



Reflective probes, primitive probes and playful triggers

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In this paper I present and discuss Reflective Probes, Primitive Probes, and Playful Triggers – derivatives of Cultural Probes that build off such work promoting multiple places for and uses of creative, inspirational and provocative artifacts in research and development endeavors. In the first parts of this paper I introduce the topic as well as providing relevant background details, briefly examining Cultural Probes from the perspective of their intended outcomes – what probes can enable. I then overview the three mentioned notions as well as emphasizing complications, implications and conclusions related to the deployment of these and similar tools. The paper offers a number of suggestions and questions related to the context, time, audience, producer, content, soul, purpose and form of these tools. Such suggestions have great implications within business contexts, where timelines, directions and multidisciplinary tensions can act as ‘interfering agents’, complicating how these tools can be designed and deployed by ethnographers operating within the industry.

INTRODUCTION

In this paper I introduce three tools – Reflective Probes, Primitive Probes, and Playful Triggers. Building on notion of *anomalous objects* and *odd experiences* (Loi & Burrows 2006), these tools are derivatives of Cultural Probes (Gaver et al 1999) that build off such work promoting multiple places for and uses of creative, inspirational and provocative artifacts in research and development endeavors. Cultural Probes, tools often including disposable cameras with instructions, maps, postcards, diaries, and stickers, were originally developed to address the methodological challenges posed by the study of home settings for the development of ‘domestic technologies’ (Hemmings et al 2002). The *cultural probes approach* offers an “alternative to more traditional methods of user research from the social sciences, such as questionnaire studies, focus groups, or ethnographies” (Gaver et al accessed 2007). These tools offer a practical and creative way of learning more about people’s everydayness in a context (home) where, due to privacy as well as time constraints, is not possible to conduct full participant observations. Initially developed as evocative tasks to elicit inspirational responses and to gain insights into people’s needs, dreams, and ways of negotiating their surroundings through a designed-oriented approach, the *Cultural Probes idea* has since been deployed by many researchers and designers in different ways and diverse contexts (outside the home).

BACKGROUND

Boehner et al (2007) recently discussed cultural probes' *uptake* in human-computer interaction (HCI) contexts and identified a number of 'X probes', providing five categories: probes as packets; as data collection; as participatory; as sensibility; and as citation. While I see benefits in this categorization, I here provide an alternative lens – combining an interpretation of HCI and non-HCI literature with lessons-learned through my design and research practice – that concentrates on the intended outcomes of probes adoption: what researchers want(ed) probes to enable. While Gaver et al (2004) state that probes were born to gather “fragmentary clues” about people’s “lives and thoughts” – tools to (1) inspire – others argue that they can be used to (2) provide relevant information; (3) gather empathetic data; and (4) get data on usability issues and design. I overview these four categories in the following sections.

Cultural Probes to generate inspirational data

The Presence (Hofmeester 1999) and Equator (accessed 2004) projects belong to this cluster, where cultural probes were primarily employed in concert with other ethnographic methods to generate inspirational insights. Presence used probes to explore technologies with the aim of increasing “the presence of the elderly in their local communities” by including them in the design process (Gaver et al 1999). Building on Presence, Equator used probes to investigate the “integration of the physical and digital worlds by developing innovative systems” (Gaver et al accessed 2007) to “enhance the quality of everyday life” (Equator Project, accessed 2004). Although Probes were designed similarly, the two projects had different foci: Presence aimed at generating new understandings of technology through design speculations, provocations and challenges, while Equator wanted to develop a series of concept proposals of responsive furniture systems that “emphasised existing behaviour to promote reflection or disruption” (Gaver et al accessed 2007).

Cultural Probes to gather relevant information

Projects like Digital Care (a sub-section of Equator) deployed probes as tools to get contextual ethnographic information (Hemmings et al 2002). The tools, pragmatically adapted to a sensitive research setting (psychiatric patients), helped to unobtrusively supplement ethnographic inquiry; gather information; engage effectively in a dialogue with the participants; “elicit new and different information” with the notion that they could “provide more substance to design ideas that had surfaced in the course of interviews or observational periods” (Hemmings et al 2002); and aid the development of a prototype for a self-medication device and some communication devices for staff.

