the traditional with paper photos, post-it notes, flip charts and acrylic pieces. In the other hand, ethnographic observation shows evidence of traditionally documented ideas on post-it's and flip charts, being very difficult to handle for further development, during the workshop. Touchscreens as technology took a little bit of time to get used to. As the participants got used to it, the information was very clear on the screen and the focus remained very high. Using acrylic pieces was favoured very much with most of the participants and aspects like free movability, clarity, shapes, material and yellow colour were mentioned as beneficial. Using pictures also divided the participants into ones that preferred pictures on paper for bouncing ideas and the ones that were more impressed of the emotions built by large projected pictures on the walls.

2. Literature review on facilitation, CPS (Creative Problem Solving) process and digitalisation of facilitation

2.1 What is facilitation?

Facilitation can be an unknown term for many to understand. Even though facilitation is a rapidly growing phenomenon made to develop working societies. The word facilitation is based on Latin language and means 'easy'. The original Latin word for easy is 'facil' [Nummi 2007]. Facilitation therefore eases working processes and offers more participating and creative possibilities for team work, than traditional meeting processes based on hierarchical organisations and authorities. In a typical hierarchical organisation, there is only one person that has the power to make decisions. In a typical horizontal organisation, the power to make decisions is divided into a group of people who have the equal amount of influence, and the decisions are based on majority of votes [Doyle 1982]. Matrix organisations in the other hand are the most modern type of organisations and are networks of several, either or both, hierarchical and horizontal inbuilt organisations [Nummi 2007]. Facilitator's role increases in matrix organisations that include for example production, human resource, sales, and/or project leaders teams. Communicational problems between teams can cause difficult, inbuilt conflicts into these organisations [Sibbet 2011].
To understand facilitator's work from a more practical basis, it's one of facilitator's key competencies to have the ability to separate the substance and the process clearly from each other. Facilitator's role can be separated from the roles of an expert and a coach by this factor. The matrix by Kantojärvi shows that facilitator only deals with the process, where coach deals with both, the process and the substance, and an expert is only dealing with the substance [Kantojärvi 2012].

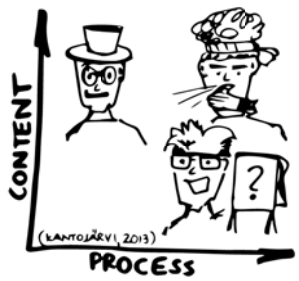

Figure 1. Kantojärvi's matrix (drawing, Mikko Illi)

Anyway, facilitator needs to know enough about the substance, so that he/she can decide what kind of process, methods and tools suite best for the task. For example, if the task is to ideate what kind of entertainment Dubrovnik Design Conference could have? Ideas for the entertainment and the task itself would be substance. Process would be guiding the group through the workshop so that they produce as many ideas as possible and choose the best ones. The Facilitator takes care of all three steps of the workshop; start, workshop and ending. The facilitator aims to give great clarity of the topic at the start and makes sure that everyone feels safe and exited about the work session ahead. Then takes the group through the process of workshop giving all participants the change to participate and bring out their abilities. In the end the facilitator gives the change for the participants to say their opinions and ends the session. *'As the opposite to a chairman who takes care of the group's proceeding and the substance, facilitator remains neutral to the substance and only takes care of the group's proceeding'* [Nummi 2007, p. 17, writer's own translation].

2.2 CPS (Creative Problem Solving) process

Creative problem solving is the process used in the case presented later in this paper. CPS was developed in 1953 by Alex F. Osborn (1888-66), also known as 'the father of brainstorming', [Koulupoulos 2006]. Later on CPS has been written about maybe more than any process for creative working. Still this process always has the main three steps: problem definition, idea generation, and action planning [Tanner 1997]. Kantojärvi describes the first step as 'clarification' step and explains that clarification is not used enough in organisations and that is the reason why workshops often end up answering the wrong question. Clarification tasks vary between objective finding, fact finding and problem finding and in the end of clarification step, we should have a few well thought through 'key questions', to be answered in the next step that Kantojärvi calls 'solution finding' [Kantojärvi 2012].Solution finding step is an ideation process where the participants of the workshop create as many ideas as possible, and then choose the best ones for further development with criteria that the group sees meaningful [Tanner 1997], [Kantojärvi 2012]. Solution finding is the step of CPS used in the case presented later in this paper.

