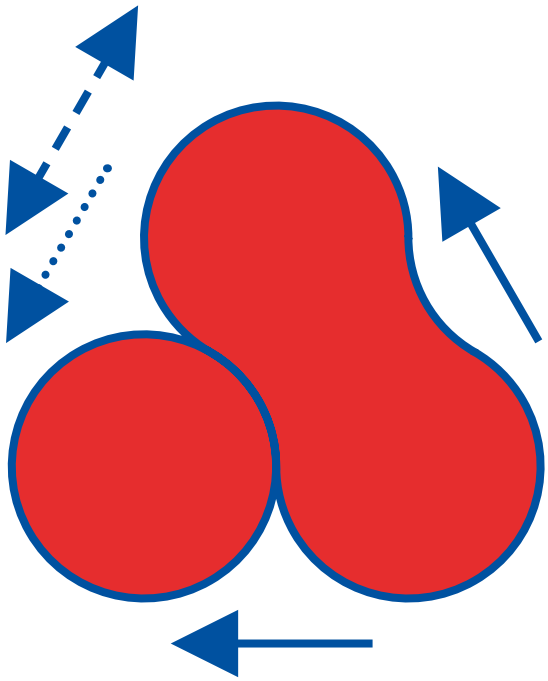
BEYOND DESIGN ETHNOGRAPHY

HOW DESIGNERS PRACTICE ETHNOGRAPHIC RESEARCH



Edited by Nicolas Nova

CONTENT

HEAD – Genève (Geneva University of Art and Design) is proud to present its publication Beyond Design Ethnography: How Designers Practice Ethnography Research edited by Nicolas Nova, Professor within the Masters program in Media Design. Although discourse on the origins of design varies according to the different historiographical approaches, it is clear that for several decades now the design research community has been gradually setting out its own markers in the establishment of a scientific discipline. Through stimulating dynamics that combine interdisciplinary approaches and design's constituent elements to develop disciplinary legitimacy, this book represents a new milestone in the short history of design. Starting with the concept of ethnography in its postcolonial sense, it proposes a holistic approach to the added value of that which could be called "ethnographic praxeology" in design.

We wish to take this opportunity to express our gratitude to Nicolas Nova and to the authors for the complex intermixing of fieldwork, theoretical reflection and graphic representation of all this combined knowledge. Our thanks go to the research team, comprising Lysianne Léchot Hirt, Professor, and James Auger, Anab Jain and Jon Ardern, visiting lecturers at the University. Our gratitude also extends to Fabienne Kilchör, a member of the research team, and to Sébastien Fasel, both former students at the University and now regular contributors, for their remarkable graphic design work and data visualization.

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PREFACE

What do designers mean when they say they propose to do "ethnography" or "field research" as part of a project? The answer in the pages that follow seems to be: many different things. Having explored what designers actually do, as well as what they say they do, this intriguing book finds that designers bring a wide variety of attitudes, methods and tools to the task when they observe, study and analyse people. Their reasons for doing ethnographic research are as varied as the ways that they do it. Some study people in order to fix a bug in a product, service, or system. Others glean inspiration for future product ideas that are not yet a formal project. A third group uses people-research to question basic assumptions about what innovation, efficiency and usefulness actually mean.

If the motivations of designers vary, so, too, does our understanding of who is the subject and who the "object" in this kind of research. In a series of original case studies, the book reveals a rich variety of relationships between the designer, the people she is studying, and the social contexts they inhabit. This kind of research, we learn, is not carried out by an expert in a controlled environment, such as a lab: It's an open-ended collaboration in which the question at issue is often contested. Fixed beginning and end points are also rare.

The picture that emerges is a far cry from the early days of industrial design. A generation ago, it was regarded as radical even to think about the user of a proposed product; the designers's job was to make an artifact attractive and usable. Because the "human factor" was limited to physical ergonomics, it was plausible to describe the design process as being rational, and systematic. Today, when the social contexts of use, and the states of mind of the user, have also to be considered; and when the object of design might be a service that itself evolves during use, and through time; well, it no longer makes sense to describe design as a formal scientific activity.

The expansion of its scope of has been accompanied by a new vocabulary of design research. Its language now includes words like mood

boards, customer journeys, activity diagrammes, personas, and opportunity maps. The increased presence of digital technologies in everyday life – and the explosive spread of mobile devices – has added temporal and geographical fluidity to the design "space". By a pleasing irony, however, the very intangibility of ethnographic research has given a renewed significance to artifacts: so-called boundary objects have become valuable tools for starting a conversation among diverse groups of people. Making things, rather than just talking about them, has also become a powerful way to connect people to the mission of a project – and to each other.

The enlarged scope of the designer's field of enquiry is accompanied by challenging new questions – especially ethical ones. By what right does a designer observe, record and share the details of someone else's life? Who benefits from her research? If the project generates profits, how are they shared? These questions are not new in other fields – such as medicine, or documentary film – but they have received too little attention from design until now.

The variety of new and open questions raised in this book are the main reason it is not a how-to manual. Its focus, instead, is on an exploration of how particular designers work in specific contexts. We are left with an intriguing and timely challenge: is there such a thing as a designerly way of knowing people – and, if so, how can this work be practiced in a more mindful way?

John Thackara, Director, Doors of Perception
Ganges (France) May 2014

FOREWORD

"We started to observe people, not objects or technology. We observed and documented needs & wants, moods & modes, behaviors, social ties, lifestyles. We then spent hours distilling internal and external trend forecast reports, digging and hand-picking ideas from past vision projects, gathering inspiration, and interviewing experts and stakeholders company-wide. Then we discussed. A lot. The often small, and sometimes big moments of everyday life. We built and illustrated moments we believed were the essence of connecting, showing off, working, and exploring. All these moments were consolidated into structured scenarios and storyboards. Then we designed in parallel products, colours and materials, and User Interfaces while continuing scripting and storyboarding the four stories. [...] ideas and designs were shared, evolved and incorporated instantly. Then we went into an iteration and assessment cycle while keeping an eye on the looming deadline." Raphaël Grignani[1]

[1] www.grignani.org

The excerpt above is from a blogpost written in 2008 by Raphael Grignani, an interaction designer who was working then for the Advanced Design team at Nokia Design. To contextualize the post, it represents a short description of how he and his colleagues worked on producing their vision of the future of mobile communication. The concepts they developed were to be shown at Nokia Strategy Forum – an internal event for Nokia top 100 managers about potential visions for the near future.

The structure of the excerpt roughly mirrors their design approach. It begins by observing and documenting what people do in everyday life, and comparing such insights to social and technological trends in order to highlight opportunities, identify pain points and other creative triggers. This material, as well as the conversations that it inspired, contributed to the design of various prototypes of mobile devices and applications, along with introductions to make them comprehensible to an audience of company executives.

All designers will not necessarily recognize themselves in the content of this project, but it serves to describe a common design approach; one that by using observation and interview techniques is dedicated to understanding the people for whom the designed objects are meant. The underlying assumption here is that a thorough comprehension of the subtlety of peoples' lives, habits, motivations and problems may lead to better products, or at the very least more relevant design propositions (Thackara, 2005). The literature about this topic remains however vague when it comes to defining how designers actually deploy their "designerly" ways in an ethnographical sense.

The willingness to focus on people has been encouraged by an increased interest in social sciences by designers. More specifically, in the last thirty years, ethnography has come to play a prominent role in design communities – especially in a digital context and user-centered design communities – to such a point that it has inspired the notion of "Design Ethnography". In this book, we take it as an umbrella term to designate all kinds of attitudes, methods and tools used by designers when they observe, study and analyze people during the design project, in order to gain understanding about their behaviors, habits, expectations and fears. The term encapsulates the various ways designers use field research techniques – more or less based on ethnography – in their everyday practice. Anthropologists and sociologists are also becoming interested in explaining how their perspective, methods and work can be helpful to design. For the purposes of this study, we have, however, chosen to limit ourselves to how designers have appropriated field research[2].

[2] For social scientists, this might be a limited view of their work but it is what most designers chose as relevant, leaving other aspects aside.

In this book we will focus on understanding how media and interaction designers use and repurpose such approaches and how they integrate them into their design work. The methodology we have adopted is also ethnographic, as we have conducted a series of interviews, observation sessions and workshops with designers in the field of interaction design, HCI (Human-Computer Interaction in the remainder of this book) and new media. Our own research has been developed in three steps, with an aim to producing a description of design ethnography.

The first two chapters introduce the notion of design ethnography within a historical perspective. Chapter 1 situates design ethnography in

the contexts of design theory, design history and design research in order to understand how users have become central to design thinking.

Chapter 2 describes how interaction designers became interested in research on people and its related literature. Readers interested in understanding the approaches designers put together might directly jump to Chapter 3, which presents the results of our investigation. The central part of this book introduces a visual analysis of a series of interviews with international designers that actually practice design ethnography. It describes various models that emerged out of our research study. A set of case studies written by practitioners also exemplifies these methods. The final chapter concludes with different tools to help readers apply such methods in their own practice. Finally, the book provides the reader with a short lexicon of the common idioms used in this domain, along with a comprehensive bibliography.

Nicolas Nova

USERS IN DESIGN

HOW DESIGN HISTORY, THEORY AND RESEARCH ACKNOWLEDGE THE ROLE OF USERS

Design ethnography has for the last two decades become a habit or even a "mantra" for corporate R&D departments. Ethnography-inspired methods or approaches are widespread amongst designers, especially in design fields related to digital technologies. User-centered design has, amongst other disciplines, fostered the appropriation of ethnographical tools and vocabulary that have now become so common and sometimes so loose that criticism now comes from the quarters of academic anthropologists and designers themselves. Design ethnography is not devoid of empirical biases and theoretical blind spots, especially when it comes to clarifying how designers make use of the data, images, impressions they have produced during their field research. With the present publication, our ambition is to shed light on this "black box" by empirically analyzing the ways in which the fieldwork is conducted and translated into design projects. We have therefore concentrated our attention on designers who understand their practice as a speculative and creative activity.

We will begin by showing how the topic "user" has only recently found its way into design history and theory, and will explore its manifestations in design research. Amongst the many contemporary debates in design research, the one about creation as research opens up a promising avenue of reflection. The ethical and political dimensions of user-centered design, the apparently strong contradiction between design as creation and design as service, the question of the designer's responsibility and freedom will be discussed. Finally, we will argue in favor of a speculative-creative way of constructing design ethnography that can be truly relevant for designers.

A BROADER UNDERSTANDING OF DESIGN

Returning to the history of a phenomenon in order to describe and understand it is a common epistemological attitude. The following chapter will retrace the historical emergence of design ethnography in the last decades, only to highlight the problematical contradictions that have arisen because of the very success of these "field" approaches. We will now take a step back to try to understand how the topic of the "user" or of the "people" slowly emerged in design historiography.

Design history is a well-established academic discipline, at least in the English-speaking scholars' community. Journals, conferences, canons and controversies have formed a rich landscape of research and publications[3] that is the basis for contemporary design history teaching in most of design universities or schools. Discussions on the scope of design history, besides the history of techniques, economical history, art and architecture history are widespread. Amongst academics, design history has long ceased to be reduced to clichés of linear tales about male European/American heroic characters or of success stories featuring remarkable artifacts. As a result of this evolution, the field continues to expand both chronologically and geographically in design history publications, as in the recently published The World History of Design by the famous academic author, Victor Margolin (Margolin, 2014), as well as in the more mainstream publications which produce pictures of Neolithic tools as parts of our design heritage[4]. The users' perspective is however rarely considered in design history books.

Of course, it would be unfair to not mention the designers who did pay attention to the users of their creations, especially the more famous ones who played a significant role in enrolling the question of usage and users in their reflections. For instance, Victor Papanek, Ettore Sottsass, as well as Enzo Mari, are well known for their strong social commitment. Users were important to these major designers. But this happened in design practice and in design books and writings by designers long before it was acknowledged by design history.

[3] Amongst the most famous academic publication on design history, see: Journal of Design History, since 1988, Oxford University Press. Design Issues, since 1984, MIT Press.

[4] See for instance the massive three-volume Design Classics by Phaidon, 2007, including Chinese scissors as one of the first examples of design.

DESIGN HISTORY

Two recent publications on design history are especially interesting because they question and discuss the construction of design history, and in so doing open up their perspective by taking non-designers into account. The most recent one is Alexandra Midal's Design: Introduction à l'histoire d'une discipline (Midal, 2009). Historian and curator, Midal is also a professor and researcher at HEAD – Genève (Geneva University of Art and Design).

Her essay addresses design as a discipline rather than a practice. For her, design is to be understood as the simultaneous result and construction of social and political ideas. She analyses the traditional narrative, as exemplified by the pioneering work of Nikolaus Pevsner (Pevsner, 1936) and Siegfried Giedion (Giedion, 1948), as imprisoning design history within the frame of architecture and art history. She points out how these authors ignored the role played in the 19th century and the Arts & Crafts Movement by actors who conceived, developed and disseminated design as a political program for everyday life in industrialized democracies. Midal focuses on American feminist authors of the 1870s and on European heiresses of the 1920s[5], and analyses them as the ideological source of design practices, projects, products and, above all, ideas.

She shows how the rationalization of home, through ergonomic advice about kitchen and apartment organization, is linked to political values, since the concept of a modern housewife organizing her home logically in order to cope with the work without the help of slaves or domestics was supported by abolitionist feminists.

The author outlines a history of design that borrows neither its epistemology, nor its methods, from art or architecture history. She adopts a cultural perspective and analyses how design responded to the increasing complexity of modern society by constructing and shaping central political values. She demonstrates how the obsession with hygiene and security served as the background of the Streamline[6] movement in the 1930's and stresses how this style was one of the most popular ones ever, adopted by the average American housewives and car drivers throughout the country. She then goes into detailed explanations about the ideological positions of Anti-Design[7] in the 1960s. Her general aim is to disentangle design history

[5] Catharine E. Beecher (1841), Christine Frederick (1913) a.o.

