

# Open-ended objects: a tool for brainstorming

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## ABSTRACT

This paper describes a new tool for use in the process of brainstorming workshops on HCI called "Open-ended objects". Open-ended objects are open-ended interactive experiences that are used to introduce a brainstorming session. Their aim is to lead participants to reflect on emotions, human desires and make them forget about their expertise often centred on technical questions. These Open-ended objects are a tangible translation of the brainstorming brief to inspire participants beyond words. They are like interaction seeds that people can use to generate ideas. Besides, this shared and playful exercise sets a gentle and participatory atmosphere. In this paper, we describe the features of this tool that we have created, an example of how we have applied it to an innovation workshop. We conclude with what we have learnt from our experiences.

## Author Keywords

Tool, Creativity, Brainstorming, Interaction design, Introduction, Materialisation, Experience.

## ACM Classification Keywords

H.5.2. [Information interfaces and presentation]: User Interfaces --- User-centered design, Theory and methods, Prototyping.

## INTRODUCTION

In the framework of brainstorming workshops on HCI that we have organised, facilitated and documented, we have created and experimented a specific introductory tool to prepare participants for the following brainstorming sessions.

One of the main challenges for a brainstorming session is to push participants beyond their preconceived ideas and to help them get out of their usual mindset which is related to their personal history and professional expertise. As for interaction with devices, it implies to go beyond daily habits, beyond the mental representations and gesture patterns of existing objects/interfaces. It requires an approach that is centred on people and the understanding of what they do and feel, how they relate to objects surrounding them. These interactions happen and evolve on physical, intellectual and emotional levels. Feeling them in your body is a quite different experience than what words can convey. To put the participants of a brainstorming

workshop on interactions into that state of mind, we have created and experimented a tool that we have named the Open-ended objects.

This paper describes their main features.

## AN EXAMPLE

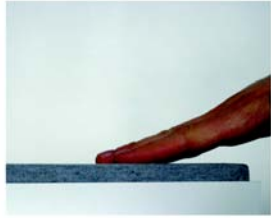
We have first experimented this method in "innovation workshops" that we organised and facilitated for a research project on tangible interactions led by Agnes Gimeno from Orange Labs, Grenoble, France, in July 2008. The brief and detailed directions of exploration cannot be disclosed for confidentiality reasons but one of the subjects was to explore the potential of tactile and gesture-based interactions to create new forms of relationship and affection between people and objects.

The participants were from different backgrounds (design, engineering, human factors, marketing) and locations at Orange but there was a large group of technical experts. Our intention was to lead them to think of their everyday research subject from a very different perspective: through the eyes of a layperson, with no particular technical knowledge, with his/her emotions, with his/her utilitarian yet also emotional relationship to things. We wanted them to forget about their technical filter (i.e. their thinking in terms of types and specifications of sensors etc...) and to embrace a more sensitive approach.

For that purpose we created several Open-ended objects that participants discovered and tried out before brainstorming in small teams. During the following brainstorming sessions, teams had boards with photos of the objects and their related verbs and feelings as a reminder of that initial experience.

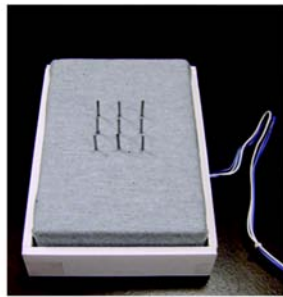
We show here two examples to illustrate the general features of this tool that are described in the next section.

The first example is an object to be stroked (see Figure 1). When stroked a few times, it starts to gently vibrate under your hand giving you the tactile sensation of a purring cat (there's no sound). The more it is stroked, the stronger the physical purr gets. When one stops stroking, the vibration gets softer and softer until it disappears.

