

Widening involvement in creative group processes

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1 Introduction

Creative group meetings are most often considered as events that are limited in time, spanning only the duration while the participants are together in a session. There is little attention for the time before (mostly preparation by facilitator and invitation of participants) and after the session (maturation of the findings). Yet, through earlier research (e.g. Van der Lugt, 2002) and through our experiences with facilitating creative processes for companies, we came to realize that a participants' creative process starts well before the beginning of a workshop, and extends well beyond. In the past years, we have explored various ways of widening involvement in creative processes, such as creative problem solving meetings and scenario meetings. In our working definition, a creative group meeting is a group meeting where the group members together generate new knowledge, be it ideas, visions of the future or thoughts and dreams about the use of future products. The main objective is to 'catch' the participants' involvement well before the workshop, and to stretch their involvement in the creative process to well after that the doors of the workshop space have been closed (see figure 1).

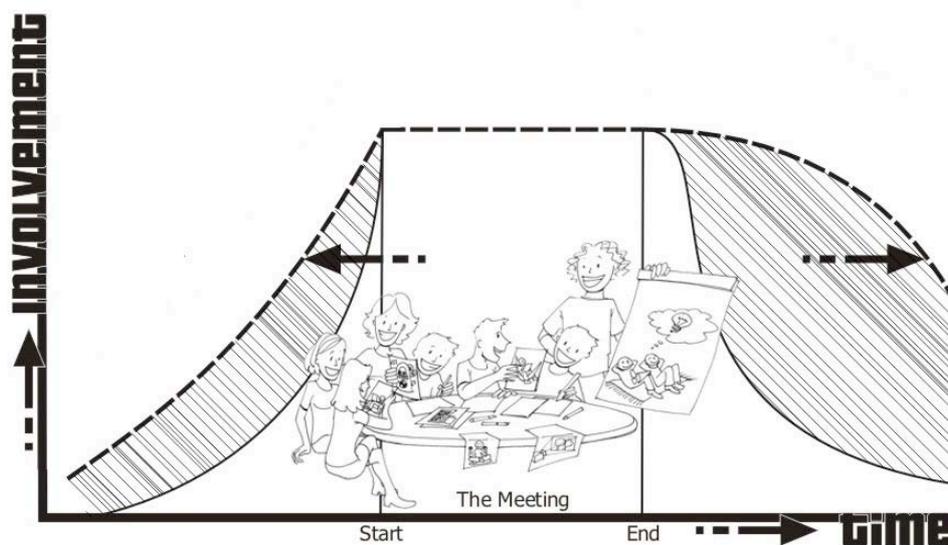


Figure 1: Widening involvement in group meetings.

We prefer to use the term 'involvement', even though synonyms like 'engagement' and 'immersion' could also be used to capture what we are trying to do. This is a largely pragmatic choice: The word 'engagement' appears to have many

connotations that are either military in nature or are related to marriage. The word 'immersion' is often coined in human-computer interaction-type research, relating to whether a person is mentally 'inside' the computer (e.g. Brown & Cairns, 2004). Involvement can either relate to the participation of a certain person or group of persons, as in: Involving patients in medical assessment (e.g. Borders et al, 2005). Or, it can be used to relate to whether a person feels part of and committed to a larger whole. In our explorations with enhancing involvement, we refer to a combination of the two: Not only do we want participants to part-take in the creative process; we also want them to feel committed to the project.

Already in Osborn's seminal work on brainstorming, 'Applied Imagination' (1953), Osborn mentions that creative processes require preparation, and that therefore, the participants need to be briefed in advance on the problem area:

"...at least two days in advance of the session, the participants are invited, and they are simultaneously supplied with copies of a 'background' memo of not more than one page in length. The double purpose of this memo is to orient the panelists and to let them 'sleep on the problem', thus allowing incubation to enhance the workings of association (p. 173-174)".

We have taken this further, by exploring ways to actively trigger the participants to play with the topic at hand, in the week before the meeting.

Whatever happens after the group meeting has also hardly been explored. Creative group meetings tend to bring a lot of movement and underdeveloped ideas, but scarcely result in directly applicable concrete solutions. Rather than regarding this as a criticism of creative problem solving methodology, we acknowledge it as an essential quality of the creative process. Creative group meetings are meant to bring new concepts and ideas into life, but then time is needed for these thoughts to synthesize into solutions. Osborn (1963) suggested transcribing the results from creative problem solving meetings, in order to review them a few days after the meeting to *"to enable incubation to help the panelists think up still more ideas by way of supplementation to those produced during the brainstorming session...After brainstormers have slept on a problem, they sometimes generate the most valuable of all ideas (p. 198)."*

In the cases described below we primarily focus on approaches which we found particularly effective in widening involvement before meetings. In addition, we describe some experiences with enhancing involvement after the meeting, and we reflect on these experiences. We have been inspired by recent initiatives in the field of participatory design, where the prospective users of future products are welcomed into the design process, not necessarily as designers (see Lloyd, 2004, for a typical argumentation why product users may not be fit as designers), but as 'experts of their own experiences' (Sanders, 2000). The premise is that these end-users can provide a lot of insight and inspiration for the designer, provided that they are stimulated and enabled to access their earlier experiences. In this field, various different ways have been explored to make participants more aware of their daily activities by means of work packages that involve creative assignments.