[6] Streamline is the name of a famous American design movement characterized by an intensive use of fluid shapes inspired by aerodynamics. Raymond Loewy is considered the most influential designer of the streamline movement.

[7] Anti-Design sometimes also called radical design, designates a specific moment in industrial design history, mainly in Italy in the 1960's. Parallel to other cultural movements strongly criticizing capitalism, such as pop art or the French situationism, anti design is opposed to common modern values such as industrial production, standardization and ergonomics. Above all, it seeks to overcome the market utility of design by responding to the true needs of people. The major designers in this movement are Ettore Sottsass, Joe Colombo and groups such as Superstudio and Archigram.

from its lazy reduction to applied art history and contribute to releasing the discussion on the intellectual and cultural impact of design.

Although Midal does not explicitly refer to user or user-centered design (and for some reason does not pay much attention to the practical aspects of design as a social phenomenon), her approach is useful in understanding how contemporary design historiography tends to root design within conceptual and political contexts that exceed the history of objects. Underlying the political assumptions that paradoxically shaped design from its very origin (design as a socialist project within a capitalist production scheme), she raises critical questions. For instance, design goes far beyond producing objects, it aims at producing new forms of life, or new concepts – in this respect it is not very far from philosophy. Other historians open up similar discussions from a very different point of view, introducing the question of the user more explicitly.

From a different point of view, Kjetil Fallan (Fallan, 2010) reflects upon design "history" as opposed to "design" history, and fights the common idea that it should first and foremost be useful for design practice. He pleads for design history, a discipline of its own, that would be useful to all, including designers of course, but also historians, philosophers, citizens. He presents a very broad enquiry in three parts into 20th and 21st century design history, focusing first on an analysis of historiography, then reviewing possible methodologies (and their theoretical backgrounds) and finishing with a long reflection on epistemology. In the same way Midal does, Fallan shows that design history has more to do with the history of techniques and economical history than with art history. This leads him to argue that the object of design history is "the seamless web of sociodesign" (Fallan, 2010, p. 55), which he frames in four approaches, borrowed from other disciplines. Social history of technology[8], actor-network theory (ANT[9]), script analysis, and domestication are the methods and theoretical concepts reflected upon by Fallan. In all four suggestions, the author insists on the interplay between design and "the social", demonstrating convincingly that design must always be understood as a form of co-design. To support his claim, Fallan discusses the concept of modernism as opposed to modern and modernity, developing the idea that design ideology (modernism) and design practices (modernity) mutually constructed each other. He therefore

[8] Fallan quotes here the seminal work by Thomas Hughes, Ruth Schwartz Cowan or Wiebe E. Bijker.

[9] ANT was elaborated by Bruno Latour, Michel Callon and John Law since the mid 1980s.

sheds new light on design movements that were largely discarded from mainstream design history and advocates a dynamic history of design that would describe from empirical points of view the succession and accumulation of different paradigms. This leads him to strongly reject the mythic or heroic approach to design history as non-scientific, and to plead for a history that does not erase the role of non-designers when describing the phenomenon of design. For him, design processes must be understood as a constant dynamic negotiation within complex networks of actors that largely exceed the community of designers themselves. Fallan shows that the real object of design history is design culture.

In very different ways and with very different aims, both Midal and Fallan reject the idea that designers alone are responsible for producing design and the concepts they inspire. Their critical analysis of mainstream design history opens up new understandings of design and of its strongly social and political base. Although neither explicitly concentrates on the role of users, it is clear that both historians develop a vision of design that embraces much more than designers' intentions and objects.

DESIGN THEORY

In other words design theory, that encompasses writings and essays that analyze design as a specific thinking process and discusses the values at stake in this worldview, have taken the user into account much sooner than design historiography. Since the beginning of the 20th century, many designers and authors have stressed the fact that design should be understood as a conception and production process, but also as a social affair, implying people.

«As Yves Michaud, a French philosopher and former director of Ecole nationale supérieure des beaux-arts (ENSBA) in Paris, puts it, design was never a pure aesthetic-industrial problem, but always an aesthetic-social problematic (Michaud, 2013). Most design theoreticians have since the middle of the 20th century introduced a broad understanding of the social and political implications of design. For instance, when László Moholy-Nagy, a major Bauhaus figure in the 1920's fled Europe before World War II, he established the New Bauhaus design school in Chicago, where he pursued his own

artistic career in parallel and published many texts and essays theorizing his views on design, amongst others "Design for life", which became one of his mottos (Moholy-Nagy, 1947). Another example is Lucius Burckhardt, a sociologist specialized in architecture and town planning, professor at the famous Ulm School in 1959 and in the Architecture Department of the Federal Polytechnic School (ETH) in Zurich through the 1970s and 1980s, as well as chairman of the Werkbund[10] and professor in many German art and design schools, including the Bauhaus University in Weimar in the 1990s. Burckhardt is a major contributor to the social theory of design in the German area. He describes design as an ensemble of relations between human beings set within an environment (Burckhardt, 2012). In France, Abraham Moles, engineer and philosopher, was a specialist in communication theory and a professor at the Universities of Ulm and Strasbourg, as well as in North and South America. He was interested in innovation processes and creativity, in graphic design and in the system of objects. His view on the creativity of designers is upheld by the belief that everyday life and everyday people must be taken into account (Moles, 1970), using a method he names micropsychology, using "micro-scenario [...] to permit the analysis of micro-anxieties, micro-pleasures, micro-structures, micro-events or micro-decisions: the entire web of life." (Moles, 1986, p. 43). Last but not least, proposing an analysis of the mental gestures within the practice, Herbert Simon became one of the most recognized theoreticians amongst designers. A professor at Carnegie Mellon University, he was a specialist in psychology, sociology, cognitive sciences and philosophy of science. Deeply involved in artificial intelligence research, he published The Sciences of the Artificial in 1969. Re-printed and augmented many times, his general theory of conception applies to engineers, designers, architects and artists. It is based on a close examination of the paths taken in decision-making, and introduces key-concepts such as the definition of artifacts as interfaces linking man and environment – in other words design produces "things" that bind people to their social-technical-aesthetic contexts. He distinguishes between "knowing that" (natural sciences) and "knowing how" (sciences of the artificial) and introduces the concept of a satisfying solution (as opposed to true solution) in order to underline the dynamics of social negotiation that is at the core of every act of conception or creation (Simon, 1969).

[10] Werkbund means professional association. The Deutscher Werkbund, established in Munich in 1907, gathered craftsmen, architects, artists and industry patrons, amongst whom Hermann Muthesius and Peter Behrens. The Werkbund played a leading role in the recognition and promotion of design throughout Europe. In its wake, other professional associations soon developed in other countries.

In very different ways, Moles and Simon offer probing examples of theories that approach design practice as a system, a concept favored from the 1970s onwards and which must be understood within the general "linguistic turn[11]" of the period. Although they did not directly consider "users" as a topic, they described design in terms of projects, dynamics, negotiation, change, and thus implicitly took people into account as significant players in their system. Nevertheless these approaches failed to define the actual user as a complex human being, with a personal history, beliefs and fears. In parallel, their systemic and logical approach of design as a project failed to define the designer as a situated person within a specific personal, social and cultural context.

[11] This expression points at the historical moment (1970s) when intellectuals, especially in France and the United States, described and analyzed everything with paradigms derived from linguistics. The expression comes from the title of an anthology of analytical philosophy published by Richard Rorty, The Linguistic Turn: Recent Essays in Philosophical Methods, 1967.

For design, this theoretical moment of the 1970s and 1980s is especially significant because it sheds new light on the values upheld by Morris, Ruskin and the early Deutscher Werkbund in the very early years of industrial design. At the time, design was part of a socialist (or even Marxist) dialectic and was programmed as a means to accomplish socialist promises within the capitalist world. In the second half of the 20th century, the systemic approach of design regained in vigor, but the intention remained extremely abstract. The theories did not root themselves in actual observation or analyses of how design is socially learnt, accomplished, communicated on one hand, and taught, commissioned and rewarded on the other hand. Designers and users remained abstract concepts in system theories that did not yet take into account the real life of actual people.

THE ECLIPSE OF THE OBJECT AND THE RAISE OF THE ACTOR

Alain Findeli and Rabah Bousbaci brilliantly demonstrated how design theory evolved in the long term to include an increased interest for people (Findeli et Bousbaci, 2005). Educated as an engineer, specialist of László Moholy-Nagy, Findeli is the author of numerous texts about design theory, design epistemology and design research. In a presentation before the European Academy of Design in 2005, he argued that the focal point of every design model produced since 1850 had evolved from the object to the process to the actor. This idea has been commonly called "the Bremen scale" in the design research community – in reference

to where the symposium took place – and the communication was based on several schemes in the form of scales. The authors' intent was to understand in which theoretical backgrounds design research and design thinking were actually rooted. They reviewed over 1500 pages of publications that spanned more than a century and analyzed them with their students in Montreal. Their research focus was design models – how did the publications they reviewed explain design as an activity or, put in simpler words, how were design projects described and schematized. This pragmatic approach provided them with an empirical experience of design thinking "embedded" in the models, and led them to challenge the prevalent theoretical backgrounds. They discovered an evolutionary scheme that explains the chronology of design models and theories, starting from Leon Batista Alberti and leading to the 21st century.

This evolution clearly shows a progressive shift from aesthetic understandings and analysis of design (from the Renaissance to the early Modern movement) to a methodological-technical one (around the 1950s) to a contemporary model centered on psychological and social values (from the 1990s onwards).

As shown in the history of techniques, the birth of a new model does not imply the death of the previous one, and the general evolutionary shift observed by Findeli is to be understood as a symptom for the changes that affect our increasingly global understanding of design as a discipline. Reflecting upon the theoretical backgrounds at stake in the various steps of the Bremen scale, the authors demonstrate how the "object model" is theoretically dominated by aesthetics, the "process model" by the philosophies of science and technique and the "actor model" by ethics and phenomenology. This evolutionary pattern applies to the theories and models of the conception phase of the design process, and to the theories and models of the public reception phase of design. Hence the term actor denotes as much designers, design teams as it does clients, the public, and human beings. The authors exemplify how the methodological-technical approach of design process at the Ulm School, for instance, parallels the emergence of scientific marketing, and how early 21st century models of participatory design can be seen as running parallel to the trend of personal empowerment sustained by the advertisement discourse.

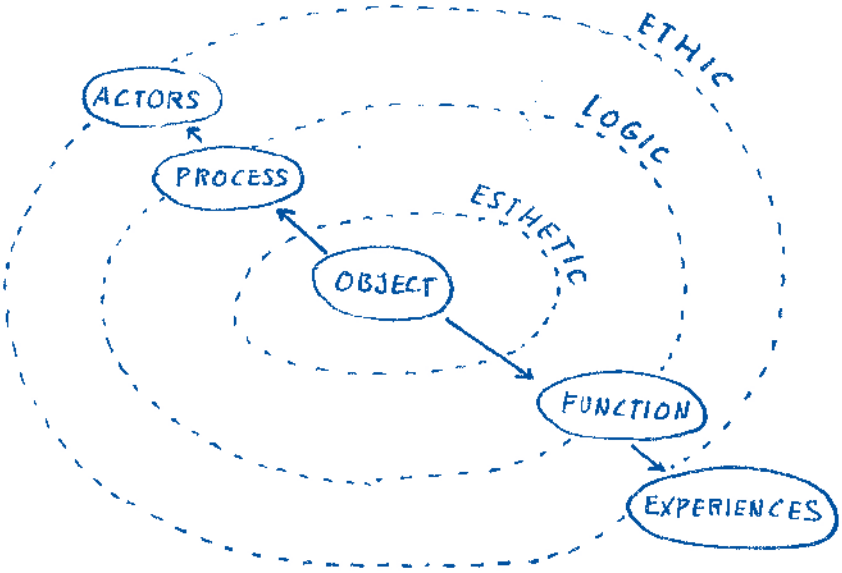


Figure 1: The Bremen scale (Findeli, 2005).

Contemporary design theory, even when it does not explicitly refer to users, largely accommodates an inclusive understanding of design that implies all kinds of actors (or stakeholders) that are part of dynamic systems that are constantly being reframed and reconstructed. The users are part of this blurred landscape, but often are seen as an abstract "entity". Using ethnographic methods in order to shape a more accurate description and understanding of the people involved, collaborative design, participatory design, user-centered design or user-experience design (UX)[12] have developed against this background. These concepts are discussed in detail in chapter 2 of the present book. But before closing this theoretical survey, we will discuss design research and the moral values at stake when including users within the process.

[12] The term User Experience was originally coined by Don Norman, Jim Miller, Austin Henderson in 1995.

DESIGN RESEARCH

As we have seen, both design history and design theory are currently undergoing profound transformations driven by the growing consciousness of design's social and political role. How does this trend manifest itself in design research? Clearly, design research is still emerging as an area of research subject to debate concerning its aims, limits and

standards. Let us focus on design research understood as research through design, or practice-based research led by (or with) designers in order to gain the knowledge and understanding that directly profits design practice (i.e. applied research), but also design theory and general intellectual activities (something closer to fundamental research). Christopher Frayling, former director of the Royal College of Art in London, triggered ample reflection on design research with a short paper that distinguished between research on, research for and research through design (Frayling, 1994). If we project Frayling's research concepts into chronology, we witness an evolutionary pattern similar to Findeli's Bremen scale within the general understanding of design research. Research for design and research on design did in fact historically precede research through design:

— Research for design is in this respect understood as the many researches, explorations and discoveries made by designers in order to improve their own practice, and this has existed since the beginning of design. Despite recurring discussions about the qualification of such activities as research, there is no doubt that designers have from the very start constantly pushed their own activities forward by searching for new materials, new constructive structures, new shapes. R&D departments in today's industries convey this principle further, framing it within more restricted fields of exploration that are narrowed down and pushed by marketing departments. Users are not taken into consideration at this stage within this kind of research, or they are reduced to numbers of consumers on the charts produced by marketing departments.