Associations play a large part in almost any ideation especially when looking for more creative and new ideas [Osborn 2006]. *'This phenomenon makes imagination focus to memories and causes that one thing links to another'* [Osborn 2006, p. 112]. This paper focuses on building associations through abstract pictures that are either in a form of printed paper pictures or projected on the large glass walls of the digital space, also used during the case. Their purpose is to link something different to the current task of the participants in the workshop and the results can vary based on anyone's own imagination. Other ways of creating associations can be forced connections with words or tangible objects presented in an abstract way, how about video?

The last step of CPS is 'action planning.' In action planning step, the participants create ideas for implementing the chosen solutions [Tanner 1997]. Action planning is also more than that, and focuses also on contacting the right persons and coping with a possible resistance. Action planning is usually a much less time consuming part of the CPS than the two earlier ones [Kantojärvi 2012].

2.3 Digitalisation of facilitation

What was thought to be impossible in the past is now possible and workshops are also held digitally. This is allowed by the development of devices like tablet computers, smart phones, large touchscreens, digital drawing programs with pens, motion sensors, transparent films that can be used to project picture on them, and many interactive programs solutions available. The term for all the software and devices used in digital facilitation is 'groupware' [Sibbet 2011].

Some research on digital facilitation has been conducted and according to a research case made by David Sibbet, the CEO of The Grove Consulting, it may be that the traditional paper and pen still keep their power. Even though the large graphic displays with data visualised on them became a normal working tools in these meetings, many times the most powerful tools seemed to be the traditional white boards, post-it notes and paper [Sibbet 2011].

In this paper we are conducting an emphatic user research with six participants from the medical industry ideating new business opportunities. We had a rare opportunity to do research where the

participants work in a fully digital environment. During the research we applied multiple emphatic user research methods on this group to learn from every person individually. More about the research methods told in the next part.

3. Emphatic user research methods

Emphatic user research methods like design probe packages, interviews and visual ethnography with field notes and video camera recordings, were all used during the case. The research was conducted in three steps. First the participants filled a design probe package as a pre-task for the research and while doing that they filled diaries, mind-maps, post-cards with tasks on them and took photos for under named tasks and with a total freedom to understand the given task. The second step was the actual workshops. Visual ethnographic research methods were used in the workshops by taking field notes by the researcher, and filming and photographing entire workshops for later data observation. The last step for data gathering were the interviews where 5/6 participants took part. Materials from the probe packages and pictures taken from the workshops were also used in the interviews.

3.1 Design probes

Design probes are used to collect holistic data from the user's life as subjective findings. The probe packages allow the user to document happenings of their own life, there were they happen and also give the opportunity to express yourself on your own. Design probes give designers subjective information to find new approaches for design, in a certain context [Mattelmäki 2006]. Inquiries and data measurements are often not working to achieve reliable user data for conceptualising. To achieve a real understanding of the user it's much more practical to try to record user information from the user's real environment as the meaningful happenings take place [Battarbee 2004].
The probe package used in this case is designed to report the participants' life with technologies generally and more closely with touchscreens. The package also creates understanding of the participants' earlier experiences from workshops and the tools and space used in those workshops. The package has also tasks to report the normal life of participants at home and at work to achieve a broader view of their lives.

3.2 Visual ethnography

Three digital video cameras and a normal camera were all used during the case- workshops. This was to record as much data as possible that supports the field notes also taken during the workshops. One of the video cameras was movable so that the researcher (in this case the writer) could focus the recording to locations in the workshop, that the most interesting happenings took place. The second camera had wide-angle lens, visualising the whole workshop space in one view and the third was focused to one of the teams in the workshop. The setup allowed later analysing of the data with seeing a happening in a focused area and at the same time the researcher could monitor the effect in the whole group. It's important to have a pre-planned idea based on certain indicators and the usage of the visual material before the field activity takes place [Pink 2007].

4. Case

To view the case in an understandable way, it's good to look at the setup of the workshops from the perspectives of process, methods and tools/space. The entire workshops cannot be reported in detail in this paper.