Cultural Probes to gather empathetic data

Some researchers used probes in empathetic design¹, to gather empathic data in a flexible ways for inspiration and information (Mattelmäki 2003; Mattelmäki & Battarbee 2000 & 2002; Sanders 2001; Wensveen 1999) or as UE Probes – “user experience prototypes that are tested with users in order to get feedback before launching any early version of marketable technological systems” (Kankainen 2002). SonicRim² and MakeTools³ gather empathetic data using, among other strategies (what people say⁴ and what people do⁵), probe-like toolkits that concentrate on what people make⁶. Once responses to the toolkit are collected, the groups look for a convergence of various perspectives, delivering research findings and insights in many different formats⁷.

Cultural Probes to design and understand the potential for new technologies

The interLiving project, to develop technologies to “support communication among diverse, distributed, multi-generational families”, deployed Technology Probes (Hutchinson et al 2003), which differ from Cultural Probes that “tend to involve a single activity at a particular time and are not necessarily technologies themselves”. Technically simple and flexible to use, Technology Probes help establish which future technologies would be interesting to design by: installed in a real-use context; monitored over time; and reflected upon to gather information and inspire ideas for new technologies. Examples of this probe-category include a Message Probe – an application enabling “members of a distributed family to communicate using digital [sticky notes] notes in a zoomable space” – and a videoProbe which “provides a simple method of sharing impromptu images among family members living in different households” (Hutchinson et al 2003).

NEW TOOLS

In the following sections I overview three new tools – Reflective Probes, Primitive Probes and Playful Triggers – that promote multiple places for and uses of creative, inspirational and provocative artifacts in research and development endeavors.

¹ The notion of empathetic user data aims at creating “a holistic understanding about the users” (Mattelmäki 2003) to better support user-centered practices. Central to this concept is that by understanding the feelings of people design teams can empathize with their users (Sanders 2001) because “empathy takes beyond practical and behavioral to people’s inner experience” (Black 1998).

² <http://www.sonicrim.com>

³ <http://www.maketools.com>

⁴ Traditional market research relying on word-based activities including conversations, interviews, and web and email questionnaires.

⁵ Applied ethnography relying on users’ observation to gain a clearer understanding of their lives.

⁶ Participatory design enabling participants to make or create something and then tell a story about it to unfold their needs and dreams.

⁷ E.g. written reports, posters, presentations, immersive spaces, stories, videos, models, maps.

Underpinning these tools are notions of *anomalous objects* and *odd experiences*. As discussed in a previous publication (Loi & Burrows 2006), by playing with these notions it is possible “to dramatically expand creative and interpretive engagement between people, providing platforms where diverse interpretations can be generated”. In a number of projects⁸ we deployed common-everyday-materials-made-eccentric-and-anomalous-by-context-and-use to engender speculative and projective responses from participants – we worked with things that, while being ordinary and banal, create contexts where such things become the focus of attention and meaning-making. These attributes can be often found in the three tools I discuss in the following sections.

Reflective Probes

Reflective Probes (Loi 2004) create the conditions for *reflective practice* (Schon 1983) to prosper through activities that take the form of creative, ambiguous and inspiring artifacts. Reflective practice is about “creating a habit, structure, or routine around examining experience” that can vary in terms of *how often*, *how much*, and *why* reflection gets done (Amulya 2004). Reflection helps us “open up the possibilities of purposeful learning” and learning how to take perspective on one’s own actions and experience is central to reflection (Amulya 2004).