In this paper we will describe two related ways of enhancing involvement in user research by means of work packages: Cultural probes (Gaver et al, 1999) and

sensitizing packages (Sleeswijk Visser, 2005). We will reflect on the ways in which we can use variations on these techniques for enhancing creative group processes. Subsequently, we will provide two cases involving very different creative group processes in which work packages were used to widen involvement. We will discuss the relationships between the group process's characteristics and the design of the package to meet the needs in this situation. Finally, we will provide directions for further research.

2 User involvement in participatory design

Cultural probes

In recent years, a shift has taken place within the design community. Nowadays there is emphasis on gaining a rich understanding of the experiences and context of product use, rather than on the more 'exact' issues such as ergonomics and market research. A main argument is that the latter topics reflect on the current situation. They do not provide sufficient insight about the future situation for which new products need to be designed, which renders them inadequate as input for a creative design process. The following remark that a product designer made is typical of this gap between the information that is provided in business processes, and the designers' need. : "*These marketing graphs don't do anything for me (interview with product designer in large fast-moving consumer goods company, 2005)*". Sanders (2001) makes a distinction between research for validation and research for inspiration. Research for validation is the current dominant paradigm, intended primarily to reduce risk and to build the argumentation within the business case. Research for inspiration relates to the issue that research needs to provide the designers with a deeper understanding of the user and their experiences. These are the kinds of insights, that can stimulate the design team to develop truly new product ideas.

One approach to reach such inspirational input is through cultural probes (Gaver et al, 1999). With cultural probes, designers develop a work package that is then handed to volunteering prospective users, who then use the materials and do various assignments over a prolonged time-span. Participants are given extended freedom in interpreting and answering its questions and exercises. The designer uses whatever materials return from the participants as a source of inspiration. Cultural probes provide a designerly approach to doing user research: "*The cultural probes –these packages of maps, postcards, and other materials-were designed to provoke inspirational responses from elderly people in diverse communities. Like astronomic or surgical probes, we left them behind when we had gone and waited for them to return fragmentary data over time (p.22).*"

Gaver et al (2004) position strongly that probes should not be analyzed and reduced before being handed to the designers. Rather, it is the contact with the raw data that draws the designers closer to the participants.



Figure 2 Cultural Probe used in a study of an alarm clock with affective interaction (Wensveen, 2005)

Many different types of tools and exercises have been used in cultural probes. Typically, a combination is made, depending on the design task and characteristics of the participants (see fig. 2 for an example of a cultural probe package). The following tools are used regularly:

Photo camera. Participants are sent disposable cameras and are asked to take pictures of things in their environment or things that appeal them for certain reasons. They are asked to write comments about each picture. This technique delivers strong visual material and gives a lot of freedom to the participants. The ideal application of this method is to send Polaroid cameras to the participants, because then the time between taking a picture and writing down the comments is kept short, and the reasoning is fresh. We particularly like the Polaroid i-zone cameras, as they produce small self-adhesive pictures. These pictures are never of great quality, which allows for re-interpretation of the picture which, in turn, may lead to new insights, very much like the ambiguity of sketches supports creativity in design (Van der Lugt, 2005).

Workbook. This is a small booklet with open-ended questions to answer, things to draw, such as 'draw a diagram of the things you did while travelling to work this morning'. To make it easy for people to express themselves, often little stickers are included as starting points for participants to express their thoughts or feelings. The intention is that participants enjoy personalizing their work books.

Diary. A diary is like a workbook, but is focused on asking the participant to do/write or draw something each day. This keeps the participant continually thinking about the subject and maximizes the use of the time span before the actual session takes place. The workbook and diary can also be combined.

Sound recorder. Wensveen (2005) used a digital sound recorder in his probe which was part of a design project on an intuitive alarm clock. He asked participants to, amongst other things, record the sounds of their alarm clocks, sounds they liked, and sounds they very much disliked. Gaver et al (2004) used similar digital memo recorders, packaged in a sleeve that stated 'dream recorder'. Participants were asked to whisper their dreams into this apparatus. They mention that "*we weren't sure what to expect from this, but thought it might give us unexpected new insights into*

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their lives. In fact, it gave us much more: the dreams were remarkably powerful and sometimes poignant, seeming to summarize people's lives and personalities in a few evocative words (p.4)"

Postcards. Pre-stamped postcards can be sent to participants a few times before the actual session. Each postcard contains a little question or exercise. The participant answers the postcard and sends it back to the designer. It is fun for the designers to get postcards in the mail and it asks very little effort from the participant. The surprise of getting the postcard draws the designers' attention to the subject of the study in a playful and engaging manner.