4.1 Process

Six participants from the medical industry developing new business opportunities (the substance of their case is confidential). Two workshops, that both last 2,5h. As mentioned earlier in this paper, the process is based on CPS, and the group is working on the solution finding step. The driver of the workshop is to create as many ideas as possible and then choose the best ones for further development. The first part of both workshops is used for diverging and during that time the participants only produce ideas. No judging, analysing or choosing the ideas during this part. Diverging part of the

workshop is based on Edward de Bono's, Memory, Logical thinking, Creativity- model, which claims that thinking goes in three steps when solving one problem. After ideating for some time and producing several ideas, we go through a thinking process of memory related, logical and finally creative ideas. Negative brainstorming is also included into the process, as it may free the participants' ability to ideate by changing the mode to produce as bad ideas for solutions as possible [Kantojärvi 2012]. The second part for both workshops is converging where the participants discuss their ideas from a critical perspective and develop some of them further. Also the converging part in this workshop aims to keep the team emotionally on productive thinking, as this is also needed to solve possible problems with the concepts developed. POINT-method is used as the basis for the converging aiming not just to find possible problems with the concept, but also solving them [Kantojärvi 2012]. Generally, the process is leaning on diverging and more time is used on doing that.

4.2 Methods

Methods: The method that works a platform for the whole process of the business development is Osterwalder's business modelling canvas, which consists of the nine different blocks of business; Customer segments, Value proposition, Channels, Customer relationship, Revenue streams, Key resources, Key activities, Key partnership and Cost structure. With these nine blocks it is possible for the company to see the logics and transformations in their business model [Osterwalder 2010]. The canvas helps to understand complex data as it gives s more visual form to the data. In this case workshop only Customer relationship and Value proposition blocks are used. The canvas itself is not a method for ideating in workshops. The ideation methods are listed below as a timetable for the workshop and have brief explanations on them (breaks are not mentioned in the list).

1. Diverging/Emptying memory/10min/alone: The participants list all the ideas on paper what they have on their mind. Pictures are offered to use as well.
2. Diverging/Logical continuation ideas/15min/groups of three: The same ideation continues in small teams.
3. Diverging/Negative brainstorming/20min/groups of three: Participants ideate how everything can go as bad as possible for the task. Pictures are also in use to create associations.
4. Diverging/Synthesis ideas/20min/groups of three: Participants draw synthesis from the negative brainstorming and use abstract pictures to associate for new ideas.
5. Diverging/Rough concepts/25min/groups of three: Participants create as many rough concepts as possible and associate from pictures and earlier ideas.
6. Introduction of concepts to the other team/10min/whole group
7. Converging/Green and red light/10min/pairs (one from each earlier team of three): Participants discuss and give either green or red light to the rough concepts.
8. Converging/POINT-method/40min/pairs (one from each earlier team of three): Participants discuss and give either green or red light to the rough concepts.
9. Introducing further developed concepts to the other team/10min/whole group

[Kantojärvi 2012]

4.3 Tools/space

The exactly same process is run in two different spaces the other one being a traditional meeting room with flip charts, markers, post-it notes, pictures printed out and acrylic pieces for the POINT-method. The other space is a fully digital working space from a company called Insight Spaces. The digital space has three walls that can be projected to different pictures or video (in this workshop only pictures were used), and two touchscreens with Conemade software in them. Software allows the usage of Osterwalder's business modelling canvas in a digital form.

Pictures used in the workshops are chosen to be abstract to the substance of the task and therefore offer a maximum possibility to create associations that bring something new into thinking. Pictures are grouped into three different categories, emphatic, activity and shock. The reason is to evoke different feeling in the participants and increase the production of ideas by that. For instance the shock pictures that look unpleasant may well trigger the participant to new ideas while being jammed. The pictures on paper are put in sets of three allowing the participant to handle more than one picture at the time as

well as in the digital space, there can be several pictures projected to the walls at the same time for viewing.
POINT-method with tangible objects (acrylic pieces) brings the missing tangible material to the workshop (POINT-method is explained more closely later in this paper). Kinaesthetic learners learn by sensing, tastes, moving and the inner feelings, and the workshop is giving possibilities to all different learner types, to be able to benefit from their strongest type [Huhtinen 2002]. Neuro-linguistics know three types of learners which are visual, auditory and kinaesthetic [Otala 1999]. Visual learners use their sight as the strongest sense for learning and attend to visualise everything in their mind. In the other hand auditory learners use the sense of hearing as their main channel and prefer oral instructions [Otala 1999]. Using acrylic pieces for business process modelling has bees researched earlier and the results show the increasing engagement of the participants in an interview activity. The acrylic pieces in Alexander Luebbe's dissertation about using TBPM(Tangible Business Process Modelling), shows that the pieces work as objects to discuss for both, the interviewer and the interviewed. By comparing TBPM to a traditional interview the amount of thinking and reviewing times increase, and also the focus to the task was higher with TBPM [Luebbe 2011]. *The purpose of an interview is to talk and the focus is on persons. In the TBPM session the focus is on the modelling* [Luebbe 2011, p. 35].