In the Document/Reflect/Create project (Loi 2004) I wanted to give direction, freedom and confidence for students to document and reflect on their learning while being able to create new meanings through their reflections as well as reflecting on their own reflections. I developed a Reflective Probe that was shaped as a brief asking each participant to undertake a series of tasks related to each class event. The brief was structured in its tasks yet totally open in its outcomes. Each event had to be ‘recorded’ on a page folded in two, to mimic a greetings card: on the cover each student had to document the learning associated to a specific event through an image and a short sentence; on the inside (left side) s/he had to document the same event in writing; on the inside (right side) s/he had to reflect on what they just documented; and on the back-cover s/he had to create something new out of their reflection. Students posted and received feedback to each card on a weekly basis – cards accumulated throughout the semester in individual custom-made letter boxes in my office. This exercise fundamentally asked students to ask themselves: *what was that event about? what does it mean to me? what will I do with what I have just learned?* Outcomes varied enormously – from more design concepts to poetry, action plans and games – but invariably augmented students’ capacity to reflect and use their reflections to generate new meanings. In the following figure, few examples of this project: on the left, an artifact illustrating a student’s feelings about what the term meant to her from a learning perspective; in the centre, a meta-object built by another student out of all his semester’s cards to illustrate how each week’s learning actively helped him shaping a greater understanding of his discipline; and on the right, a number of weekly cards from another student.

⁸ See for instance the *Pea Project* (Loi, Burrows & Coburn 2002) and *A Surrealist Encounter* (Loi & Burrows 2004).



FIGURE 1 *Examples of Document/Reflect/Create project (Loi 2004)*

The above example is just one instance of how a Reflective Probe can help people to create a habit, structure, or routine around examining experience – to take perspective on one’s own actions and experiences. As probes often are, Reflective Probes are and should be contextual, so they need to be developed with the context to which they are aimed at in mind: the one-size-fits-all approach rarely works when developing these tools.

Reflective Probes have a great potential in corporate settings, building on the notion that awareness and reflectiveness are foundational traits in developing and preparing managers for what Lewis (2000) calls “organizational complexity and ambiguity”. Drawing from a range of corporate workshops I conducted over the past years, I argue that Reflective Probes offer organizations the opportunity to open up “zones of possibility for intellect and imagination” (Jipson & Paley 1997) – as through these tools people start from an equally obscure and ambiguous place, outside the “rubber stamps of conventional clichés” (Schachtel 1959). Reflective Probes can also facilitate a variety of ethnographic, user testing and co-design activities, when individual reflections on specific circumstances, uses or experiences can benefit the overall project. Each time I adopted reflective tools in activities such as workshops, focus groups or interviews, deep individual insights enriched the process while helping participants unwind in a reflexive space which is often characterized by openness and creativity. Good examples of such experiences include the *Pea Project* (Loi, Burrows & Coburn 2002) and *A Surrealist Encounter* (Loi & Burrows 2004).

Primitive Probes

As a less explored strategy, Primitive Probes are based on the assumption that tools such as Cultural Probes or Reflective Probes can be designed by participants – stretching the boundaries of who is entitled to design a probe and why/how. A Primitive Probe could be conceptualized as an ancestor of a Cultural or Reflective Probe which prompts, triggers and enables participants to design a probe and then to adopt it to probe oneself or to probe others (Loi 2004). Differently from a traditional Cultural or Reflective Probe environment, a probe-designer has here the role of developing a scaffold (Primitive Probe) for a probe to be developed and utilized by its final user.

Primitive Probes are open-ended tools that offer opportunities for reflective, creative and community outcomes, rather than probing participants for specific information, inspiration or emphatic data. They can provide such data through their use, but as a by-product, not as a primary intended outcome. These tools can vary in their open-endedness, from being closer to a specific context (for instance, a brief asks participants to design a toolkit to then probe their family members around their reading habits) to having a wider focus and target audience (as an example, a container is left on a footpath: inside, a number of playful activities ask passing-by people to co-develop a poster prompting other passing-by citizens to offer their insights on issues regarded crucial for the city they live in – the poster is built with materials included in the container and then affixed on a nearby wall). I deployed Primitive Probes within educational contexts to unleash multiple and unexpected ways of learning about oneself and others and to deepen topics part of the curriculum within learner-oriented contexts (Loi 2004; Loi et al 2004). However, these tools could find fertile grounds in both design and organizational contexts – to prompt creative endeavors, trigger innovative cycles, support design explorations and open up new unexpected areas to be explored.