Recently, researchers have started incorporating digital media in the work packages, such as using SMS messages for sending questions and camera features of cell-phones. With their 'technology probes', Hutchinson et al (2003) took this even further. They provided LCD-tablets as an interface for the probe, allowing the participants to also experience new technologies, while the probe addressed the participants' potential future needs. Hutchinson et al describe the technology probe as follows: *".. a particular type of probe that combine the social science goal of collecting information about the use and the users of technology in a real-world setting, the engineering goal of field-testing the technology, and the design goal of inspiring users and designers to think of new kinds of technologies to support their needs and desires"*. This is moving away from Gaver et al's original intention with the probes, as real-time interaction becomes more and more important, while according to Gaver, it may be the absence of this two-way communication that heightens the receptiveness of the designer.

Sensitizing packages

Another approach of inviting users into product innovation processes are generative group meetings (Sanders, 2000, 2001 or see Sleeswijk Visser et al, 2005, for a hands-on description). Prospective product users are brought together in a meeting of, typically 4-6 people. In a number of steps, these users are asked to make design-like artifacts, like collages, drawings or models that represent their thoughts and feelings regarding a certain topic. Then they present their artifacts, and especially the experiences, thoughts and ideas that lead to these artifacts. Involving users in such creative processes enables them to access their tacit knowledge and latent dreams, which in turn provides valuable information when designing substantially new products for the future.

About one or two weeks before the session is scheduled, participants receive 'sensitizing packages' with various exercises and assignments about the subject at hand (for instance, on the experience of entering buildings (Sleeswijk Visser & Visser, 2005). In this period they can do the assignments and have time and freedom for self-reflection and awareness of their feelings, attitudes and routines about the subject. The sensitizing process is meant to enhance the quality and quantity of contributions that participants make in the generative sessions (Sanders, 2001). It helps participants to look at their daily activities in a slightly more conscious way, to make them reflective practitioners (Schön, 1983) of their daily lives.

The subject of the sensitizing package is broader than the subject covered in the sessions. For example: in the 'entering buildings' study, the subject of the sensitizing package was 'my experiences with being accepted/rejected'. If the sensitizing materials are too specific, participants have answers ready during the session and do

not work intuitively. We use the following design guidelines when designing these sensitizing packages:

- The design of the sensitizing materials includes space for ideas or impromptu comments.
- Filling out the sensitizing materials takes people no more than five to ten minutes per day.
- Inspirational and provocative activities, rather than too explicitly posed questions, in order to allow the participants to take the initiative and surprise you.
- By stimulating participants to reflect on a daily pattern over a few days, they will slowly become more aware about their experiences. An example is the diary exercise.
- The design of the sensitizing package is both playful and professional at the same time. Playful because it must be fun to work on it and it must evoke participants to wonder, reflect and listen to their dreams. It invites participants to bring in their own ideas. The sensitizing package is at the same time professional to make the participants feel respected and that their inputs are valued.

Even though Liz Sanders started using sensitizing workbooks long before the cultural probe technique surfaced, in recent years the cultural probes have strongly influenced the refinement of sensitizing packages. However, they still differ strongly in purpose and how they are used. When using cultural probes, the principal contact with the user is through the probe itself: the designers use whatever returns from the users as their main source of inspiration, whereas in generative meetings, the sensitizing packages function as a means to prepare the users. The designer may use information from these packages, but the key insights tend to origin from whatever the participants express during the group meeting.

Example: A generative user group meeting

In a design project on new luggage concepts for the world traveler, we organized generative group meetings to get a rich understanding of travelers' experiences with their luggage while traveling, and their dreams of the way it could be. The project involved former back-packers, who now want, and can afford a bit more comfort. A week before the meetings, the participants received a work package in the form of a workbook, that contained cards with stamps, maps, and various other assignments (see figure 3). The form giving of the package invites the participants to playfully give input on their traveling experiences. The workbook is organized in such a way that there are two assignments for each day. Participants do not have to submit to this structure, but at least it gives them the message that this is not an assignment that is meant to be finished in one go. The assignments are very open-ended. For instance, in the assignment in figure 4, participants are asked to describe their traveling experience, by means of a timeline. Some examples are given, to give some direction without providing a strict format for the participant.