— Research on design emerged in the mid-20th century, when design became an object of historical, sociological and economic research. Historians, sociologists and other academics coming from social and human sciences have been discussing design, design projects and designers' careers in more or less rigorous or conceptually daring approaches. Today's multiplication of publications about design, books, magazines, webzines, clearly points to the increased legitimacy of design as an object of research for all kinds of other disciplines. As we have seen earlier, this field of research on design takes the user more and more into account, even if it does so in an abstract way.

— Research through design, which is much more difficult to define and happens when designers use their design skills within research processes, is the field of design research where the interest for users, usability and uses is prominent. Many authors argue that the designerly ability to quickly shape concepts into designs (schemes, sketches, models, prototypes) (Léchot Hirt, 2010) opens up new heuristics or even new epistemologies, and turns this research into a very promising field to explore and construct new knowledge. Although it most certainly happened in the past with isolated designers, this kind of research is the most recent one; it emerged around the 1980s–1990s together with the interest for user-centered design and is concomitant with the academic turn of design studies (design doctorates, design universities, design research fellows and grants).

Although a systematic analysis of how users are considered in design research publications remains to be made, the signs showing it is a rising concern have been consistent. Similarly to what we saw in design history and theory, an expanded definition of the scope of design research beyond the designer's drawing table or messy atelier must be made. Since research has to do with discovery, innovation and invention, it is almost inevitable that design research too considers itself as a social affair[13]. In research through design, researchers are used to considering design as "[...] going back and forth between project (from the designer's point of view) to experience (from the user's point of view), being a fundamentally contextualised activity articulating individuals and society within artifacts that can be read and understood only when they are included within systems that are collectively shared" (Philizot, 2013[14]).

But how does the design researcher address users, individuals and society? Clearly, ethical questions are at stake and design ethnography cannot avoid them.

[13] As demonstrated by Michel Callon and Pierre Lascoumes, Agir dans un monde incertain. Essai sur la démocratie technique. Paris: Le Seuil, 2001.

[14] Personal translation.

ETHICAL QUESTIONS

In the context of digital technologies, the field of design research, as described in the next chapter, is the most advanced as far as conducting research activities that include fieldwork oriented towards exploring the

users and their worlds. Milestone examples, such as the projects conducted at Xerox PARC in the late 1980s, opened the path to including anthropologists and ethnographers into the R&D departments in order to foster innovation, because designing new products by merely innovating on the aesthetic or technical levels no longer made sense. It became par for the course to trigger innovation by studying people and the (sometimes) unexpected ways they chose to adapt, adopt and perform appliances, devices, machines, and services.

How is this recent evolution in design research and people-centered research establishing its own ethical boundaries and stakes? How are these questions addressed (or not) by the academic and industrial communities involved? Literature on the topic can be divided into two main categories: books, review articles and symposium papers that critically reflect on design ethnography as opposed to those that only describe experiments, tools or best practices. In other words, there are epistemological and methodological debates, as well as mere instrumental approaches.

When critically discussing their own research practice as ethnographers within design research contexts, the authors involved in the first category seem to focus more on the rules and reasons of disciplinary integrity than they do on the psychological, social and political effects their research may have for the participants of the study (Bezaitis & Robinson, 2011). Typically, unlike current debates in anthropology and ethnography[15], the question of restitution of the "gain" made by the researchers collecting data from their "informants" is almost never discussed. Ethnographers and anthropologists work immersed in the communities they study, sharing everyday life for quite large periods of time. They observe, photograph, record, take notes, interview... and build out of these activities the hypotheses, texts and publications that construct their academic legitimacy. It is obvious that there are positive gains for them, symbolically, socially and economically. But what kind of gains are there for the people that welcomed the researchers, shared their everyday life, let them observe, photograph, record, take notes and interview? For a long period of time, the mere pride of participating in the general acquisition of knowledge, of contributing to the development of science, was considered a sufficient reward. But for some decades now, the ethical stakes of exploiting the knowledge and habits of groups of people

[15] In health research, in criminology and victimology, as well as in anthropology, the question of how and to whom knowledge restitution must happen is the subject of many symposiums and scientific publications.

(that are often socially, culturally and economically fragile) in order to write a PhD thesis or gain a tenure position in the academic field are no more eluded. The very sustainability of research activities is matter for concern. Therefore, anthropologists and ethnographers have developed discussions and practices of restitution of the gains obtained during the fieldwork. No simple answer or best practice appears as completely satisfying and applicable to all situations, but at least the debate is taking place, especially in postcolonial studies and in French anthropology. Such a debate is not yet to be found within design ethnography research, including in commercial or corporate contexts, where the moral issues raised by field research are just as acute. When ethical discussions do take place, the literature on the topic tends to focus more on the risks and benefits for designers and design, than it does on the users or society as a whole.

THE RESURRECTION OF THE DESIGN OBJECT

Traces of other debates, maybe less ethical than epistemological, also question the very usefulness of design ethnography approaches for design. Harvey Molotch addresses a first critique when pointing at the tendency in sociological and ethnography research for design to be insensitive or ignorant of the material and aesthetic quality of design productions (Molotch 2011). Molotch is a sociologist specialized in qualitative methods and interested in what he calls environmental sociology and sociology of the object. He blames the influence of Pierre Bourdieu for the sole focus on objects as class signifiers to the detriment of the physical qualities and actual uses of the objects. Adopting a Latourian perspective, he proposes to consider the object as a material and social confluence linking people to their cultural contexts. Following a Gibsonian avenue[16], he introduces the concept of affordance as a two-sided entry point for fruitful ethnographic design research. "Getting intellectual access to affordances – what turns up whom and when with what – enables identification of similarities and differences of peoples across time and place. Such understandings also, of course, work the other way around: Knowing the cultural features of affordances makes the designer more likely to come up with a viable artifact" (Molotch, 2011, pp. 103–4). Molotch favors the use of objects in

[16] Psychologist James J. Gibson introduced the term affordance in the mid-1970s in order to designate the possibilities of action inherent to the relation between a person and an environment. Designers have adopted a more restrictive understanding of the term to designate characteristics of the objects that trigger reaction from the users.

sociological research; they are convenient for starting a conversation with people or triggering behaviors that can be observed. And he underlines how, beyond users and usages, the objects' potentiality (affordances) are central. Good design affords good research would be another way of putting it. Ethically, the stake is in the hands of designers: they are the ones able to get inputs in order to "come up with a viable artifact" and the ones who enable "intellectual access to affordances" through their smart design. Following Molotch, design ethnography should pay more attention to designing interesting objects as conversation pieces[17]. The design object should regain a more central role.

Other critiques of design ethnography come from theoreticians and designers that are more inclined to defend an artistic approach to design than a rationalist one; a definition that stresses the central role and responsibility of the designer as thinker and creator, not as problem-solver or applier of others' theories or simple actor amongst a larger network. To such critiques, user-centred design is a deceit; both because it deprives the designers of their initiative and responsibility, and because it postulates a unique teleology for design, progress. For instance, Critical design[18] is a significant design movement that strongly questions mainstream design values. The idea that design's aim is to provide comfort and help us inhabit the world more efficiently or more smoothly is rejected by critical designers in favour of design that makes us think and debate. Critical design is speculative, dark-humoured and disrupting. Based in schools, galleries, symposiums and publications, critical design is not a kind of sub-art, but a new way to vividly imprint critical thinking within design products and projects[19].

It is therefore crucial to discuss how the designers who define their practices as critical design invent personal ways and tactics within their research to gain knowledge about people. Design ethnography conveys a certain idea (or ideal) of the user that is challenged by critical designers. In their speculative approach, critical designers seek to identify contemporary debates and emerging questions, closely studying several contexts in doing so. Rather than simply choosing a thematic from their individual preferences, they read scientific and sociological publications, observe people and uses, and get acquainted with complex visions of today's realities before they decide to focus on a futuristic problematic.

[17] Conversation pieces was the name given in the 18th century to a pictorial genre that later became related to unusual objects placed at the center of the table in order to start conversations amongst guests.

[18] See www.dunneandraby.co.uk, a funny FAQ about Critical Design by Anthony Dunne and Fiona Raby, founders of the movement.

[19] DesignArt was the name given by Alex Coles to the productions of designers dedicated to the elite market of small series or unique objects. Although critical design is also very distant from mass-market design, it has nothing in common with designArt.

Using their "field" material, they then inquire how design would usefully cope with this future situation, not looking for applicable solutions, but for propositions that trigger social, cultural and political debate. Critical design produces exhibitions and publications, objects and installations that generate ideas, not industrial production. The critical design exhibitions or books which are the results of the research become in turn artifacts upon which further dissemination of research can be lead, further problematics can be elaborated, further social and cultural contexts of observation can be constructed. The craft of the critical designer lays precisely in her ability to design tools for thinking in the form of interesting (or beautiful) design objects.

Sometimes also called design fiction (Bleecker, 2009), which directly refers to the expression "science fiction", critical design however is far less popular as a genre than Sci-Fi books, movies or TV series. The debates triggered by critical design projects or exhibitions seldom happen outside the circles of educated design and contemporary art amateurs. Some critical design projects did in fact raise mass media discussion[20], but most of the exhibitions and publications are not widely distributed. Critical design approach towards users nevertheless opens interesting perspectives by inventing unorthodox tools of observation and data gathering and paying attention to unexpected behaviors and people.

The question of the material, formal and aesthetic qualities of design within research is also central to another recent design research debate, the one about creative research in design (Léchot Hirt, 2010). First introduced in the fine arts field, the identification of creation with a research activity forms the base of diverse debates: epistemological ones (Findeli & Coste, 2007; Gosselin & Le Coguiec, 2006; Bruneau & Villeneuve, 2007; Danetis, 2007; Borgdorff, 2006 and 2009) and pragmatic ones[21]. In design, creative research can be seen as a way to push forward gifted designers able to generate innovative proposals that must be convincing not only from an intellectual perspective, but also from an aesthetic one. For example, the Norwegian Artistic Research Fellowship Program supports artists and designers that consider their creative activity as research and the list of graduates shows artists coming from all disciplines, fine arts, applied arts, music, photography, etc. The Western Switzerland Network for Art and Design Research

[20] See for instance the Audio Tooth Implant project by designers James Auger and Jimmy Loizeau, that triggered intense media attention in 2001. www.augerloizeau.com

[21] The national entities that fund research have been introducing artistic research within their lists of disciplines over the last decade. Art and design departments in universities, as well as architecture, dance, music and theatre departments have been introducing artistic doctorates or practice-based PhDs in their curricula. International associations of art and design schools (Cumulus, ELIA) have repeatedly kept the topic high on the agenda.

explicitly says that the production of art and design research of high quality cannot be distinguished from the production of art and design of high quality. In other Scandinavian countries, as well as in Canada, the UK and France, design research is also acknowledged as creative research. The fact that some authors formulate strong doubts about the rigor of this kind of research will not be discussed here. What is to be retained from creative research in design for our reflection about design ethnography is the central value that such research attributes to the plastic, formal, material, aesthetic qualities of the artwork or of the design artifact. Once again, the skill of the designer-researcher is to be able to conceive interesting (or beautiful) design artifacts in the research process. For creative research, designerly ways of knowing (Cross, 2006) cannot be bad or old-fashioned or boring: they have to be designerly convincing.

Such creative research is largely indifferent to or simply ignores the user perspective and design ethnography. A designer who is focused on creative research could nevertheless become inspired by the unconventional ways of shaping field research and gathering data that are actually developed by designers, as is the case in speculative approaches that were encountered amongst designers participating in the project upon which this book is based.

In the following chapters, we analyze different positions taken by designers within the design ethnography research process. We discover the dialectic play where designers balance their beliefs in scientifically gathered data with their preferred creative attitudes. The more positivist the designers feel about the "truthfulness of the data", the more open they might be to their ergonomic, rational use and the more comfortable they might feel to take them as starting points and frames to a deductive process. On the other hand, the more constructivist the designers feel about the quality of the data and the entire design ethnography process, the more indifferent they are about the data or, symmetrically, the more open to their creative and speculative use (for instance using only anecdotes as starters for inspiration). Field material and data are used at different moments and for different purposes within the design process; they can be mere creative triggers for inspiration, they can delineate creative patterns to be imitated or they can demonstrate creative processes to be applied.

BEYOND A SIMPLISTIC OPPOSITION

At first glance, design ethnography and "creative design" seem opposite, the first being led by a scientific-utilitarian approach and the second responding to the individual desire of the stand-alone designer. However, in spite of this too simplistic opposition, many designers have been working in the grey area between the poles for roughly three decades now and express a need to discard (some of) the rigidity of scientific methods and regain the power to initiate design projects from a (more) subjective point of view. This could lead design ethnography to a possible re-design supported by this new pragmatic approach. Our own field research for this book as well as the essays designers wrote for the project show that the more creative and speculative the design, the more unconventional and watchful for details the research must be. The multiple ways of appropriating ethnographic methods by designers, and the innovative use they make of observing people, prove how close to the user designers always are, especially in their most speculative or creative desires.

Lysianne Léchot Hirt

DESIGN ETHNOGRAPHY?

The notion that people have to be considered in the design process is highly polysemic. Different terms have been used to refer to approaches that meet this end: "User-Centered Design" (Norman and Draper, 1986), "User Research", "Design Ethnography" (Salvador et al., 1999), "Human-Centered Design" (IDEO, 2011) or "People-Knowing" as seen in various course syllabi[22] being the most accepted. They are not equivalent at all. Some refer to a general perspective and others to design methodology itself. In addition, each carries its own assumptions about how to apply the observational techniques, analyze the collected material and treat people. Interestingly, one of the most important differences between such terms is the way people are defined: "people", "human", "user" or "consumer" are not equal and interpret differently the various conceptions of what matters in the design process. While the first two are vague enough to be respectful of individual's complexity, "consumer" and "users" refers to a more passive character. As claimed by one of the designers we interviewed for this book, "user isn't the right world, there's always a protagonist, a human".