Playful Triggers

Playful Triggers (Loi 2005) rekindle the possibility for people to play, wonder and learn and to discover (or rediscover) the pleasures and benefits of such experiences. Reflective engagement, fruitful communication, and improved collaboration are the major outcomes related to such experiences. These tools can be used to:

- gain inspiration on how to ‘read’ and understand a context and its inhabitants – to provide nuances and insights that a conventional process would fail to materialise;
- provide information about both space and people within a specific context – information that could complement and deepen data gathered via traditional means; and
- create a dialogue between the inhabitants of specific context – enabling relationships that could foster and sustain co-operative and collaborative practices.

The primary aim of Playful Triggers is to establish a bond – a collaborative practice – among participants: they focus on dialogue-creation, acting as communication (rather than ethnographic/empathetic) devices by activating *receptive modes of engagement* (Deikman 1973). Receptive modes differ from active modes (see Table 1) as they allow events to happen “instead of being verbal, analytical, sequential, and logical” as this mode of consciousness is “nonverbal, holistic, nonlinear, and intuitive” and emphasise “the sensory and perceptual” (Bortoft 1996). Deikman (1973) suggests that the active mode dominates the receptive mode due to the value placed on biological survival. Interestingly, he stresses that the receptive mode is functional during infancy and that the developmental preference for the action mode has made society consider it as the proper (or ordinary) mode, while there is a tendency to think that the more unusual receptive modes are pathological or regressive.

active	<ul style="list-style-type: none"> . focal attention; . objects-based logic; . intensified perception of boundaries; . a dominance of form over colour and texture; . a goal oriented state.
receptive	<ul style="list-style-type: none"> . diffuse attention; . paralogical thought processes; . decreased boundary perception; . dominance of sensory over formal attributes.

FIGURE 2 *Receptive and active modes (Deikman 1973)*

Playful Triggers aim at activating receptive modes of engagement, favoring sensory over formal attributes of that engagement. These tools generate receptive modes through their tactile, visual, mysterious, playful, tridimensional, poetic, ambiguous and metaphorical qualities and ask people to challenge taken for granted or conventional ways of doing, seeing and articulating things to co-generate shared understandings and collaborative practices. Playful Triggers should be designed according to four key notions: wonderment, playfulness, learning through making and metaphors. I based these tools on the idea that to make is to learn, to make requires playfulness, and to play is to learn. Learning occurs in the making of things and is an active experience which helps create and share new meaning – a knowledge-by-encounter that is intuitive and holistic. Playful Triggers facilitate people to make via playing with artifacts that make them wonder. Moreover, they extensively use metaphors to foster the capacity to see “from perspectives previously inaccessible” (Randee & Mealman 1999) and are “sufficiently ambiguous to permit latitude in that focus” (Clegg & Gray 1996).

Although I originally designed Playful Triggers to elicit collaborative practices within organizations, they have been since adopted in a variety of contexts, ranging from corporate workshops to interactive art exhibits⁹ (Loi 2007), co-design activities (Viller et al 2006), interviews to prompt communication among individuals belonging to the same discipline (Akama 2007) and pedagogical settings (Loi and Dillon 2006).

⁹ Refer to <http://www.darialoi.com/myo>



FIGURE 3 Examples of Playful Triggers (Loi 2005)

COMPLICATION(S) AND IMPLICATION(S)

In this section I would like to discuss further issues related to the context (*where should they be deployed?*), time (*when?*), audience (*who are the most appropriate recipients?*), producer (*who should design/deploy them?*), content (*what type of 'data' can they provide?*), soul (*are they rational or ambiguous?*), purpose (*what is their function?*) and form (*how should they be designed?*) of the tools I overviewed and introduced in this paper.