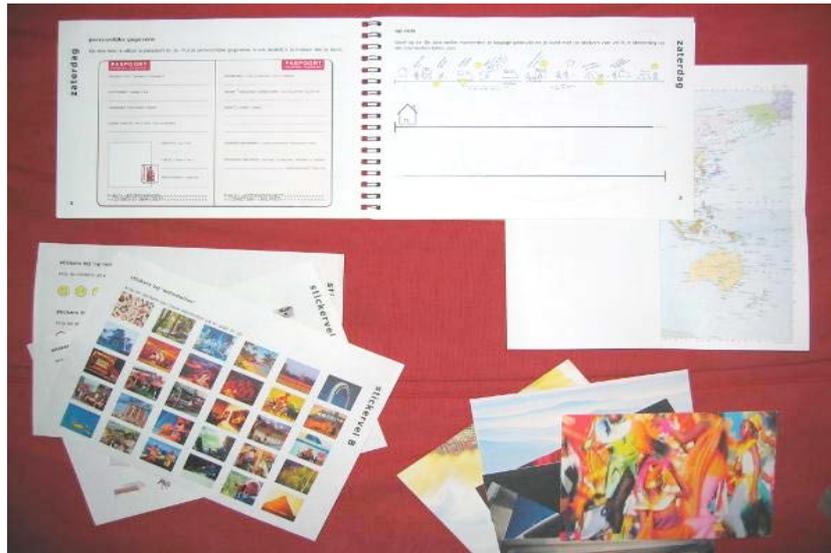


Figure 3: Sensitizing work package. Top left: the workbook. Top right: A map on the world on which participants could indicate where they had traveled, and how they liked these places. Bottom left: Sheets with stickers of images, associative words, and smileys, which could be used to execute the assignments. Bottom right: Postcards with stamps to be sent to the designer from an imaginary travel location (graduation project, Wilfred Theunisse, 2004).

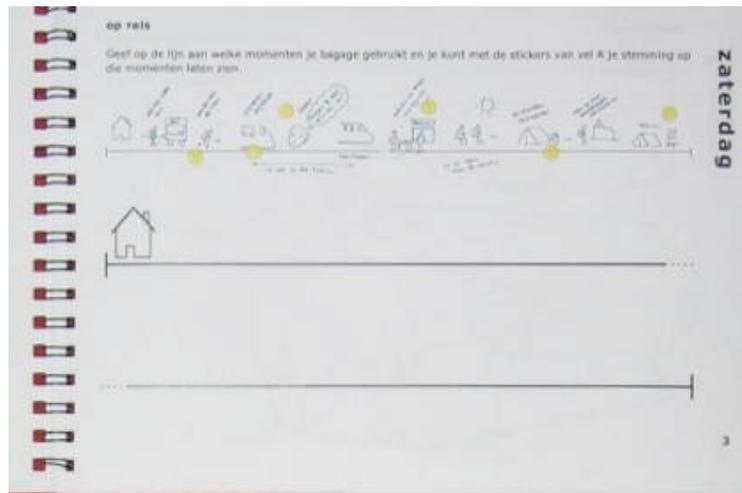


Figure 4: timeline assignment in the luggage sensitizing package. (graduation project, Wilfred Theunisse, 2004). The assignment states: 'Indicate on the timeline at which times you use your luggage when you are traveling'. The top line gives some hints about how the timeline could be filled, without being too prescriptive.

The workbook covers 14 assignments in total. They provide a large range of ways for the participants to give input, such as: sending a postcard from an imaginary travel location, organizing stickers with travel items that are important to the participants to bring along while traveling, putting marks on a world map for locations that the participants visited, and thinking up a page in their travel diary.

Even though the objective of the study was to get an understanding of the participants' relationships with their luggage while traveling, the workbooks cover the whole area of their traveling experiences. As mentioned earlier, the reason for this is to sensitize the participants and get them involved with the project, without

narrowing the perspectives of the participants. The assignments dealt with in the group meeting, gradually bring more focus to the search.

What to learn from these tools?

Both cultural probes and sensitizing packages aim to enhance involvement of users by means of drawing in them in with creative assignments. A more straightforward translation can be made between the use of sensitizing tools within generative meetings and similar tools for enhancing involvement in creative group processes, such as creative problem-solving meetings. The nature of the assignments will be slightly different, though. Generally speaking, the purpose of the sensitizing packages for generative meetings is to make the participants more aware/sensitive to their own experiences. In the trajectory towards a creative problem-solving meeting, the objective will most often be to jumpstart the problem finding and data-finding phases (Isaksen et al, 2000), by making the participants more aware of the information regarding the task around them, such as in newspapers, on the web, etceteras. In addition, in the preparation of the participants towards creative problem solving sessions, it is oftentimes useful to provide the participants with background information on the problem at hand. The sensitizing tools in for generative meetings are usually not intended to convey information.

Notwithstanding these differences, there is much to learn from how cultural probes and sensitizing packages are designed. Below, we will describe a set of tentative guidelines for tools to widen involvement in creative group processes, based on the experiences with cultural probes and sensitizing packages. The set covers both the aesthetical qualities of the work packages, and the qualities of the assignments and activities:

Using various senses

In creative activities, words may not suffice. Different kinds of creative thinking are supported by different modes of expression (Van der Lugt, 2000). In addition, varying modes of expression in the exercises prevents the work package from becoming a routine task for the participants. Orchestrating the different modes of expression used in the work package assignments can then help keep the activities interesting.