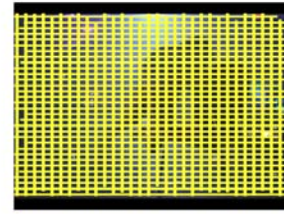


**Figure 1 : Stroke / Pleasure (photos of the Open-ended object).**

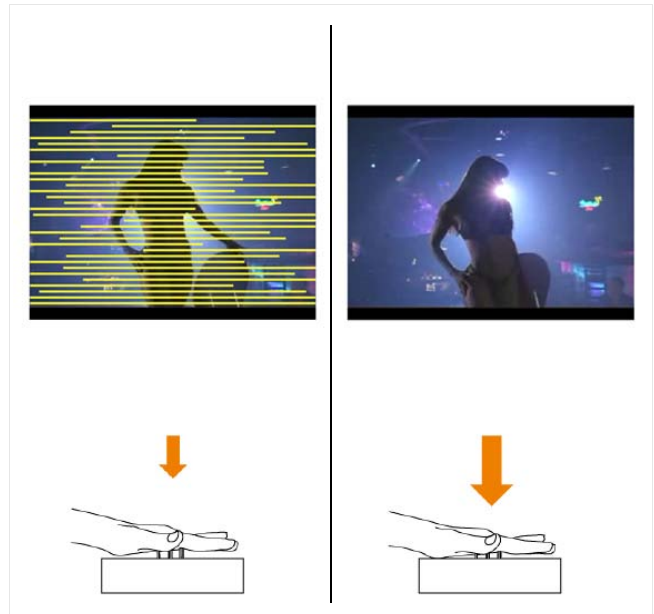
The second example is an object with an array of nails on the top (see Figure 2). It is connected to a computer that plays the video of a striptease. This video is blurred (see Figure 3). When the hand is slightly pressed on the nails, the video gets clearer but still blurred (see Figure 4, left). By pressing harder, it gets more painful but the video is perfectly clear (see Figure 4, right). As soon as the pressure is released, the video blurs again.



**Figure 2 : Suffer / Curiosity (photos of the Open-ended object).**



**Figure 3 : Suffer / Curiosity (screenshot of the blurred video).**



**Figure 4 : Suffer / Curiosity**

### FEATURES OF THE TOOL

An Open-ended object has four main features.

#### A Preparatory Tool

It is meant to be used before introducing the brief for the brainstorming session. It is a preliminary experience for which participants gather around the object. They observe how the object reacts to the facilitator and experience it by themselves. The intention is to create a shared experience that will infuse the following brainstorming sessions. An Open-ended object is a tool to draw the participants into the subject of exploration. In that way, it acts as a film prop, as a plot device like Alfred Hitchcock's MacGuffin [8], but for the brainstorming scenario.

#### A Tangible Translation of a Question

An Open-ended object is a kind of material translation of the questions to be explored: it offers a medium to grasp them through physical experience, feelings and sensations rather than through language.

The type of stimuli or inputs (e.g. stroking or pressing in the examples above), the type of feedbacks/emotions (e.g. vibration, pain) and the experience it proposes (e.g. interacting with multimedia content) are therefore carefully chosen according to the workshop's goals. The interaction modalities, the sensor technologies, the contexts of use to be explored, the type of applications to look for are thought of, processed and translated into the experience that the Open-ended objects propose.

To achieve this, our methodology uses interaction design and its knowledge of how to design behaviours, of how to materialise the dialogue between people and objects/interfaces. It draws more generally on product design and its understanding of the relationship between people and things, of its unconscious, immediate and cultural aspects, of what makes objects feel familiar or strange and people act in a certain way. This is what the product designer Naoto Fukasawa calls Without Thought [4], which echoes Gibson's affordance [6].

The technologies to be explored in the workshop are not presented with a technical demo but they are interpreted in the Open-ended object so that they dissolve into the experience, the feelings, the emotions, the gestures. That way the discussion naturally shifts towards the potential of technologies for creating experiences that respond to people's desires and everyday situations rather than about their technical performance.

In the two examples above, the Open-ended objects have enabled to reflect on certain tangible and tactile interactions in terms of behaviours and emotions like stroking, suffering, affection, pleasure. The second object has opened up the project to otherwise rarely explored feelings like pain. In that example, the pain caused by the nails is motivated by curiosity, which creates a totally different relationship to the video, revealing new perspectives on how we can enjoy multimedia content.