Context. Cultural Probes were initially developed for domestic settings (Gaver et al 1999) but they soon expanded to a myriad of research fields, from sensitive settings (Crabtree et al 2003) to urban computing (Paulos and Jenkins 2005), demonstrating somehow the 'malleability' of this approach and its relation to context. These types of tools seem to be adaptable to many fields of inquiry and beneficial within a variety of research contexts. However, it is crucial one remembers that the relationship between them and their context plays a fundamental role, as these tools should be designed bearing in mind the contexts where they will be employed – in brief, a 'one size fits all' approach does not work. This has great implications within environments that have short deadlines and require fast turnovers, as this contextual-design requires more time, care and effort (and funding).

Time. Less has been discussed over the years on when, during a given process, these tools seem to work best. Some feel that these tools should be used during the initial stages of a new project (Stalker-Firth 2007). Others employ them "after an interview session with each participant" (Project Nightingale 2005) or "when you need to gather information from users with minimal influence on their actions, or when the process or event you're exploring takes place intermittently or over a long period" (Gaffney 2006). I have employed these type of tools in different 'phases': to break the ice at the start of an interview, to follow up or deepen my understanding of issues discussed in a previous interview, to co-generate ideas, and to prompt creativity during workshops. Context context context – when a probe should be used is strictly related to where (and why) it will be used.

Audience. Not everyone finds these tools as engaging as one might think as not everyone is the same nor interacts similarly to similar situations. Again, context is key but one has to realize that these are not magic toys: sometimes they simply won't work, or better – they won't work the way one anticipated. In addition, they will fail in producing meaningful and deep result when used in isolation from other ethnographic tools, to get “quick and dirty insights” – quick and dirty approaches often produce quick and dirty outcomes.

Producer. When I discussed the possibilities offered by what I termed ‘primitive probes’ I implicitly opened up questions around who designs or should design these tools. Can everyone design and employ them? Purists would firmly shake their heads, yet the ‘probes wave’ seduced so many that the question feels almost redundant, as practice demonstrated that possibly everyone can. However, there are some questions around quality that I firmly believe should be asked, as the quality of a tool is strictly related to the capacity of its producer to design its content and form. This is where several issues start, as some can design the content and some can design the form of these tools but quite rarely a researcher can manage both well. In academia as in industry, they are often designed by multi-disciplinary teams instead of individuals, which appears like a great way to solve the issue of content/form design. However, the tensions typical of multi-disciplinary work (due to multiple epistemological and ontological orientations) are often evident in the design process adopted for creating these tools. In the industry this tension, together with tight deadlines and multiple interpretations of where a project should go, act as in *interfering agents*, complicating how the tools can be designed and effectively deployed.

Content. The open-ended and qualitative nature of these tools somehow ‘seduced’ several HCI and non-HCI thinkers/researchers with the promise of creative and deep results. Representing an interesting complement to traditional ethnographic tools, Cultural Probes and similar tools can bypass some limitations of traditional and prescriptive research methods, acting as effective communication tools and fostering innovation and creativity. However, while the warm information¹⁰ they produce is considered highly valuable by some researchers in some contexts, these tools are seen by others as unrepresentative of objective data, producing un-scientific material which is complex to filter, interpret and use. Gaver et al (2004) clearly embrace the “incomplete, unclear, and biased” nature of probes. Others are less impressed. Dourish (2006) stresses that within HCI research these type of techniques “are often proposed as alternatives to “full” ethnographic methods when time is at a premium” yet “clearly fail to capture what an ethnography captures, given that they lack the coupling of analytic and methodological concerns”, and “locate the topics of interest outside of the relationship between ethnographer and subject”. I believe that when these types of tools are adopted for ethnographic research they should never be used in isolation – as mentioned earlier, the use of these tools in isolation from other ethnographic tools will provide quick and dirty insights that are likely to develop into quick and dirty outcomes.

¹⁰ i.e. all those qualitative aspects such as personal feelings, insights, sensations, attitudes and ways of being which cannot be measured.