Respect for the recipient

The work packages are well-developed. When participants receive them, they almost feel like getting a present. For the cultural probes and sensitizing packages, the intention is to make participants confident that they are really going to be listened to and that their input in the work packages is going to be valued.

More than a booklet

Adding activities that are not just exercises that happen within a booklet adds to the above two qualities. Adding cameras, sound recorders, or even just stickers and postcards provide an additional dimension to the work packages. These 'outside of the booklet' activities can be perceived by the participants like tools that help them capture their experiences and insights, rather than the participants experiencing the work package as a questionnaire in disguise.

Underdetermined

A graphic design that is too 'fancy', stops participants from contributing. And, as

these packages are intended to elicit unexpected responses, it is important for the participants to feel at ease drawing/writing whatever they feel appropriate at the location in the work package they feel appropriate. For instance, in the luggage study described above, we provided a picture set to make collages. The pictures were very aesthetically pleasing and neatly lined up in a grid. This led to participants being very cautious to apply the pictures and carefully cut out the pictures. In another experience, we deliberately put low resolution pictures in random order. This led to the participants using the pictures freely and re-interpreting them based on the things that they wanted to express. This re-interpretation of images is a quality that is often related to the function of sketching in the creative design process (see Purcell & Gero, 1998 for an overview).

Playful

Oftentimes the packages are designed in a very playful manner, with the assumption that such playfully looking work packages also invite playful contributions from the participants, making them feel free to jot down whatever they want.

Getting out of comfort zone

It is not always desirable to adapt to the participants preferred ways of working. By stretching the participants they get away from their 'comfort zone', which makes them more prone to learning and observing their lives in new ways (Nadler & Luckner, 1991). In the work packages, the participants are taken outside of their comfort zone by means of the types of expression used. A remark that we hear regularly when participants see the assignments is: '*Oh no, I cannot do this, I cannot draw for the life of me!*'. Other means of getting the participants outside of their comfort zone is by the types of activities, and by the aesthetics of the work packages.

However, when this stretching is taken too far, participants lose interest. We have had some experiences with participants disengaging from the sensitizing package because of overly playful aesthetics and/or confronting assignments, such as: '*what is your worst nightmare..*'. When this happens, regaining involvement is likely to be especially difficult.

Primarily passive?

With the new capabilities of technology, it becomes increasingly easy to actively elicit involvement from the participants. For instance, one can use SMS messaging or e-mail, or even more advanced items like personal data assistants (Isomursu et al, 2004). This way, the facilitator can actively ask participants to perform certain tasks or activities. On the one hand, the active approach could lead to strong pre-meeting group activities, and a sense of being part of a team endeavor, even before the team gets together for the first time. On the other hand, one could easily overshoot the objectives. Participants might feel continuously harassed to contribute, which could have a strong counter effect on their sense of involvement with the creative group process. Originally, the cultural probes strongly relied on the more passive approach, entrusting the participants with the responsibility to work with the package.

3 Experiences with enhancing involvement in creative group processes

A scenario building process

In a scenario building workshop, group members together build lively images of the future. These images are then used to develop insight about potential future directions for the organization. There are many ways and procedures for doing so (see Fahey & Randall, 1998; Schwartz, 1990), which usually have the following principal steps in common: After determining the scope of the search, the group first analyses the forces in the current environment that will determine the future. The forces that score high on impact and uncertainty become the principal driving forces that provide the basis for the scenarios. These so-called 'scenario drivers' are then varied on to create plausible alternative futures, which are fleshed out to form lively narratives and/or images of different potential future situations. There are many different types of scenarios, and also many ways of using those (Dammers, 2000). Building scenarios is a creative group process in which many varying thoughts about future situations need to be integrated in a small plausible set of scenarios. This cannot be done by analysis and hard work alone. Many creative inferences and underdeveloped decisions need to be made to create integrated, plausible scenarios that can easily be imagined.

Case description

The case involved a scenario meeting for the automotive coatings industry. This workshop was part of a larger project which aimed at developing a long-term R&D strategy for a division of a multi-national chemicals company. Future scenarios were developed in order to get an understanding of the variability in the potential future business environments. A diverse, international group of 8 participants from varying backgrounds, ranging from R&D managers and marketing managers to university professors, were brought together to develop scenarios for the automotive coatings industry in 2025. About half the group came from outside the company. The car industry is renowned for their competition and formal structures. The challenge was to bring together such a diverse group and to enable them to work constructively. We realized that, in order to provide substantial scenarios, a one-day work shop would be too short. We attempted to widen the participants' involvement, by triggering their involvement early on, and stretching the involvement by actively and playfully inviting input for and reflections on the proposed scenarios.