The Open-ended objects open a room for imagination beyond the area of exploration of the project and beyond the existing reality of objects. They suggest other forms of existence, roles and behaviours for objects and therefore people. They also point out little details or acts that are so established in everyday culture that we don't see them anymore, let alone question.

### **An Interactive Experience**

It is essential that Open-ended objects be functional: they offer an interactive experience that participants can observe but also try and feel.

One reason is that they connect participants to the reality of that experience, to a world of possibilities. People can try

them by themselves and they become naturally part of their thinking in the following brainstormings. They are not just concepts in people's minds, they become part of their reality. This is also why their experience is as little as possible mediated by language: the Open-ended objects are there in front of people's eyes, inviting them to live them on the spur of the moment. They are not analysed at that point. They are there for inspiration. Any question about how they work is brought back to their nature and behaviour, at that point of the workshop.

The other reason for Open-ended objects to be functional and interactive is that even though they can be experienced individually, their experience is shared by all the participants and therefore creates a playground beyond experts' languages. In that sense they belong to the family of experience prototyping described by the design company IDEO [2].

Beside their use at the beginning of the workshop as a preparatory tool, we have found it is interesting to let the Open-ended objects set and ready to be tried out during the whole workshop. That way participants can later go back to them and/or spark a discussion about them.

### **Not Exactly an Object**

Their last feature is that they are not exactly objects in the sense that they offer an intentionally incomplete experience. They are left open to interpretation: they are open-ended. They have no specific utility on their own, they don't propose a solution. They are quite simple in that they have a single main behaviour, function. They are like thinking bricks to be used for generating ideas. This is why the feedbacks, the behaviours of Open-ended objects should be abstract enough not to trap the participants into a given solution or a specific application and yet evocative enough of the questions to be explored so that participants can integrate them and be inspired by them in the brainstorming.

The product design of the Open-ended objects must reflect that perception of a quite abstract and minimalist object: its design dissolves into its behaviour. For instance, in Figure 1, the object is, on purpose, a white block on which only the active surface is covered by a soft fabric that prompts and appeals to the touch. We were careful not to use a more organic shape or surface (for instance fur) so that the object wouldn't be trapped into the image of a living being.

These objects echo Anthony Dunne's notion of parafunctionality [3] about a form of design where function is used to encourage reflection on how products condition our behaviour. They also echo his notion of aesthetics of use [3] that he uses about Durrell Bishop's Marble Answer Machine [1].

On their own, Open-ended objects have no specific utility if considered as products. They are experiences that trigger curiosity, surprise and reflection. They can, on purpose, feel strange, poetic and playful. In that sense they are close to cultural probes [5]. These kits with exercises (postcards, cameras, diaries, maps etc...) are used to elicit materials for inspiration from participants' everyday life and they actively involve people through a playful, indirect and ambiguous approach. Our tool is nevertheless different from cultural probes because its primary goal is not to collect information but to infuse questions into participants' minds and inspire them for the workshop. On that point they are closer to the design goal of technology probes [7] that were developed for the Interliving project. But they are very different in their context of use and main objectives. Technology probes are indeed pieces of technology installed and used at people's home for a set period of time in order to collect information about the use and the users of technology in-situ and to technically test the technology.

## CONCLUSION

The Open-ended objects have proved to be a promising brainstorming tool during the "innovation workshops" with Orange Labs, in Grenoble, France. For the project, they have enabled participants to change their perspective, play with interactions in an emotional and sensorial way and hence to come up with ideas that hadn't yet been explored by their research programme. For the workshop, by creating a shared experience that is not mediated by language, they have saved the brainstorming sessions from experts' discussions and favoured a good exchange between participants despite their diverse backgrounds (design, engineering, human factors, marketing). Also the use of these Open-ended objects as a starting exercise for brainstorming has allowed to set a participatory atmosphere among participants and to create a link between people who didn't all know each other before the workshop.

More generally, this tool can be used for any kind of subject. Open-ended objects share the four main features described in this paper but their form can vary a lot. What they are (nature, type of media), how they behave, what experience they offer have to be thought and designed according to the questions to be explored.

Beyond their immediate reading, they help open up industry and research projects' point of view and reveal new answers or areas of exploration.

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