Concurrently, I believe in the effectiveness of the warm information these tools can produce when they are purposely designed, deployed, and analyzed.

Soul. Dourish (2006) points out that Cultural Probes are not simply “discount ethnographies” but more possibly “rejections rather than variants of ethnographic inquiry”. Gaver et al (2004) point out how Probes “embodied an approach to design that recognizes and embraces the notion that knowledge has limits” – an approach that values “uncertainty, play, exploration, and subjective interpretation as ways of dealing with those limits”. And this is where a first problem starts, as this initial artist-designer vision got increasingly rationalized-through-adoption by using probes to produce ambiguity-free data. While “inspiration, not information” was the motto evident in Gaver et al’s 1999 paper, their 2004 article shows palpable frustration: “people seem unsatisfied with the playful, subjective approach embodied by the original Probes, and so design theirs to ask specific questions and produce comprehensible results. They summarize the results, analyze them, even use them to produce requirements analyses”. As soon as the artist-designer vision has become main stream, over-rationalisations of these tools has diluted their initial appeal. I agree with Dourish’s (2006) portrait of ethnography, but I must admit that I am not totally convinced that the only way of looking at probes is to conceptualize them as rejection of ethnographic inquiry. Possibly that was among original purposes, but what are we left with now that probes ‘invaded’ some many realms? The artist-designer reminded us that “uncertainty, play, exploration, and subjective interpretation” can be valuable assets within ethnographic inquiry. I strongly believe that probes, embodying such *unscientific* features, can enrich data when and if used alongside more traditional ethnographic methods.

Purpose. In contexts where time is at a premium probes are used as alternatives to data collection and often morphed into fancy-looking questionnaires, where notions of uncertainty, play and exploration might be evident in the packaging or in the fact that participants are given ‘something playful’ to interact with – a fun activity to prompt further data to be expressed in a follow up interview. These are cases where the artist-designer vision fails as such a vision is used to ‘dress up’ conventional tools instead of engaging with knowledge creation and on how it can be challenged through creative endeavors. Somehow the by-probes seduction morphed into a seduction related to how data can be represented.

Form. When the above occurs, researchers adopting probe-like skins for their tools often forget an important aspect of Cultural Probes: their design. While the initial probes that seduced so many were based on aesthetic control where aesthetics is an “integral part of functionality” and pleasure “a criterion for design equal to efficiency or usability” (Gaver et al 1999) the probes of today are often poorly packaged replicas that often fail in demonstrating the designerly care so evident in their ancestors. Probes seduced many but it appears that not everyone has the aesthetic and design language to design probes.

CONCLUSION(S)

To conclude, I would like to re-emphasize some lessons-learned to prompt reflectiveness around discussed issues:

- a 'one size fits all' approach does not work – context is key;
- when a tool should be used is strictly related to where/why it will be used;
- these are not magic toys: sometimes they simply won't work, or better – they won't work the way one anticipated;
- the quality of a tool is strictly related to the capacity of its producer to design its content and form;
- these tools produce warm information which can be equally highly valuable or completely unrepresentative of objective data – their value is related to one's view of what research is, should be and represents;
- there is something important to be learned from the artist-designer – these tools can enrich data when used alongside other ethnographic methods;
- these tools should be about engaging with knowledge creation and on how it can be challenged through creative endeavors; and
- they should be carefully and purposefully designed.

In this paper I provided a lens to read how Cultural Probes have been adopted since their inception, proposed three new tools, overviewed a number of issues associated with the *probes-approach* and listed some associated suggestions. Far from being an exhaustive analysis or a prescriptive proposition, this paper aimed at reviewing some learned-lessons, highlighting important issues that have been perhaps taken for granted over time, while we were all so busy playing with a new exciting possibility called Cultural Probe.

Artists have the capacity to make a lasting positive impact on people's lives by helping them to see for themselves the dignity, beauty, and sacredness of the activities of their everyday life: the creative spirit, a powerful agent of transformation that lies within everyone. France Morin, 2000, p. 7

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