Figure 2. Point-method with acrylic pieces

4.4 Situations from the workshops

The following part shows some happenings during the workshops that have lead to some of the results according to the topic of this paper. The following observations and conclusions are based on ethnographic field notes and video analysis of data.

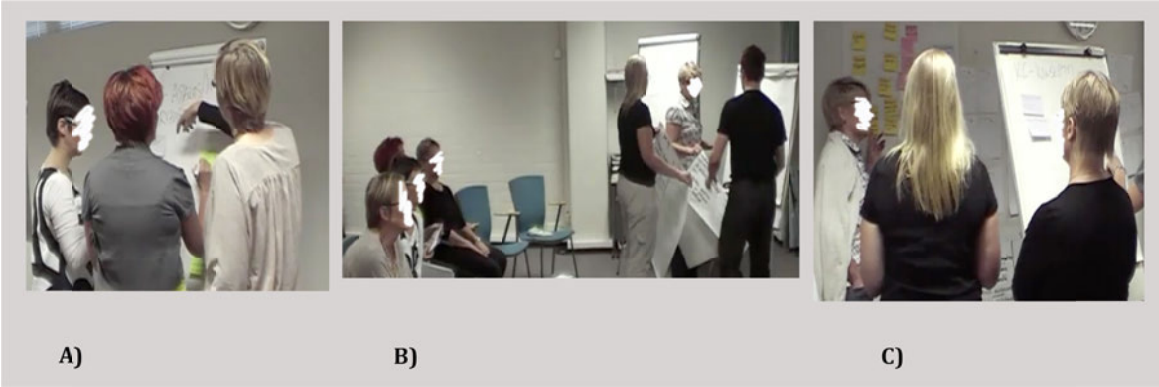

Figure 3. Workshop situations A, B, C

A) *Workshop step:* Traditional space/diverging/Logical continuation ideas
Observation: The user of the pen seems to get more ability to lead the conversation to some direction.
Conclusion: Instructions from the facilitator could be given to change the pen to another person once in a while.
B) *Workshop step:* Traditional space/diverging/Synthesis ideas
Observation: As the workshop goes on the material increases and two participants and the facilitator are needed to organise it.
Conclusion: There needs to be a consideration for the time needed to handle all the material on paper.

C) *Workshop step:* Traditional space/diverging/Rough concepts
Observation: One of the persons takes place next to the wall to use the information placed there. While doing that she pulls the whole group's attention from the flip chart in use on the right. It seems that using the information from the wall is not an easy task.
Conclusion: A lot of information on paper all over the walls becomes very difficult to use for later process of the workshop. Also the different handwriting can be unclear in some cases.