"User-Centered Design" (UCD) is a broad notion. It originally referred to a design process that focused on user goals characteristics, environments, tasks, and workflow in the design of computer interfaces. One of its early phases required designers to employ various research techniques to "understand users" and discover parameters that could help motivate design decisions (Goodman, Kuniavsky, & Moed, 2012). As described by Garrett (2002), "Every step of the way take the user into account as you develop your product. [...] Everything the user experiences should be the result of a conscious decision on your part." The application of observational techniques could thus be seen as one particular approach in UCD. Another stance is to follow guidelines and principles derived from research in the field of psychology or ergonomics (without actually observing how people use prototypes or products).

[22] See for instance the Media Design Practices program at Art Center College of Design in Pasadena: www.mediadesignpractices.net

Furthermore, "Design Ethnography" is more specific as it "focuses on the broad patterns of everyday life that are important and relevant specifically for the conception, design and development of new products and services" (Salvador et al., 1999). With this quote, and this notion of Design Ethnography, the authors show that the point here is to step back from a product's potential usage and consider what people do, why and what might be relevant for them in their natural habitat. As expressed by LiAnne Yu[23], a cultural anthropologist working in a corporate context, this notion of contextual understanding is the cornerstone to such an approach: "If you want to understand what motivates a guy to pick up skateboarding, you could bring him into a sterile laboratory and interrogate him... or you could spend a week in a skatepark observing him interacting with his friends, practicing new skills and having fun. Ethnography is observing people's behavior in their own environments so you can get a holistic understanding of their world – one that you can intuit on a deeply personal level."

[23] Mentioned in "Ethnography-Design: An Ethnography Primer published by AIGA, the professional association for design in the USA.

However, the common trait for all of the terms mentioned above is the idea that designers acts as ambassadors for users, "a cultural interpreter" as claimed by Brown (2009). Or, as reported by Koskinen and his colleagues (2011), "designers see themselves as proponents of people in the industry", a sentiment that echoes several well-known claims supported by famous design currents from Bauhaus to user-centered design.

HISTORICAL ROOTS

In the chapter of their book on the history of design research, Koskinen and colleagues reported that the importance of studying people occurred in different phases in the second half of the 20th Century. For their part, Harrison and his colleagues (2007) claim that this corresponds to three intellectual waves in user research.

The importance of considering a "human perspective" became prominent after the Second World War. It appeared specifically in industrial engineering and ergonomics with practitioners like Henry Dreyfuss. His interest in understanding people corresponded to introducing anthropometric research as part of a design process. To him, this approach consisted in measuring human dimensions (hands, arms, etc.) and

proportions in order to ensure that products are suitable for people. In his books, Designing for People (1955) and The Measure of Man (1960) which were particularly influential, he created two male and female persona to serve as models for building things such as desks, cars or refrigerators. In terms of taking people into account in the design process, this represents the "Human Factor" phase, focused on ensuring compatibility between design objects and human physiology. But Dreyfuss' approach went far beyond this. As mentioned in his first book, "We begin with men and women and we end up with them. We consider the potential users' habits, physical dimensions and psychological impulses." That last point actually leads us to another intellectual wave.

With the advent of the Cognitive Sciences in the late 1960s, the focus on users took a psychological spin. Discoveries on how human minds work – taking computer processors as a metaphor to explain the circulation of information in the nervous system – helped designers in new ways. Hence an "Information processor" approach to design, which became a matter of optimizing the accuracy and efficiency of information transfers. This body of work was later foundational in the emergence of Human-Computer Interaction as an academic discipline, and "User-Centered Design" as a motto for the likes of Donald Norman or Terry Winograd. In this context, results from psychological studies served as the basis for design. Discoveries about the potential of metaphors, a human's attention span or action perception served to craft design guidelines that are still in use nowadays. Fitt's law (Fitts, 1954) can be considered as a good example of this era. This model of human movement predicts that the time required to rapidly move to a target area is a function of the distance to the target and the size of the target. In the field of human-computer interaction, such a discovery led designers to derive specific guidelines concerning the size of user interface elements such as buttons and icons.

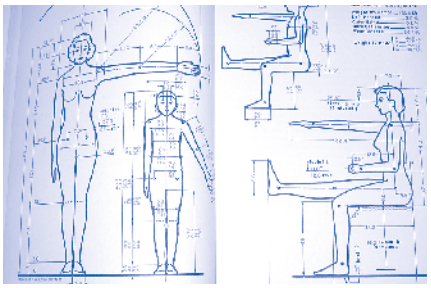


Figure 2: An anthropometric charts proposed by Henry Dreyfuss (1960).

Practically speaking, the approaches favored by practitioners in order to "understand users" were based both on inspection techniques

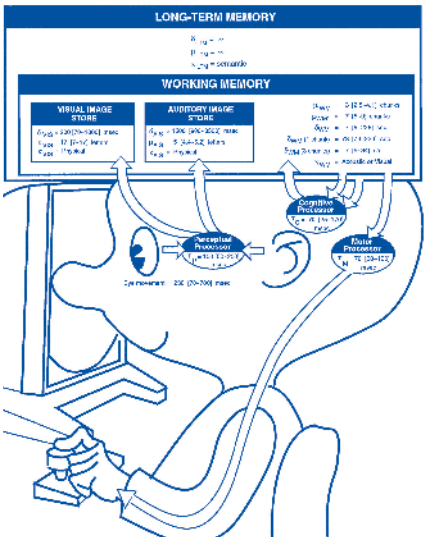


Figure 3: The Human Processor (Card et al., 1986).

(where an expert would evaluate an interface against a set of aforementioned design guidelines), and laboratory-based user studies, inspired by experiments commonly deployed in cognitive psychology. Such "usability studies", as they began to be called, were meant to discover program bugs, user's acceptance and error rates, as well as validate novel design ideas. This usability approach gradually became a mantra in HCI and interaction design, as advocated by practitioners like Jacob Nielsen, Donald Norman or Alan Cooper, and are still in-use today. Although usability studies can be relevant to uncover user interface troubles, they are not flawless[24].

[24] See Greenberg and Buxton (2008) for a recent review of how usability studies can be inefficient.

The most important issue with usability studies concerns the assumptions held by designers and researchers about people. This view is challenged by those who claim that we do not behave like an information process, and that the environment around us plays a fundamental role in human action (Suchman, 1987). Another pitfall, deeply connected to the previous one, is that usability studies were found limited[25] to uncover design problems and opportunities.

[25] As a reviewer, I once saw a research paper in which the designers asked a user to walk on a treadmill while testing a mobile app.

In the 1990s, this dissatisfaction with usability studies led to alternative approaches. This is how ethnographers were brought into HCI research labs in order to provide more open methods for the development of interactive computer systems. Companies such as Apple, Intel, Nokia and research centers like Xerox PARC began hiring anthropologists. Such researchers conducted field research on various topics in order to explore the socio-cultural influence on work practices, and as a way to inspire design.

A similar movement occurred around the same time in several European countries. For instance, Participatory Design in Scandinavia aimed at involving users in the design process so that products reflect their

needs and interests. Similarly, in France, a sub-field of "ergonomie", called "Analyse de l'Activité" ("Activity analysis") proposed similar qualitative approaches to improve the design of workers environments[26].

More recently, another factor influenced a shift of interest towards field research in design: the increased presence of digital technologies in everyday life, especially with mobile phones. Till then, understanding human-machine interaction generally consisted in observing how people used computers. Given that such machines were mostly present in offices and domestic environments, usability and laboratory studies were adequate to uncover problems, limits and design opportunities. Mobile phones and networked objects nowadays have changed that since these devices are often used in multiple situations (public places, transportation systems, outdoor, etc.). In effect, this shift also increased the importance of taking context into account when designing such artifacts, and in return, the role of field research for design: observing people in these situations becomes of crucial importance to create relevant products. As described by Harrison and his colleagues, this phase corresponds to a more "phenomenological approach" to studying human-machine interaction because of the increased attention on how human action is situated and context-dependent.

If collaboration between designers and field research specialists – from anthropologists to sociologists – in the 1990s was mostly based on applying social science research techniques to design, the situation evolved again in the late 2000s. Design practitioners slowly "absorbed" such approaches by informal training or due to the evolution of schools' curricula. This led to an interesting repurposing of field research, and the generalization of the term "ethnography" in design[27].

This very brief overview of the multiple roles of user research in the design of interactive systems has revealed the different perspectives adopted by designers vis-à-vis human users over time. The historical account also reflects the continuous interplay between design and the different branches of social sciences, which is not neutral from an epistemological perspective. Said differently, each of these branches, from cognitive ergonomics to cognitive psychology and then ethnography, have different methods to investigate the ways people interact with technologies.

[26] Interestingly, the concerns about users in both Participatory Design and French Ergonomie emerged out of union and workers movements.

[27] The use of this term in design is not without problems and sometimes makes social scientists nervous.

For instance, the cognitive spin of HCI favors laboratory studies to test "objective statements with general applicability" as a legitimate kind of knowledge about users. Ethnographers on the other hand prefer "thick descriptions" (Harrison et al., 2007). This idiom, commonly used in anthropology (Geertz, 1973), refers to the way practitioners pay attention to contextual details in observing and interpreting social meaning when conducting field research.

TOWARDS DESIGN ETHNOGRAPHY

The historical account presented before delineates how ethnography, understood as a methodological approach, became a common concern for designers, especially in the field of Human-Computer Interaction (HCI), and Interaction Design[28] henceforth. The intersection of these two fields has led to a new idiom: "Design Ethnography" (Salvador et al, 1999), which designers have more or less adopted.

This term refers to the understanding of people's behavior and practices in their natural environment through field research that is used to orientate, frame or inspire a design project. The focus is on investigating how people[29] live their everyday lives, why they do certain things and "how they do what they do". Given this focus, field research aims at producing a detailed in-depth description of how people experience and make sense of what they do. This means that the point of the observations[30] is to capture the characteristics of what is studied with as much detail as possible. Like ethnography, this work is carried out in an inductive way: reasoning from particular cases to the general theories. This is done by immersing oneself in the flow of everyday life and by copiously documenting the behaviors, habits and beliefs of people... and then using this material to generate design concepts and prototypes.

In effect "Design Ethnography" can be seen as "shorthand for investigations that are, to some extent, in situ, qualitative, or open-ended" as framed by HCI researcher Paul Dourish (2006). The output produced by designers varies from the ones of ethnographers in the sense that it is more applied: results of field research are meant to frame design decisions. The point is not to craft theories and anthropological concepts. The

[28] HCI is the academic term used to refer to the study and design of the interaction between people and computers. Interaction Design serves a similar purpose in the context of design schools and design practitioners in agencies or big companies.

[29] I purposefully use the term "people" here in the broad sense. Many studies in HCI and CSCW (Computer Supported Collaborative Work) focus on workers, which can be seen as a more specific category of persons.

[30] Here we take 'observations' in the general sense, as a result of various techniques used when investigating people's behavior: observation, interviews, etc.

assumption here is that documenting people's practices and products used in their natural habitat could be helpful for design. However, as pointed out by Richard Harper (Randall et al. 2007), this cannot guarantee successful outcome: "Designing the future is by definition designing for the unknown. Nevertheless, and as we all know, educated guesses are better than uneducated guesses. In each instance, our tools, methods and procedures are intended to reduce the uncertainties associated with design." Nervous anthropologists might notice that this methodological and instrumental definition only offers a partial description of what ethnography actually is. Nevertheless, this term became a catch-all idiom for all methods focused on gaining insights into people and "reveal not just what people say they do, but what they actually do" (PARC, 2013).

As a consequence, this increasing interest in the transfer of ethnographic approaches to design led to various publications in the last twenty years. This literature is made up of three different types of resources:

— Academic papers. The majority of resources in this category corresponds to case studies, where design researchers describe how field research in a certain context enabled them to prototype an application, a networked object or an interactive installation (see for example Chipchase et al., 2005). These publications, generally presented in conferences such as Computer-Human Interactions (CHI), Ubiquitous Computing (Ubicomp), Computer Supported Collaborative Work (CSCW), Ethnographic Praxis in Industry Conference (EPIC) or Designing Interactive Systems (DIS) also tackle methodological issues. For instance, certain papers addressed the difficulty of teaching ethnography to designers (Brown et al, 2007) or the controversies about this transfer (see for instance Blomquist, 2005 for a critique of persona or how Paul Dourish finds the role ethnography too instrumental in the HCI community).

— Books by academics and non-academics. While there are more and more monographs written by practitioners that only describe how to apply ethnographic methods in design and innovation (Beyer & Holtzblatt, 1997; Portigal, 2013; Chipchase, 2013), many books on interaction design also devote entire chapters to this topic (Rogers et al., 2011; Goodwin & Cooper, 2009, Saffer, 2006; Goodman et al., 2012). Interestingly, there is a lack of case studies in this type of literature; mostly because practitioners

rarely have the time, the motivation or the possibility to produce such detailed accounts. The main problem here is the non-disclosure agreement signed between design studios and their clients. Additionally, several academic books about design ethnography also adopt a fairly conceptual angle. In some publications, the reader might very well find herself with lots of details about abstract considerations and limited practical information about how to apply them (e.g. Crabtree, 2003).

— "Toolkits" such as the ones by IDEO[31], Stanford's d.school[32], Copenhagen Institute of Interaction Design[33], Helsinki Design Lab[34], etc. These toolkits generally refer to different artifacts such as cards, maps and probes that help designers conduct field research with practical advice and recommendations.