About one week before the workshop, the participants received a 'future booklet', which consisted of about twenty pages of assignments and information. The objective was to sensitize the participants for the subject, to start them thinking of the future, covering broad world developments, but also very narrow issues, like what the future might look like for their organizations and themselves. Each right-hand page consisted of information on trends and considerations about the future, accompanied by some prompting questions. The left-hand pages contained visually oriented assignments. The booklet gradually narrowed focus: The first pages cover world-wide developments and trends (see figure 5), while the last pages directly address the European automotive industry (see figure 6). The assignments on the left-hand pages were intended to make the managers look at the future differently, to start breaking them out of their current conceptions of the future. For instance,

the graphs in figure 5 describe potential global future fresh water shortage and projected use of cars. The participants were asked to describe how water scarcity might influence car production. The conception that such a seemingly unrelated outside future driver might influence car manufacturing was entirely new for the managers.

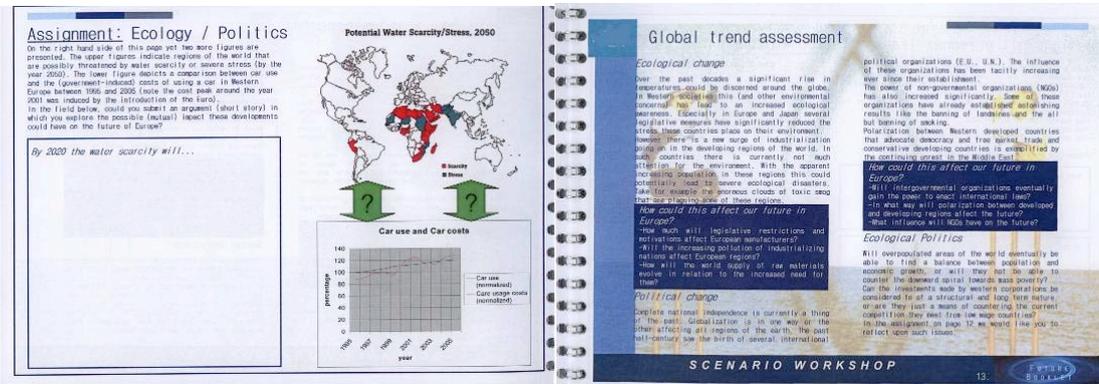


Figure 5: Workbook pages covering global trends. The assignment on the left page dealt with how shortages in fresh water supply might influence the automotive industry.

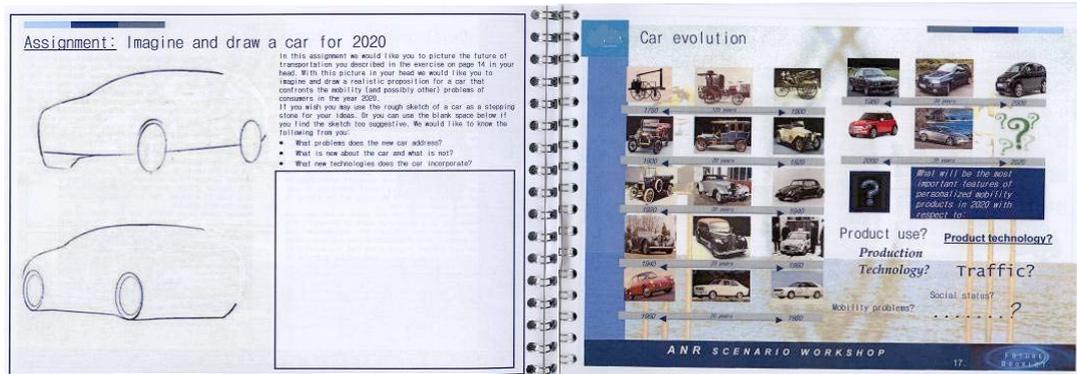


Figure 6: Workbook pages covering the automotive industry. On the right an overview of what cars looked like in the past; on the left an assignment in which participants are asked to describe the car of the future.

The workshop was high on time-pressure. Many premature decisions had to be made during the scenario building process. This provided for a very inspiring process; at the end of the day participants felt they had really achieved something, and they had become enthusiastic about the project. The challenge was to retain this sense of involvement of these people with very full agendas, as the scenarios still needed a large amount of refinement. A Delphi-like design (Cuhls & Blind, 2001) in two rounds was used for structuring the follow-up activity. Five days after the workshop, the participants received tentative stories that described the scenarios. The participants were asked to give their comments and add to the stories. This led to an active discussion by e-mail between the project leader and six out of eight participants. The second step took place about three weeks after the workshop. five out of eight participants responded to this assignment.

The assignment consisted of two parts: We provided a set of stickers with sketches of imaginary future cars. The participants were asked to place these in a A3-print of

the scenario matrix. After this, the participants were asked to position in the scenario matrix a number stickers with driving forces that had been named in the workshop, but not used for building the scenarios. The results of this second post-workshop activity were summarized in one graph (figure 7). This led to a further enrichment and understanding of the scenarios, and what their impact would be on the automotive industry.