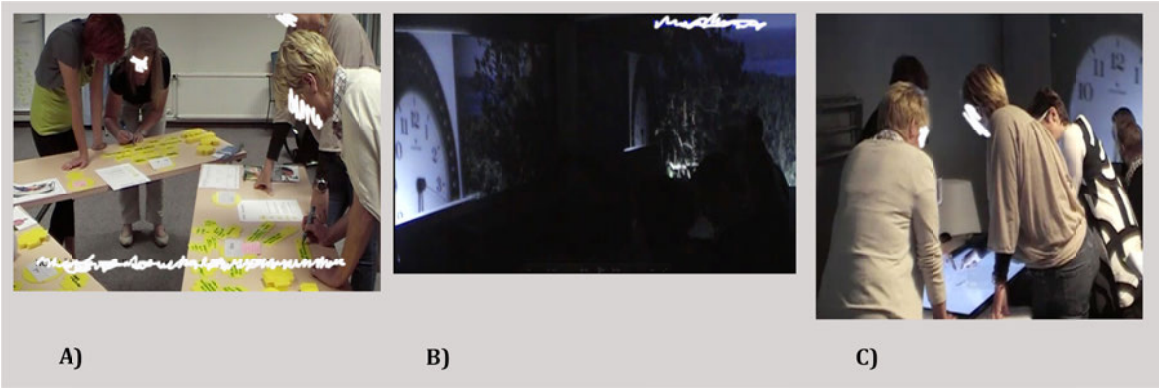

Figure 4. Workshop situations A, B, C

A) *Workshop step:* Traditional space/converging/POINT method
Observation: The acrylic pieces used during the point method that you can write on seem to keep the focus on the task very well. The discussions in the tables sound thoughtful and energetic at the same time. The persons not so active during the diverging are now participating more.
Conclusion: POINT seems to create a wanted atmosphere for converging, as the discussion seems analytic in a positive way.
B) *Workshop step:* Digital space/diverging/Emptying memory
Observation: The atmosphere is very different and silent as the pictures go past one by one and the participants create ideas. It seems like everyone has her personal space to think. Some of the participants use more time looking at the pictures as others quickly flick the picture and then approach to writing.
Conclusion: There could be two types of users in the room to ideate with pictures. Others think while looking at the picture and others think on paper after looking at the picture.
C) *Workshop step:* Digital space/diverging/Continuation ideas
Observation: Learning to use touchscreens takes a little bit of time. Still it seems that the working starts rather fast. The voice level is rather low.
Conclusion: New technology doesn't seem to be a problem even for persons that have never used touchscreens before. Working seems less impulsive and the energy level of the participants lower, compared to the traditional space. Other affecting thing can be that the workshop in the digital space is in the afternoon and after the traditional one.

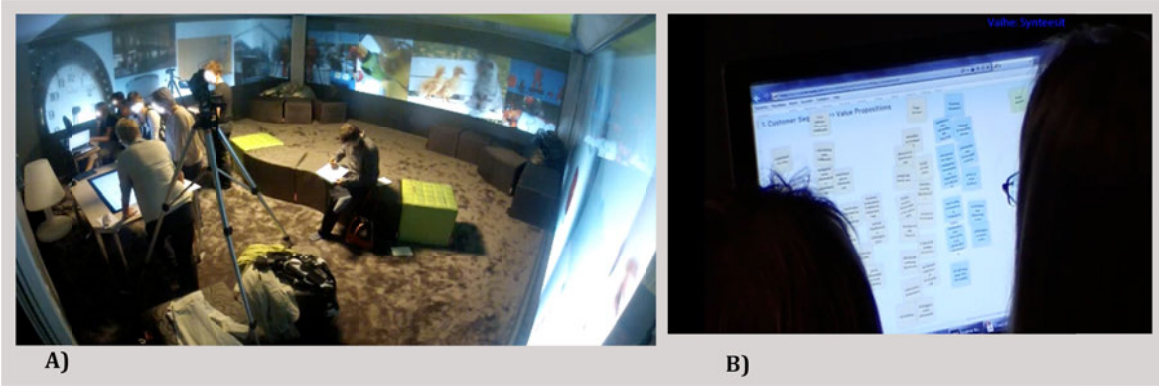

Figure 5. Workshop situations A, B

A) *Workshop step:* Digital space/diverging/Continuation ideas
Observation: The pictures are not used so far.
Conclusion: The tables are arranged so that everyone is looking at the only empty wall in the room. All the walls with pictures on them need to be seen by looking over shoulder.
B) *Workshop step:* Digital space/diverging/Synthesis ideas
Observation: As the amount of ideas grows, they remain visible to the groups and are clearly shown in one place on the touch screen.
Conclusion: Handling large amounts of complex data, is very easy on the touch screen compared to paper. All the ideas can be grouped and organised clearly. This helps with using them on the later process.

5. Results

5.1 Traditional and digital space

The traditional meeting space was beneficial as being familiar to the participants and any facilitator could use it to facilitate a workshop. Facilitator can decide what kind of equipment to use in this space and it's not restricted by technology or software. While working in the traditional meeting space, it seemed easy to change the materials working with and also the location in the room. From chairs to flipcharts, and from flipcharts to tables. The variation of materially different tasks seemed to be a huge plus for some of the participants as it kept the energy levels high enough. The disadvantages in the traditional space appeared as the time consumed to arrange all the materials on paper, taking twice as long as programming the digital space. Also as mentioned clearly in the workshop observation, handling the produced ideation material on paper is very demanding and especially so, while trying to use it in later parts of the workshop.
The digital space it easy to transform by changing the projections on the wall to show the wanted visual material. The projected walls are great tools to change the atmosphere by changing the pictures, which affects also the lighting of the room. The furniture in the room produced a relaxing feeling to some participants. Some reported that the room created a very high level of focusing into the tasks. It is also possible to create a feeling of personal space to think and focus on the task. The walls allow showing large amounts of complex data, which can be observed clearly. The disadvantages of the digital space are that it needs a facilitator that knows the technology well to use the room. If not, there needs to be an additional facilitator for that purpose. Tilting of the technology also created delays during the workshop. Most of the participants felt that the digital space was more passive as an environment and the lighting could have been brighter. The participants were interviewed after the workshops and did not feel that the time of the other workshop being in the morning and the other in the afternoon affected their working much.