[31] www.ideo.com

[32] www.dschool.stanford.edu

[33] www.ciid.dk

[34] www.helsinkidesignlab.org

THREE PROBLEMS

Three main issues surface however in Design Ethnography literature. Firstly, the mishmash of terms we introduced at the beginning of this chapter reveals the blurry character of the use of field research in design. More specifically, idioms such as user-centered design, human-centered design or design ethnography are so commonly employed that they have often become catch-all notions (Marti & Bannon, 2009) that do not account for the complexity either in ethnography or in design. There are indeed many ways to implicate users (from passive subjects to active participants or co-designers), to collect and produce data (from surveys to observations)... to the point that UCD can rather be seen as wishful thinking than a methodological stance, as claimed by Marti and Bannon (2009). In the press, or in PR documents, it is very common for designers, design studios and companies to mention their use of UCD without stating explicitly what it means practically: do practitioners employ "representations of users" in the form of fictional characters reflecting people's needs and interests? Does it mean that user studies have been carried out? What does "user studies' mean for designers? Is there an agreement on what these terms mean?

This lack of precision is particularly apparent after field research is conducted, especially when observations are turned into what designers

refer to as “insights” and “design outputs”. While designers’ accounts of their observations are quite common (see for instance Chipchase et al., 2005), there is a conspicuous lack of definition of how such material is actually used by designers in their practice. This transitional moment between analysis and design decisions is indeed very briefly dealt with in existing publications, or presented briefly without a thorough explanation of the different sets of possibilities.

Moreover, as described by HCI researcher Paul Dourish (2006), the way ethnography is employed by designers is often too instrumental and limited to deriving “implications for design”: lists of needs, problems and requirements. Although such lists can be informative, here Dourish criticises the fact that doing ethnographic research cannot limit itself to generating such material. To him, the focus on such elements is misplaced and researchers are consequently missing the point on how ethnography could benefit HCI research. More significantly, another paper from Dourish describes interesting alternatives: “the ethnographic engagement is not one that figures people as potential users of technology, and looks to uncover facts about them that might be useful to technologists (or to marketers). Instead, ethnographic engagements with topics, people, and fieldsites are used to understand phenomena of importance to design, and the implications arise out of the analysis of these materials.” Dourish actually argues that the contribution of ethnography is far richer than a simple list of requirements. According to him, it transcends technological waves and instead provides “a new framing for the questions rather than a specific set of design guidelines”.

Additionally, because of a so-called confidentiality of methods along with a secretive attitude of design agencies – or a methodological void? – this situation gives the impression that design ethnography is a black box that is easy to mention since it does not need people to justify what it means; plus it easily communicates a concern for humans in a project. Such opacity also contributes to the difficulty to teach field research for design in schools and training programs. Without a clarification of the existing approaches, it is difficult to train students. For all these reasons, there is a necessity to fill the gap between conducting field observations and using them in a meaningful way for design.

Furthermore, the possibility to transpose ethnographical approaches raises the question of who is taking care of field research and what skills are needed: are we talking about designers adapting ethnographical approaches in their practice? Or is this about collaboration between ethnographers and designers? And if field research is conducted by sociologists or anthropologists, how do they communicate their findings to designers? Is this problem only a matter of "spreading" field observations? What other possibilities exist for designers to develop their own ways to benefit from understanding human behavior?

As the reader sees here, this topic leads to a variety of issues in terms of processes and responsibilities. While the contribution of anthropology to design is currently clarified in social sciences (see for instance Gunn and Donovan, 2013), the way designers adapt ethnography and observation practice is more elusive. With the recent wave of publications on "Design Thinking", which propose various formalizations of the design process, there is indeed a great deal of information on how to collect "field data" (see Portigal, 2013) and how to generate "design outputs" such as affinity diagrams, personas, user journeys or requirement lists (Martin & Hanington, 2012). However, there is much less documentation on how designers develop their own ways to benefit from observing people and adapting ethnography to their own purposes.

Finally, several problems also arise from the formal representation of design work, especially in the context of "Design Thinking" publications. Firstly, as pointed out by Lucy Kimbell (2011), they generally ignore the diversity of designers' practices which depend on the context of their practice (e.g. independent design studio versus in-house design team). This pitfall is also reported by Goodman et al. (2011) when the authors describe how the failure of HCI to influence professional practices partly emerged from the lack of understanding of the diversity of environments where design takes place. For example, the field research approaches proposed in HCI or Design Thinking are almost exclusively considered from a perspective where design is seen as a problem-solving activity. One of the reasons for this situation is the fact that HCI and interaction design are more closely related to computer sciences than to design, which might explain the more positivist spin of these practitioners.

As a consequence, and that's our second problem with Design Thinking, other design strands and traditions are generally overlooked. Design fiction and critical design are good examples in this respect. Unlike the approaches described in the literature on design thinking, their focus is on producing "speculative design proposals to challenge narrow assumptions, preconceptions and givens about the role products play in everyday life.[35]" The work done by Dunne and Raby, Auger-Loizeau or Superflux, proponents of this genre, is not meant to solve problems but to reformulate them. An heir to the Italian radical design of the 1970s, this strand of design operates out of the commercial context, and, although it borrows from art in terms of methods and approaches, its goal is to "suggest that the everyday as we know it could be different, that things could change" (Erlhoff & Marshall, 2007).

[35] www.dunneandraby.co.uk/content/bydandr/13/0

This general view of "Design Thinking" thus neglects the multiplicity of perspectives, especially when it comes to taking people into account. Books and papers on the role of field research in design rarely address how practitioners who develop this sort of speculative design approach understand people and explore their practices, fears and rituals to inspire their work. And this, regardless of the fact that the same designers mention their interest in such considerations… in their own way. See for instance how Dunne and Raby describe it: "The Placebo project is definitely not scientific: although aware of ethnographic and anthropological methodologies, we chose to adopt a more informal process in this case. We wanted to find out if people are more receptive to radical ideas than industry acknowledges, and to test our ideas about aesthetic meaning and electronic technology. We accept that the group of adopters was self-selecting. We also accept that they are probably exceptional people. But they are real people, and anything we discovered would be grounded in reality rather than fiction." (Dunne and Raby, 2002).

Beyond the fact that this excerpt highlights the interest of speculative designers in investigating people, it also reveals a more "informal process" to considering people, as they frame it. To some extent, the designers break here the canon of ethnography and build their own set of methodologies. This attitude corresponds to one of the main hypothesis of this book: the existence of a "designerly[36]" way of conducting ethnography for their own goals, needs and contexts.

[36] We use this adverb here with the same connotation Nigel Cross gave it in his research on "designerly ways of knowing" i.e. the fact that "Design has its own distinct 'things to know, ways of knowing them, and ways of finding out about them'".

OUR PURPOSE

The motivations described in the previous chapters – the relative opacity of the transfer of observations into design work, the normative process described by the design thinking literature, and our hypothesis of a designerly way of conducting ethnography – lead us to open this "design ethnography blackbox" and look at how designers practically deploy such approaches.

This is basically what this book is about. Instead of providing practitioners and students with normative prescriptions and approaches, we think it is more fruitful to explore how professional designers actually work, and understand what constitutes their use of observations: what are the approaches employed by designers when exploring people's practices? What are the relationships between observations and design interventions? Do designers do this themselves, or do they collaborate with ethnographers? Is there such a thing as a designerly way of knowing people? What does it imply from a methodological perspective? Furthermore, we will hypothesize here that the transfer of ethnographic approaches to design can play an interesting role at the crossroad of media/interaction design and critical design: can these two postures be reconciled when it comes to understanding people and their practices? What would the methodological and theoretical specificities be on that subject?

HOW WE DID THIS RESEARCH

In order to answer these multiple questions, we applied an ethnographical approach. Our research draws on a one-year study of interaction designers. It included twenty interviews conducted and in-situ observation of design studios. The participating designers were selected based on their interest and repeated use of various forms of user research or design ethnography. The participating practitioners were also chosen for their active role is such communities[37] or their recognized importance in the field of design/new media. Given our interest for different forms of design, the type of contexts they operated in was also a criteria we used for selecting interviewees: interaction and media design (web, mobile, networked objects, games), speculative design and design fiction. All participants

[37] "Design ethnography", although relatively new, exists as a community in conference venues such as EPIC or with Internet mailing-lists such as Anthrodesign. It is also a topic addressed in design research events and on Web communities about it.

had between ten and twenty years of professional experience in their domain. Most of them had no formal training in applying user research approaches and developed their own methods. In terms of organizational structure, we chose contrasting cases: commercial consultancies, corporate R&D, independent designers and small design studios. We also added design schools because of our interest in educational matters and training programs. Moreover, most of the interviewees were located in Western Europe (Italy, France, Switzerland, the UK, Denmark) and in the USA. This choice in sampling was based on our intention to investigate the diversity of practices in this field and go beyond the standard user-centered design approaches employed in consultancies or small interaction design studios. All the participants were contacted through our own networks.

The interviews consisted in two phases: an open discussion about the role of user and field research in their work from their personal perspective, followed by a semi-structured phase about their career, how they started using such approaches, descriptions of recent projects and a focus on their methods (sampling, data collecting, analysis, role in design, etc.). For studio visits, we specifically focused on observing work sessions (data analysis workshops, brainstorming, sketching and prototyping moments) and design outputs (prototypes, mock-ups, intermediary objects such as personas, user journeys, maps, series of pictures).

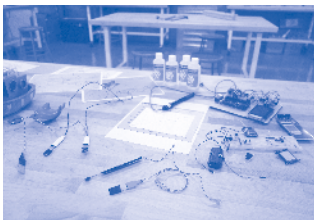
In addition, we completed this investigation with two workshops with designers[38]. Both sessions were meant to enrich our observations with practitioners and get feedback on models that emerged from our analyses. We also used this model in a design ethnography workshop with students in order to test its application in an educational context.

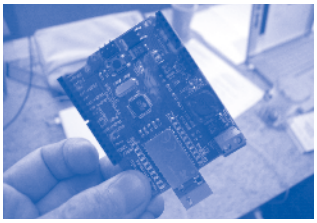
Furthermore, we also worked with two graphic designers specialized in data visualization in order to adopt a "designerly way of understanding" to our research questions and our data. Practically speaking, this contribution consisted in a constant dialogue between the qualitative data we produced in the field and their reformulation via various graphic representations: two-by-two matrixes, spectrums between two parameters, process diagrams, charts. Most of these visualizations helped us to revisit our material, iterate the themes we identified and clarify the relationships between them.

[38] The first session was a day-long workshop organized at our school in July 2013, and the second was a morning workshop set during the Lift conference in Geneva in February 2014.

The material we produced – interviews, field notes, workshop accounts – was then transcribed. Our approach to analyzing these data was based on an inductive approach, defining categories based on clustering our notes. These categories consisted in the following topics: designers' reasons for adopting field research methods, the various phases in their approaches, how they did practically (observations productions, analysis, role in design), personal tactics and attitudes, etc. The next chapter presents our findings for all these topics.

Nicolas Nova





FIELD RESEARCH & DESIGN

In our interviews with designers, we found three main motivations for conducting field research. First, participants with whom we spoke noted that observing people's practices in their natural habitat is mainly inspirational. As noted by one of our interviewees[39], "it is an approach for bringing life and direction to design work." What he means here practically is that such observations give him a framing for his projects: they help him "spot possibilities and potential." For another, it's "curious social practices, observed with unknown implications. It's food for making things, or just a recognition of the great diversity of things that are meaningful to all kinds of people." The idea here is that such immersion might show "people's real life", help understand the complex dynamics of everyday life with its subtleties and specificities... in order to speculate on "how certain objects might be used in the future" or to "map opportunities". Said differently, the point is to ground the creative work (from product design to speculation about the future) in empirical research. Another participant also mentioned that this immersion helps to "explore expectations, behavior and practices in order to come up with ideas or to reformulate problems". This notion of "reformulation" is important as most of our interviewees described the need to step aside from their client's perspective. Designers working in commercial contexts described how their clients generally want them to "uncover needs, desires and/or problems in order to develop relevant products or services". Several of our interviewees reported how this notion of latent needs waiting to be found was problematic and not in line with their own practice. For them, field research should instead be seen as a set of methods to broaden and enrich their perspective.

Secondly, designers alluded to the importance of field research for evaluating ideas, concepts, products and service prototypes. The material produced when observing and interviewing people acted as a "reality

[39] Because some of our interviewees wanted to remain anonymous, the quotes will not be attributed.

check" to challenge team opinions: "we used our observations to show our colleagues that the individuals we saw do not behave as they thought." Designers working with commercial companies insisted that ethnographic-style observation helped them to prioritize features and concepts. In addition, for a designer involved in speculative projects, the immersion in everyday life enabled "a proper critique of normative visions of the future: smart cities, humanoid robots or dumb networked appliances". He basically meant here that the detailed description and understanding of people could filter out standard visions of the futures that are either too technology-oriented or only remotely connected to human habits and rituals.

A third use of field research in design involves generating knowledge for later projects: the identification of key themes – such as barriers to the adoption of certain technologies[40], or people's motivations to do or not do certain activities – and the understanding of foreign cultures[41] were mentioned as common concerns.

[40] One of the designers reported working on how people were reluctant to use ebooks or gestures interfaces.

[41] Designers working on products aimed at countries they never visited mentioned the importance of ethnography for that matter.

Although our interviewees reported these purposes for using field research, the discussion about how it practically influenced their work revealed a common set of steps that we found regardless of the designers' profiles: the reception of the brief, preparation, research design, field research, analysis and design intervention. These phases are represented on the timeline depicted on the next pages, which gives a synthetic overview based on the interviews we conducted. For the sake of the description, we will present them here in a very unidirectional way; but the reality is far more messy and the boundaries between each phases are sometimes very fuzzy. Chapter 4 will focus on the variety of approaches and show the nuances depending on the type of design work that is considered.