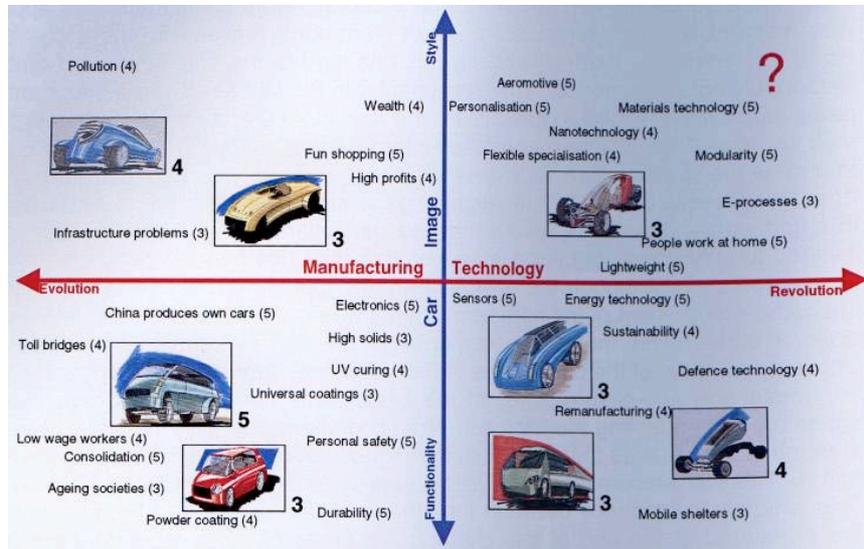


Figure 7: Results of the second refinement step summarized in one graph. The numbers refer to the number of participants that put the item in the same quadrant. Location of the items within the quadrants is random. the question mark on the top right corner refers to the lack of cars that would fit the high style car image/manufacturing technology revolution quadrant.

The results from these steps were used to construct a final set of scenarios. The company then used these as a basis for discussions on the implications for the company, and to build R&D strategy.

Reflection

The group strongly appreciated the work packages. They especially liked that there was a lot of content in the workbooks, and that the assignments on each page triggered them to really read the materials and to make sense out of it. They had the feeling that they had really learnt something after completing the packages. The managers were surprised to find that this –for them- playful booklet with both information and assignments triggered them to make unfunded statements and assumptions, rather than making evidence-based inferences the way they were used to.

Most participants spent more than two hours working on the booklets, mostly while traveling. This is much more than we expected these high-profile managers to commit to.

Regarding the post-meeting involvement, it was key to quickly after the meeting produce scenario descriptions and send them to the participants. Furthermore, we think it was very useful in the second assignment to not address the participants with written language only, but to provide a more playful assignment. This made them see this assignment as different from their regular work, and recovered their involvement.

The main conclusion that we drew from this project is that work packages do not always need to be overly playful and light; sometimes it may be more appropriate to add a good amount of quality content to the work packages, provided that there are sufficient triggering assignments for the participants to get into the content.

A product innovation process

Case description

In a rapid innovation process on generating new product concepts for 'healthy fast-food for kids', we used a work package for bridging involvement between two meetings, which were about three weeks apart. The first meeting dealt with building common ground (Olsen & Olsen, 2000). By means of a metaphor (cooking), the process was explained and the subject matter was briefly discussed. By actively involving themselves in thinking up and preparing a lunch, the participants got to know each other, they became familiar with the creative process, and they were able to discuss the subject matter in a very informal manner. At the beginning of this meeting, the participants received a workbook in the form of a 'cookbook', with very open assignments and an overview of the process to be followed (see figure 8). This cookbook had two purposes. First, it provided an overview of the process. Secondly, it provided space for individual ideation.



Figure 8: The "cookbook" used at the first introductory meeting

After this first orientation meeting, the participants received a work package (see figure 9), which contained a series of inviting assignments:

- A briefing on the problem, covering issues like the reasons for developing a new health food concept, the product vision (being healthy can be hip), reasons to believe, associations with what does/does not fit the concept, etceteras.
- Card with reference to an internal website
- Hatching booklet for jotting down ideas.
- Do-cards: Cards with pictures of chili peppers or peas. On the peppers cards, the participants were asked to write some requirements for the new product.

On the peas cards, the participants were asked to write some of their wishes and desires regarding the new product.

- www card: On this card participants were asked to write some interesting web links.



Figure 9: The work package

In addition to the package, an internal website was available for group discussion, and the facilitator sent around a relay e-mail idea generation activity and brief assignments through the cell phones, using SMS (short message system).

The second meeting, about three weeks later, involved a creative problem solving meeting, in which new product ideas were generated. Five days before this meeting, the facilitator sent out 'readers' in which she had condensed the information, inspirational materials, and ideas from the various assignments that the participants had sent in.