5.2 POINT-method with acrylic pieces

One of the participants named this task as one of the very best things of the day from any aspect you could look at it; material, colour, shapes and clarity. She also said that the pieces stimulated her in a psychological way. One of the participants highlighted the free movability as a benefit for the method. Clarity was reported as a benefit from all participants. Only one of the participants thought that the task was childish. During POINT-method the participants had already chosen six rough concepts for further development. POINT is used for reacting into new ideas and has four steps where participants analyse them from different perspectives; Plusses, Opportunities, Inquiry and New thinking. The most important parts are the last two. During inquiry, the participants list problems about the idea by forming them into questions. For example, 'we don't have money,' can be asked, where do we get funding? New thinking in the other hand is a suggestion to answer the question. POINT-method is given a name by Bob Moore [Kantojärvi 2012].

5.3 Abstract pictures

Some of the participants thought that pictures on paper were more helpful in producing ideas, where the others thought that digitally projected pictures on the wall were more useful. It seemed that more

visually engaging participants liked the pictures to be presented on paper. Those who didn't work with pictures so much thought that the impressive projected pictures made them think or gave a feeling of relaxation. What was on the pictures divided the participants to those who thought that the shocking pictures associated more ideas and others who preferred the emphatic one saying that the some of the pictures were too horrifying. The participants also reported that there were too many pictures on the walls at the same time while working in the digital space. This made it difficult to concentrate on one picture. One of the participants didn't benefit at all from using the pictures and only used one of them for relaxation, with a picture of pine trees. Four out of six participants felt being visually engaged during the workshop.

5.4 Touchscreens

Some time was used at the start to be able to work on touchscreens. Half of the participants were not interested in using it while others got exited about the technology. Touchscreen gave much more control to the person who was writing the ideas down, than just the pen while working on paper. A lot of the times someone corrected the writer to not to form the text something else than said. Some times the writer's role got so powerful that other participants took a role of suggesting ideas to be accepted, rather than taking care of them being written down. The benefit from using touchscreen came up during the later parts of the workshop while the amount of ideas increased. All the ideas already existing on the screen, helped to create more, as there was a lot of information already available to trigger thinking. Grouping the ideas and introducing them was also much easier by the technology.

5.5 Reflection workshop with students from Aalto University

Another workshop was held in the digital space during this research project and the three participating students were from different educational backgrounds from the fields of engineering and business. Students were solving a real company case with a liaison from telecommunication industry. This workshop was researched in similar way to the first two to have results for comparison.

Figure 6. Students working in the digital space

Results from the reflection workshop show following: Maybe the most unexpected results were that the students reacted to the touchscreens as not such interesting object to work with as being familiar to them. This was the most relevant difference to the other group that had only very little experience on touchscreens beforehand and were exited about them. When interviewing the students, they criticized the touchscreen of being a slower tool for writing ideas down than paper and pen would have been. In the other hand the students also reported that the touchscreen was an excellent tool for handling complex data. In fact they reported that it was the key element for such a good end result from the workshop. Their comment was based on the ability to use the graphical user interface for building a complex plan for the rest of their project, as the information on the touchscreen was so easy to observe.

The students thought that the large pictures on the walls were useful during the workshop and also viewed then several times during the workshop. They reported them being more useful during the

early stages of the workshop. By observations of the researcher it seemed that the touch screen overcame the pictures as the point of interest as the workshop moved on.

6. Conclusion

6.1 Answer to the research question

This emphatic user research shows evidence that digital tools, pictures and tangible objects influence facilitated face-to-face workshops on a very personal level. The digital tools like touchscreens, projected walls and software seem to be very useful in organising data and creating fast changing environments. The real benefit of touchscreens and software comes in the later parts of the workshop where the already existing data needs to be organised, grouped and used to produce more ideas and understanding. The large projected pictures, in the other hand, build feelings into users that observe the impressive look of them. Paper pictures are handy and seem to be stronger in creating associations to the participants mind than digital ones. Using emphatic and shocking pictures provokes associations for a larger user group than just the other. Tangible acrylic pieces used in this research gave great clarity to the task of developing concepts further and the freedom of moving and organising the pieces was also appreciated. POINT-method with acrylic pieces woke interest for more frequent use by some of the participants. These are based on design probe before the workshop, the observations during the workshops, and the interviews of participants after the workshop.

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