BRIEF RECEPTION AND PREPARATION

What the interviewees call "brief reception" represents the starting point of a project. Given the diversity of contexts in which they work, there are different possibilities here. Most of the time it's a question or a problem brought by a client or a third party that relates to a situation (partner, museum commission, academic research funding body). A minority of designers reported that they sometimes do self-commissioned

projects for which they "are their own client", but this situation is less common. In addition, given that preliminary question/problem/ideas are very broad, this phase also requires the reformulation of the motivation (in order to frame it as a design problem and as a starting point for conducting a series of observations). One of our interviewees explained how they were asked to address very technologically-oriented issues such as "What's the future of location-based services to help urban navigation". Such questions are quite broad and not operational. For the design team, it led to a discussion about the assumptions behind it ("hypothesis breakdown") and a clarification of a corresponding human practice: "in this case, the question for us became: 'how do people navigate urban space?' or 'can we distinguish different ways to orientate ourselves in a city?' These were more pragmatic issues we could address to understand people's spatial behavior."

Once the brief is more explicit, the team starts by defining the problems more precisely. Hence, a "preparation" phase that generally consists in a review of the relevant material with the reformulated problem (desk research): projects (products/services/prototypes/student work) or patents, existing studies (in fields such as sociology, anthropology, HCI or history) and grey literature (think tank reports, white papers by public institutions, etc.). The participants of our study insisted on the necessity to peruse this material in order "to avoid reinventing the wheel" or "benefit from others' own research" before heading out to the field. They mean here that it's sometimes not relevant to replicate existing studies, but rather to complement these findings with ad hoc explorations. As shown in the case study about subway entrances presented in the next chapter, this material is also directly used by our interviewees in their design work.

What is produced concretely in such a phase varies largely on the time and approaches: mood board (made of pictures, text excerpts, ads, quotes extracted from covered sources), printed booklets with text and pictures extracted from covered sources, visual reports with summaries of main issues, lessons and problems, decks of cards with photos of items or intriguing behavior encountered, all extracted from various sources. Digital technologies are also often used here with Pinterest pages, blogs, Wiki, or Dropbox folders with material extracted from covered sources. Interestingly, this phase itself can lead to ideation, concepting, sketching

and prototyping without setting foot outside the studio. The material collected acts as a sort of stimulating proxy that fuels the designers' work.

RESEARCH DESIGN

The reformulation of the brief then leads to the "research design", a term that is commonly employed by designers and ethnographers working in a formal context (academia or big corporations). This idiom covers the description of how the field research phase will be conducted: "What do we need to know? Why? What kind of data will allow me to answer this question? Where should I go to answer these questions?" are the common issues discussed in this phase. As mentioned by one of our interviewees, "when we have a project brief, we try to come up with the method which is the most appropriate." The answers to such interrogations generally enable them to select the individuals, groups and situations to be observed/interviewed; an approach labeled as "sampling strategy" by the more scientifically minded, "recruiting" by the business-oriented ones, and "selection" by the others. Depending on the purposes, we noticed the following choices as the most commonly employed by our interviewees:

— Random: pick-up participants randomly to obtain a representative sample of the population, which is the most common option generally requested by clients of commercial designers,
— Homogeneous: select participants that correspond to the same criteria to provide a better focus and safer conclusions ("We ran a study on how 30 year-olds use ebook readers in buses"),
— Comparative method: selection of different participants according to one or more criteria in order to compare them and get a better scope ("We compared people who play a lot with video games with casual gamers, and players who do a lot of physical activity with others who don't"),
— Extreme cases: choice of weird and deviant cases to seek new possibilities or anticipate new attitudes ("One informal research method that you won't find written up in any manual is called the Meanest Motherfucker – seek out the meanest, most unlikely candidate for an interview (whether or not they have an Oedipus complex) and open them up to a meaningful conversation." as mentioned by Jan Chipchase[42]

[42] www.warrenellis.com

and behavior ("Back in 2004 we did a study of how people play location-based games as we thought this community will enable us to anticipate situations in five years' time."),

— According to reputation ("snowball"): choosing participants based on recommendations by others,

— Beyond-users: selection of non-users, stakeholders, experts to get a bigger perspective on the phenomenon at hand ("as we were interested in why people in this country are reluctant to use electronic book readers, we did a study on non-users"),

— Analog situations: selection of situations ("nearest existing design", "concurrent product" or "referential situation") that are similar to the phenomenon explored when it is not possible to do field research in actual situations ("Once I was asked to understand how people behave in public toilets", "We wanted to design a new kind of gestural interface but our prototype was not ready so we observed instead interaction with the Nintendo Wii in order to understand the experience and help us refine our product").

There are other options but these cases cover most of the situations our interviewees already described. Also it is worth pointing out that designers working in a corporate context are often influenced by marketing methods; using "screening criteria" to select participants based on a set of precise criteria (e.g. possession of a certain technology, age, regular use of contactless payment). Others, from smaller studios did not mention this or reported them as irrelevant for their purposes. The same remark applies to the use of "consent forms" that ask people for their permission to interview them and use a camera or audio/video-recorder.

While the research purposes play an important role in choosing how to select people, our interviewees also mentioned how they considered logistical issues: can they get permission to study a certain group? Do they have the resources (time, money) to encounter distant people? Will they accept to meet them and spend time together? All our participants reported the necessity to consider these questions. They also showed how to find creative solutions when problems arose: using Skype call instead of face-to-face meetings, field observations with proxy groups (e.g. recent Chinese immigrants in London instead of going to China). When

describing this, they often explained that their work was generally to approximate things. This reveals a more relaxed relationship with "empirical truth" than is expected from anthropologists.

Concerning the selection of persons, the necessity to "give something back" to the individuals observed was often raised. Given our large spectrum of design contexts, there was no consensus amongst our interviewees. Some favor a form of retribution (cash, gift card, final product) while others described the importance of giving back data (films, images, etc.); and one reported "he doesn't really know how to do that properly", which accounts for the diversity of existing practices. Furthermore, this "research design" phase introduces a discussion on the methods to be applied in field research and the way to collect/produce[43] traces of "what's going to happen out there":

[43] We will return to the difference between these two notions in the next section. Their relationship to "truth" and the production of knowledge is not the same.

[44] See Portigal, 2013 for more details on how to conduct interviews in the context of design research.

— Interviews[44] with individuals and groups, which can happen in the natural habitat of the activity explored or later on in a more neutral context. Most of our participants insisted on the difference between their interview process and questionnaires: their approach is more akin to a discussion than a formal series of questions and answers. The role of the interview is generally to provide an understanding of what people do, how they do it and their motivations ("tell me what happens when you go shopping") and sometimes the discussion also addresses needs and problems. But "these topics are never the main focus, as in marketing focus groups" said one of the designers to whom we talked.
— Observation: during which the observer takes ("participant observation") or doesn't take part in the activity explored. There is a wide range of possibilities here between "shadowing" (following a person for a certain amount of time without interrupting him or her) to combining interviews and observations by asking questions when the person is involved in an activity to be clarified for the interviewer. Several of the contacted designers also applied the observation not only to people, but also to artifacts: object shadowing (e.g. tracing the trajectory and usage of a free newspaper over the course of a day in the urban environment), artifact genealogy (e.g. tracing the evolution of game controllers over time), cultural inventory ("we focused on the objects people carry with them in their pockets"), etc.

— Interviews and observations can also be combined: people describing what they are doing in real-time (named as "think aloud protocol" by our interviewees), designers videotaping individuals and showing them the video afterwards in order to understand what went on, etc.
— User-generated data where participants are asked to produce different things: photos, drawings ("we asked people to draw maps in order to understand their spatial experience"), diaries on which they indicate specific information (e.g. time, content and location of SMS sent to correspondents), probes and kits that engage participants in producing specific content, etc.

Depending on the constraints (time, budget, human resources, epistemology[45], these various methods can be combined with each other and repeated over a certain period of time ("longitudinal studies"). As claimed by one of the designers, this kind of "mitigation strategy", or triangulation, enables them to compare results and get a better perspective. Concerning tools and documents, the most prepared of our interviewees reported how they create interview and observation guides before heading to the field. Such documents, based on the research questions pursued by the designers, generally define what should be discussed with the participants within the context of observed situations. The precision levels here vary greatly between no guidelines at all and very strict templates. In addition, we noticed how the issues considered by designers could drive the choice of methods. For example, our interviewees made a difference between "activity exploration" and "evaluative approaches". Where the former involves the investigation of a certain activity ("how to orientate oneself in a city") regardless of technology, the latter consist in evaluating how a product prototype[46] is used by a group of people.

This phase leads to the description of a research plan that frames the next parts of the project. Note that in the context of consultancies and corporations, such plans can exist at an early stage right after the brief discussion in order to evaluate the pricing of the project. Also bear in mind that this plan is not set in stone as methods can be adapted afterwards ("we never repeat things (in terms of methods), we modify things on the spot"). This preliminary research plan is then negotiated with the client and updated later; these first three phases are therefore less straightforward than described here.

[45] In an academic context, designers and ethnographers generally discuss (or take for granted) a set of the oretical assumptions concerning their framework: Ethnomethodology Theory (Corbin & Strauss), etc.

[46] The range of things to be evaluated here varies greatly from functional devices to sets of screens or non-functional mock-ups; as with "Wizard of Oz prototypes" which engage a person (the wizard) to simulate the behavior of the tested application.

FIELD RESEARCH

Following the more or less formal plan based on what we just presented, the field research phase leads to the actual field exploration of what has been prepared. Designers visit people in their everyday context, observe things, talk and record conversations, do sketches and take notes, pictures or videos. Designers record anecdotes, memories, questions, surprises, hypotheses, personal emotions, and/or describe product concepts, design ideas. Some of our interviewees also ask the participants of their study to draw things (e.g. locations where one's GPS was used during urban visits) or fill diaries (e.g. use of technological devices over the course of a week). Certain designers also create mock-ups and product sketches on the spot, and even show them to the interviewees; which shows that the boundaries between field research and design are highly permeable.

In most of the cases we encountered, photography seems to play an important role for most of the designers we talked to. For them, it is a great tool as "a good way to capture a situation", "to preserve our first impressions" and "complement our notes". The possibility to get wide views and close ups, simple shots and series documenting steps was also reported as very relevant. An additional benefit consists in the reliable comparisons enabled by images (as opposed to videos) later on in the analytical phase.

Depending on the time and budget constraints, a big amount of data is produced during this phase. For those working in corporate contexts, the need to share this material with the rest of the team/clients generally requires them to create "deliverables" or "outputs" such as "hot reports" (1-2 pages with descriptions and/or pictures and quotes plus comment), postcards (including a picture along with a title and a short description), email recaps, phone messages. Some even broadcast interviews in real-time so that distant teams can see what is going on practically. Interestingly, several designers mentioned the importance of smartphones and tablets for registering data. The possibility to use them in order to take pictures, film, record sound, take notes and even sketch on the field was regarded as highly useful.

Also note that certain types of material require a "processing phase". For instance, pictures and videos need to be transferred out of

the cameras, edited and properly labeled. Designers working with larger teams reported on the importance of a proper nomenclature[47], along with a strict digital data structure (e.g. a folder per persona per day) to find/search images over the course of the project. Similarly, interviews are sometimes transcribed in order to have a textual version easier to analyze and share with project colleagues. However, this transcription phase is not systematic at all; and designers working in a small studio or as freelancers reported not having enough time and resources to this phase.

[47] Using strict codes such as "Locationparticipant-namedatepicturenumer.fileformat".

ANALYSIS

Although analytical reasoning towards the material has already started during field research, a more systematic analysis is conducted afterwards. For all our interviewees, making sense of the observations is a long process geared towards grasping meaning (how people make sense of what they are doing) and process (how they are doing it) in a descriptive way (with words, pictures or videos), which is very close to ethnographic approaches. The approach for doing this corresponds to an inductive type of reasoning: the material is "reviewed several times" to get the sense of the data as a whole. It is then "reduced" in order to allow concepts, categories, patterns, exceptions and/or hypotheses to surface. Here is how one of our interviewees explains how he teaches his approach to design students: "Pick up one data item, understand and extract the main points and topics you see (motivation to do something, opinion, peculiar stories, relevant behavior, pertinent response to something, use of a tool/feature, surprising reaction, interesting problem that reveals unmet needs, unexpected failure...). Repeat this for several data items, make a list of all topics. Certain themes are always present: Goals, Objects, Problems-needs, Interactions, Users. Use this list to get back to your data. Look for the presence of these topics in your data. Find the most descriptive wording for your topics and turn them into categories. Turn these into tangible and non-digital artifacts: print pictures that exemplify categories, create posters/mood boards." Only one interviewee described this step so precisely but we found it interesting as this phase is rarely explained in such detail.

The underlying idea here is that the "clustering" of similar items (text on post-its, images, quotes...) enables the team to define categories... and to create what designers working in more corporate contexts described as an "affinity diagram" (i.e. a visualization of the categorization of field items). This other quote also shows how the analysis happens practically in the studio: "A typical analysis workshop goes like this: we have the team and the client in the room. We have a big board where we pin up photos, quotes, context, a collage AND we keep this space for questions, observations that we raise. We do color-coding of the themes we find (cards or post-its): behaviors, routines, exceptions, solutions, questions, opportunity, insights. We engage participants to highlight and discuss these categories and insights emerge, but it's hard work." This quote also shows the diversity of the outputs, as they generally go beyond mere descriptive elements regarding users. The participants in our study reported that it is very difficult to distinguish their analyses from project ideas, sketching and the mapping of design opportunities.

In addition, the designers we interviewed reported that this investigation process sometimes relies on theoretical frameworks that help them make sense of a massive amount of data. The quote above mentions recurring categories (goals, objects, etc.); such themes can correspond to specific concepts described by two types of models. On the one hand, certain designers make use of practitioners' frameworks such as AEIOU[48] (Activities, Environment, Interactions, Objects, Users), A(x4)[49] (atmospheres, actors, activities, artifacts), POSTA (Person, Objects, Situations, Time, Activity). The idea here is that each of these filters gives a perspective on how to understand "data". For instance, using the AEIOU framework means that the team tries to find examples of "activities", "objects" or "user typologies" in the data. On the other hand, few of the designers we encountered mentioned the importance of academic frameworks: Activity Theory, Ethnomethodology, Grounded Theory, among others. These models proposed by scholars help to understand field material by relying on the concepts and relationships between them. While the practitioner's frameworks reflects practical heuristics, the academic ones are stronger in the epistemological sense, and eventually enable designers to ground their findings in more elaborate schools of

[48] By The Doblin Group/eLab.