After the meeting, concepts were developed with the internal website as primary medium. The participants worked in sub-teams which each had their own workspace on the website which included a chatting function.

Reflection

The work package materials were well-used and appreciated. However, participants were often late in returning the postcards to the facilitator. The ideation relay through e-mail went slowly as participants tended to postpone the e-mail assignment. In preparation to the creative problem solving meeting, all participants studied the readers. They appreciated seeing each other's thoughts and ideas. During the meeting, at various instances the participants referred back to these materials.

We concluded that, as participants tend to postpone these assignments due to their busy regular tasks, the facilitator may need to be pro-active in inviting input from the participants. Relay-type assignments, in which the primary responsibility for the success of the communication is with the participants themselves, proved to be very vulnerable. Using various media to refresh the involvement among group members was found to be useful, even though the participants sometimes felt a little overwhelmed by the amount of assignments that they were asked to attend to in parallel. This suggests a more thought-out spreading of assignments over time.

4 Discussion

In the past years, we have used work packages as described above in a variety of occasions. Even though they were all intended to widen involvement, the work packages that we used had different objectives. In a generative group project, the objective is for the participants to be more reflective of their daily activities. In a scenario project, an objective is to communicate knowledge about future developments to the participants. The objective of a work package in a creative problem solving process is to make an early start with preparation and incubation and to gather inspiring connections for idea generation.

The characteristics of the participants were also very different, from high-profile businesspeople in the scenario project, to travelers who had just graduated from university in the example generative group project mentioned above. The participants in the creative problem solving meeting came from a variety of backgrounds.

Because of these different objectives, and the different characteristics of the participants, the contents and aesthetics of the work packages were very different. The scenario booklet had a strong emphasis on providing information, in a very business-like style, while for the creative problem solving group meeting, the design was very playful and sketchy, with very little information being provided through the package. Table 1 shows an overview of the characteristics of the characteristics of the cases, and the main design decisions that were made for the work package.

Table 1: Process characteristics and design decisions made

	Scenario building group	Creative problem solving group
Group members	Formal	Various
Objective	Transferal of knowledge	Inspiration and incubation
-Using various senses	Written 'report' with visual cues and primarily visually oriented assignments	Strong visual input by means of illustrations. Assignments and information provided primarily in writing, with addition of some visual sticker sheets.
-Respect for the recipient	Corporate feel of to the work package. Quick follow-up on session and post-assignment results	Colorful work package with playful aesthetics. Looks like a present.
More than a booklet	Just the booklet	A booklet was just one of many assignments.
Underdetermined	Well-developed	Underdeveloped, sketchy
-Playful	Professional	Playful
-Getting out of comfort zone	Through requesting visual and generative activity rather than verbal and judgmental input	Through playfully following an analogy (cooking)
-More than a booklet	Just the booklet	A booklet was just one of many assignments.
Role of facilitator	Passive	Active

Considerations about the needs of the participants made us not follow all guidelines. For instance, we decided to give the future booklet a well-developed 'look', making it look professional, because we knew that the managers involved would not accept it

otherwise. The same goes for the 'playful' and 'more than a booklet' guidelines. But we compensated this with deliberate use of visual expression in the package. Each situation will lead to a specific balance of attributes in the work package.

The overview above is solely based on practical experiences. We still need a stronger theoretical basis, and further empirical work to gain a more thorough understanding of the ways in which these work packages can help trigger involvement in creative group meetings. In addition, experimental studies could provide some insight in the extent to which various kinds of work packages can widen involvement. This may lead to a set of tools and guidelines for enhancing involvement.

We found that, while in the scenario project participants paid close attention to the booklet, and spent more time with it than expected. In the creative problem solving process, some participants (but not all!) complained that they received too many assignments. This made them feel overwhelmed, leading to participants feeling less involved with the project. The same can be the case with an overly active role of the facilitator in the pre-meeting activities. The assumption is that overshooting the level of pre-meeting activities will lead to a rapid decline of participants' involvement. The design and orchestration of the pre-meeting activities can stretch participants' willingness to carry out activities, but there will be a clear limit to the amount of activities that the participants can cope with outside of the meeting.

A topic that deserves further research is widening the post-meeting involvement. We have tried out some ways to more actively engage participants in the 'reaping of the fruits' of a meeting, as we displayed in the case descriptions. One topic that is important here is the timing for such post-meeting activities. They cannot be too long after the meeting, as then participants' involvement will have extinguished. However, activities may also follow too quickly after the meeting, which may leave the participants with a sense of being overwhelmed by the activities. So, also for post-meeting involvement enhancing activities, the quantity of effort, and the time-line for these activities need to be arranged carefully. Like with the pre-meeting work packages, more theoretical and empirical work is needed to get a sense of the relationships between the nature and timing of post-meeting activities and the participants' sense of involvement with the project.

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