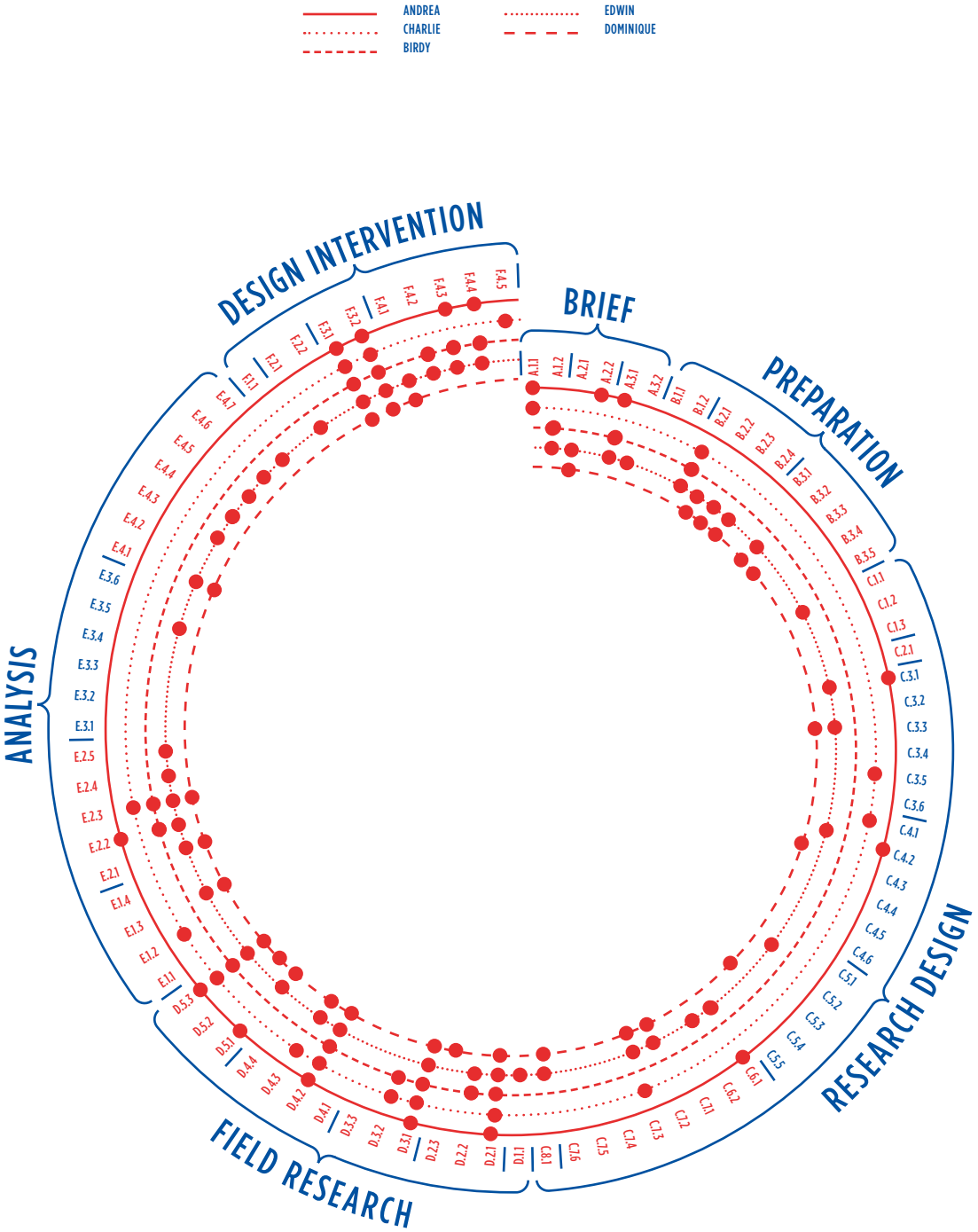
[49] By Paul Rothstein.

thoughts. To some extent, the use of such models shows that designers' perspectives can also be deductive.

Depending on the type of themes that emerge out of this analytical phase, designers produce several types of "outputs" in this phase:

— Mood boards with pictures and quotes extracted from field material,
— Printed booklets or PDF slideshows with texts and pictures (photo-novels),
— Lists of themes exemplified by pictures and quotes,
— Customer journeys/Activity diagrams: a graphical description of how a certain persona achieves its activity (e.g. how users of a location-based service look for a new restaurant),
— Typologies: problems, needs, existing solutions, motivations, behavior, user profiles (persona: fictional characters created to represent the different user types within a targeted demographic attitude and/or behavior (and based on the findings), curious situations, surprising anecdotes,
— Cards with photos of items or of intriguing behavior encountered,
— Films,
— "Design principles" and requirements that the project should follow,
— Abstract representations that combine different categories (problems, needs, motivations) graphically in order to highlight the breadth of possibilities ("design space model") and opportunities ("opportunity maps") in design.

DESIGN ETHNOGRAPHY TIMELINE



BRIEF

TRANSLATION INTO HUMAN PRACTICE

INPUT
- A.1.1 ORAL BRIEF
- A.1.2 WRITTEN BRIEF/RFP

APPROACH
- A.2.1 MEETING
- A.2.2 PROJECT MANAGER

OUTPUT
- A.3.1 SLIDE DECK
- A.3.2 POSTER

PREPARATION

SCANNING OF SECONDARY SOURCES

INPUT
- B.1.1 SLIDE DECK
- B.1.2 POSTER

TYPES OF SOURCES
- B.2.1 PROJECTS/PRODUCTS/SERVICES/PROTOTYPES/STUDENT WORK
- B.2.2 EXISTING STUDIES (SOCIOLOGY, ANTHROPOLOGY, HCI)
- B.2.3 PATENTS
- B.2.4 THINK TANK, BANK OR REPORTS BY PUBLIC INSTITUTIONS

OUTPUTS
- B.3.1 DIGITAL ARCHIVE
- B.3.2 REPORT
- B.3.3 MOOD BOARD
- B.3.4 THICK BOOK
- B.3.5 CARD DECK

RESEARCH DESIGN

PREPARATION OF FIELD RESEARCH

INPUT
- C.1.1 POSTER
- C.1.2 REPORT
- C.1.3 CARD DECK

DEFINITION OF RESEARCH QUESTIONS
- C.2.1 TABLE WITH 4 COLUMNS: WHAT DO I NEED TO KNOW? WHY? WHAT KIND OF DATA WILL ALLOW ME TO ANSWER THIS QUESTION? WHERE SHOULD I GO TO ANSWER THESE QUESTIONS?

SAMPLING STRATEGIES
- C.3.1 RANDOM
- C.3.2 HOMOGENEOUS
- C.3.3 MAXIMAL VARIATION
- C.3.4 THEORY-BASED
- C.3.5 EXTREME CASES
- C.3.6 ACCORDING TO REPUTATION

RETRIBUTION
- C.4.1 NOTHING
- C.4.2 GIFT COUPON
- C.4.3 CASH
- C.4.4 PRODUCT OR REBATE
- C.4.5 BOOK
- C.4.6 RESEARCH RESULTS

THEORETICAL FRAMEWORKS
- C.5.1 ETHNO-METHODOLOGY
- C.5.2 GROUNDED THEORY
- C.5.3 NO FRAMEWORK EXPLICITLY DESCRIBED
- C.5.4 ACTIVITY THEORY
- C.5.5 ANT

DATA COLLECTION GUIDES
- C.6.1 INTERVIEW GUIDE
- C.6.2 OBSERVATION GUIDE

PROBE DESIGN
- C.7.1 NO PROBES
- C.7.2 DIARY
- C.7.3 CAMERA
- C.7.4 MAPS
- C.7.5 CARDS
- C.7.6 OTHER

OUTPUTS
- C.8.1 RESEARCH PLAN/DESIGN

FIELD RESEARCH

ACTUAL FIELD EXPLORATION

INPUT
- D.1.1 RESEARCH PLAN/DESIGN

DIFFERENT TYPES OF INTERVIEW
- D.2.1 CONTEXTUAL ENQUIRY
- D.2.2 OUT-OF-CONTEXT INTERVIEW
- D.2.3 FOCUS GROUP

DIFFERENT TYPES OF OBSERVATION
- D.3.1 PEOPLE
- D.3.2 OBJECTS
- D.3.3 BOTH

OTHER PARAMETER TO CONSIDER
- D.4.1 EVALUATIVE ETHNOGRAPHY
- D.4.2 ONE-SHOT VERSUS REPEATED/LONGITUDINAL STUDY
- D.4.3 ASK PEOPLE TO WRITE OR DRAW SOMETHING
- D.4.4 USE “NEAREST EXISTING DESIGN”, “CONCURRENT PRODUCT” OR “REFERENTIAL SITUATION”

OUTPUT
- D.5.1 REPORT FROM THE FIELD
- D.5.2 REPORT RIGHT AFTER THE FIELD TRIP
- D.5.3 RAW DATA

ANALYSIS

DATA REDUCTION

INPUT
- E.1.1 OUTPUTS FROM PREVIOUS PHASE
- E.1.2 BOOKLET
- E.1.3 DIGITAL ARCHIVE
- E.1.4 CARD DECK

APPROACHES
- E.2.1 INTERVIEW AND OBSERVATIONAL NOTES TRANSCRIPTIONS
- E.2.2 FIND CATEGORIES, THEMES AND PATTERN IN DATA
- E.2.3 HIGHLIGHT SURPRISES AND EXCEPTIONAL BEHAVIOR
- E.2.4 COMPARE RESULTS FROM DIFFERENT SAMPLES
- E.2.5 CONTRAST RESULTS WITH QUANTITATIVE STUDIES OR FROM OTHER TIME PERIOD OR CULTURES

TYPES OF FRAMEWORKS
- E.3.1 AEIOU
- E.3.2 A(X4)
- E.3.3 POSTA
- E.3.4 ETHNO-METHODOLOGY
- E.3.5 GROUNDED THEORY
- E.3.6 ACTIVITY THEORY

OUTPUTS
- E.4.1 DESIGN BRIEF(S)
- E.4.2 MOOD BOARD
- E.4.3 PHOTO-NOVEL
- E.4.4 THEMES
- E.4.5 PERSONA
- E.4.6 CUSTOMER JOURNEY
- E.4.7 ACTIVITY DIAGRAM

DESIGN INTERVENTION

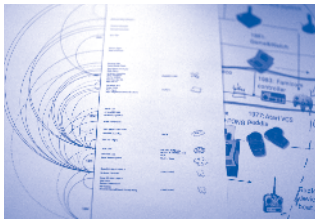
ARTIFACT DESIGN

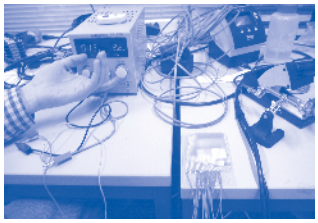
INPUT
- F.1.1 OUTPUTS FROM PREVIOUS PHASE

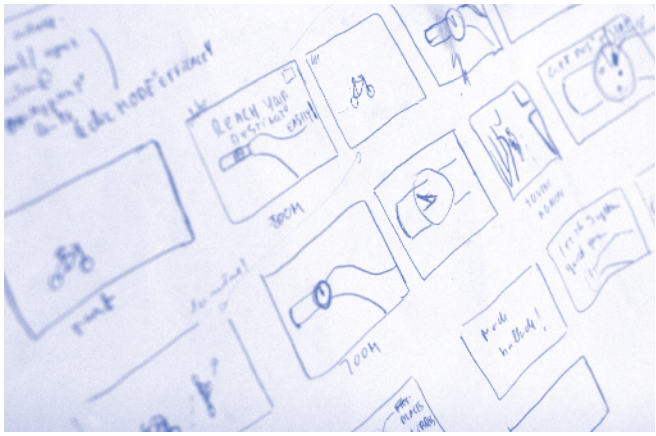
PROPER DESIGN WORK
- F.2.1 GROUP WORK
- F.2.2 INDIVIDUAL WORK

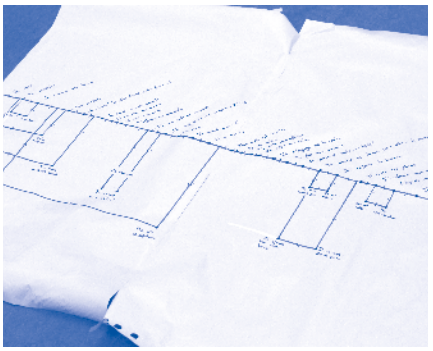
TYPE OF DESIGN WORK
- F.3.1 DRAWINGS
- F.3.2 PHYSICAL PROTOTYPES

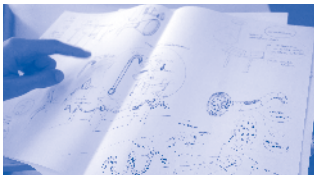
OUTPUTS
- F.4.1 DESIGN SPACE MODEL
- F.4.2 OPPORTUNITY MAPS
- F.4.3 SCENARIO
- F.4.4 PROTOTYPE
- F.4.5 PROP

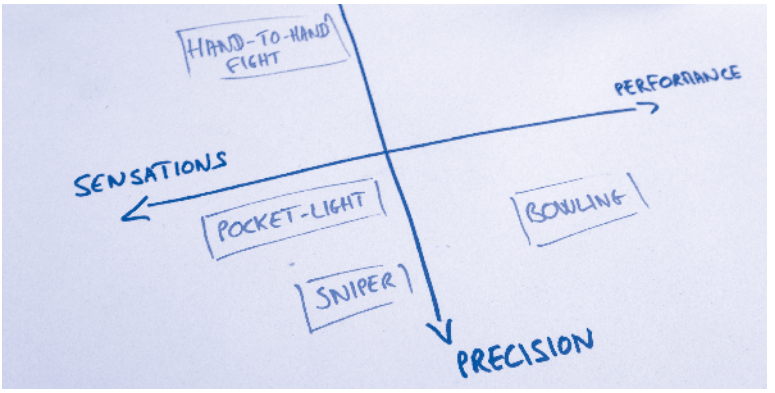











HAND-TO-HAND FIGHT
PERFORMANCE
SENSATIONS
POCKET-LIGHT
BOWLING
SNIPER
PRECISION

This broad list of outputs shows how it is different from what anthropologists usually produce. The typical output of design ethnography is less discursive and more focused on design interventions. Our list indeed exemplifies how analytical and design work are deeply intertwined: most of these "outputs" require design work to transform observation items into "intermediary artifacts" such as typologies, activity diagrams or photo-novels. In doing so, the data are re-organized and transformed using various data visualization techniques which can be considered "as a way to create a dialogue with the observations", claimed one of our participants. Several designers described to us how this material could be seen as "representational vehicles" to communicate with colleagues... and serve as a proxy for understanding the people for whom the team is designing. This echoes the notion of the designer as an ambassador of users as described in the second chapter. In order to be relevant for their purposes, as claimed by our interviewees, such intermediary artifacts need to have certain characteristics: easily appropriated by colleagues who haven't been in the field, a balance between "brevity and richness", and "a trade-off between being open-ended enough to generate ideas and conclusive enough to know where to go."

Upon closer inspection, the list of "outputs" presented above reveals three categories of content. Firstly, the majority of the material is made of descriptive elements (collection of behaviors, anec-dotes, issues or problems), which can be seen as a very raw list of design triggers.

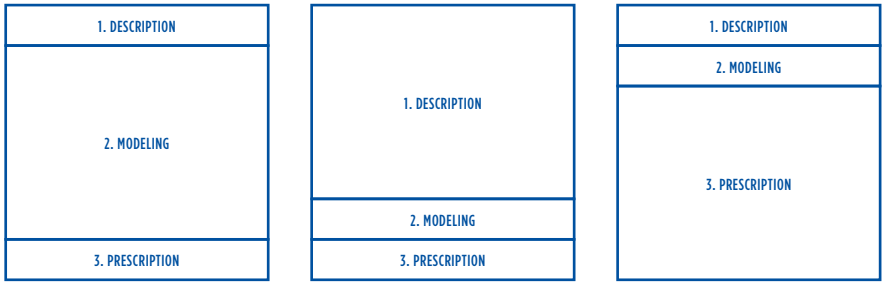


Figure 4: Different balance of outputs produced in the analytical phase.

Depending on the level of expertise and interests, this material can be structured as models: typologies of problems or themes, user journey, persona, which summarize the field data. Thirdly, designers also put forward prescriptive and conclusive elements: actionable insights such as design principles or a diagram of the design space at hand. The boundaries

between the three is sometimes unclear as designers do not necessarily make a distinction between them in their documents. For instance, we saw a studio that described a list of product features and concept sketches next to a set of observations. In effect, some of the designers we talked to do not produce "intermediary objects" as listed above. They might start sketching and designing right away, taking fieldwork as a direct inspiration for their project. The objects produced can then be "shown to users" or "tested", as a second loop of the user research approach, which might lead to a new version that is tested again. One of our interviewees reported "it's definitely not a science, the process, the tools, the things like persona or customer journey make it look like a science but it's not, that's why we don't use them". For these designers, there are no intermediary objects apart from the data produced (notes and sketches in the field, photos). Such situations were not uncommon and they were interesting because they contradict[50] the manuals and howto resources that present standard descriptions of clear steps. In this case, based on an observation and/or the data analysis, the process is more applied and based on testing objects as hypotheses[51] than inductive/deductive.

In any case, unlike ethnography carried out in academic contexts, designers' approaches to translating observations into "action items" are particular and deserve a dedicated attention. Especially since this phase is the least described in the literature about user research, operating as a black box which we will question in the next section.

[50] One of the interviewee mentioned "we don't do the so-called design thinking things that the marketing department fancy; we're designers."

[51] This process corresponds to what the American philosopher Charles Peirce called "abductive logic", a kind of logical inference that goes from observation to a hypothesis and seeks to explain relevant evidence.

DESIGN INTERVENTIONS

"You go out on your Urban Scout adventure, or a junket to a place that your multinational corporation wants to explore as a 'new market' and you see some curious practices or objects or services or whatever. And right away, someone wants to know the implications of this for making new things. 'Okay – you went out there. You've told me and showed me some things. Now. what should I build?' That's a great conversation to have, but often that translation is ignored, or misunderstood, or it just becomes completely illegible to the other guy because you are describing rituals that are so far from their cubicle that, well... your categories and

languages and idioms are extraterrestrial. [...] the translation of things-seen into things-made seems to me to require an additional set of practices and crafts [...] these practices are something that are part of the aspirations and capabilities of an evolving undisciplined, border-crossing, trouble-making collective of designers (loosely) who have developed a set of keen-observational skills but are also able to translate those observations through material craft practices. They can observe-make-think-with-material-at-one-time, and are keenly aware of the significance of doing so." Julian Bleecker[52]

[52] As described at: www.nearfuturelaboratory.com

This excerpt from a blogpost by Julian Bleecker exemplifies the complexity and messiness of this "translation phase", from field research outputs to design interventions. An expression like "observe-make-think-with-material" purposefully describes what most of our interviewees reported: the entanglements and "dialogues" between observations, material and technological opportunities as well as thinking processes. Based on our research, certain items coming from the field specifically tend to stimulate designers along these lines: people's motivation, a peculiar type of behavior, a curious habit, a need (expressed or observed), a fear or some artifacts (modified or not by the people observed). Although other observations are also relevant, this list captures the ones on which the designers we interviewed are concentrating.

In each of the projects we discussed with our interviewees, we noticed how such elements were used as a starting point to generate various design insights:

— A new formulation of the problem: a new definition of the brief proposed by the client,
— A process: a set of steps inspired and framed by what has been seen on the field,
— A trigger: an unexpected need that inspires the team ("Can we solve this problem?"),
— A matrix: a "generative metaphor" that gives direction to design and makes it coherent,
— A concept: an idea directly inspired from the field: "Can we design something that has similar characteristics?",
— A scenario trigger: cues to flesh out details in design presentation, to

help the team understand how people will adopt a product or not,
— Evaluation criteria: a list of principles and parameters that frame the design of a product, or allow the evaluation of ideas,
— A specific output: a prototype directly inspired from the field: "how can we reuse an improvised solution we observed in a more industrial way?".

But how do they go from observation to these design insights? The designers we talked to adopt different "moves" or "tactics", as they expressed in our discussions and workshops with them. By sketching and creating prototypes, they try out different approaches consciously or not. "Inversion" consists in inverting an observation: a user fear is turned into an interface that is supposed to prevent this fear from happening. "Translation" relies on the idea that a design concept occurring in one field can be applied to another. With "Multiplication" moves, the point is to take a certain phenomenon and repeat it or make it less important. By "Complexification", some designers add or remove steps in a process they observed.

Examples might clarify these moves. One of our interviewees reported on an anecdote they encountered during a field study: they found a truck driver in the US who feared his mobile phone's memory would be erased when switched off. Such an observation (fear) can lead to different design ideas: an interface that makes the user aware that nothing will disappear (fear inverted to define a product concept), a phone with no memory (multiplication of the fear to define a product concept), a phone with different features to deal with its memory (de-complexification of the fear), etc. In addition, the same interviewee described how the understanding of how people in some East African countries lacked electricity at night (need) led them to add a pocket light to cell-phones (need inverted to reformulate a brief/problem). Another interviewee reported on his favorite example of how observations fueled a design approach: the design of electronic games by Nintendo. At the end of the 1970s, one of the designers of this Japanese toy company realized that white-collar workers in Kyoto trains were used to playing with pocket calculators made of LCD displays. The observation of such habits – postures, gestures used while playing with these card-size devices, contextual issues like the lack of room, etc. – led him to design a

dedicated game platform called "Game & Watch" (habit translated into a design prototype), which became a huge success.

The "moves" illustrated by these examples actually reflect the set of questions that are implicitly or explicitly asked by designers during brainstorming, sketching and prototyping activities:

— What will be the equivalent of the behavior you encountered in 3-5 years (with difference devices)?,
— If you see that people do X and Y, how will it influence your product/service in the near future?,
— Define several versions of a product that will make people do more (or less) of Y (multiplication),
— Define several versions of a product that will make people do the opposite of Y (inversion),
— What is the digital equivalent to phenomena X and Y? Should there be a digital equivalent? (translation),
— Find the lessons about why people are doing X and Y? List motivations and apply them to other contexts/domains (translation),
— If you see that people use objects X or Y (e.g. phone straps) what kinds of services (digital or not) can you have with X and Y? (translation),
— If you see that a category of people does something, what other category can do it in the near future? (translation).

Such questions are obviously fragile from an epistemological perspective – can you be sure of "the lessons about why people are doing X?" Are you sure people really do Y? – but, for designers, they act as prompts in the project. Along with the parameters defined by the brief (general purpose of the product, targeted users, etc.), they stimulate the teams' perspectives and enable them to explore a space of constraints. The outputs of this phase are part of standard design work with a large variety of possibilities: drawings and sketches, storyboards, on-screen prototypes, physical mock-ups (from cardboard versions to semi-functional objects created with 3D printers and an Arduino board), props for design and speculative fictions (fake manual, package, product ad, catalogue, press clipping…), short films, books, graphic-novels, posters, etc. According to our interviewees, these types of outputs are not mere "formats" but a set of tools to "play with our hypotheses" and "try out design ideas" using the moves, questions and tactics previously mentioned.

FIELD RESEARCH AS A SERIES OF LOOPS

One of the reasons we presented this people-knowing approach as a loop is because the phases we described previously can be conducted several times. The design research project "Dog & Bone", carried out by Max Mollon, might clarify this. The designer was intrigued by MeBot[53], a small mobile robot that uses a smartphone to display phone and video conferencing, and subsequently enables distant communication with non-verbal channels. Mollon wanted to push this logic a bit further by speculating on the use of a "fully non-verbal sensitive device": a dog. The designer started by creating a small pouch made out of paper holding a phone that he strapped around a dog's neck, with the owner's permission. He then spent time with them to grasp the animal and the owner's reactions, discussing how it would feel to have a phone/answering machine on a dog. He noticed rapidly how the device was too big for the pet and how his friend was uncomfortable, mostly because of the fear of electromagnetic waves. He replicated this finding by testing whether there would be a difference of perception with bluetooth earbuds (which use lower frequencies). After meeting with experts (a dog trainer and a leather specialist) to discuss both ethical and material issues in the project, the designer then created a functional prototype. For this, he used leather, and used it for tests with three potential users and their different kinds of dogs (a cocker, a carlin and a Shiba Inu), conducted at people's homes. These tests enabled Mollon to understand the dogs' reactions, the way the owner talked to the phone party by following/looking at the dog, and how the dog not only carried the phone but also "felt" the interlocutors emotional states and reactions. In effect, the test showed how the pet acted as a third member in the conversation. It also enabled Mollon to define a taxonomy of new dog-owner interactions and postures. The main conclusion of this exploration lay in raising the importance of the animal's agency and contrasting it to the one of the robot in the MeBot project.

[53] www.robotic.media.mit.edu

Concerning the field research approach, this case shows three things. First, it is difficult to set aside a field research phase and an ideation or a prototyping phase. Observing appears intrinsically tied to designing, as shown by Mollon's immediate switch to low-fidelity prototypes. As he mentioned, "it is because of the design work that intriguing observations

were made." Said differently, the boundaries between data production, analysis and "design work" are very narrow. During our interviews, we also saw designers sketching product concepts when sorting out images and quotes, as some even did on the field. A second important thing is that the design process should rather be seen as a series of loops than a truly linear process. Mollon did a first test with one user, then created another prototype tested with another person, and then tested the third iteration with three people and their dogs. Finally, as shown by the summary of this project, certain steps can be dealt with more informally by certain designers: the way observations are made or data analyzed, for instance. This is why the word "method" we employed above is certainly a bit too strong here. While designers in corporate or academic contexts may have to clarify all these steps[54], how to perform them and the need for "outputs & deliverables", this is not a general rule for everyone.

[54] In order to be accountable to project stakeholders or their peers.

Nicolas Nova

PERSONAL STANCES

Based on our interactions with the interviewees, we identified different themes on which the designers differed. This variety of postures and approaches corresponds to five main profiles we found in our interviews and observations. They are represented by the series of visualizations presented in the following pages.

The most pragmatic difference lies in the roles they play during the field research phase: do they "do" it themselves? Or do they collaborate with ethnographers? There are also various configurations depending on the organization to which the designer belongs (independent design studio, consultancy, in-house design team). This diversity of situations leads to seven types of relationships between designers and ethnographers, represented hereafter in the visualizations: the designer can act as the "ethnographer", or both can collaborate; but there are also intermediary situations with a purchase department that contracts people to run studies and/or do design work. Interestingly, in such cases, the linearity of process we described in the previous sections is strengthened: design work is somehow separated from field research because it is conducted by distinct actors.

Epistemology – the accepted methods to build up knowledge in a valid and reliable way – is another important distinction in the way ethnography is employed by designers. More specifically, the truthfulness of "empirical data", the elaboration of theoretical frameworks as well as the validity of their prescriptions are not always a concern for the different profiles we have identified. Herein lies a tension between the two poles: (fruitful) inspiration versus (valid) discoveries. We indeed found various postures for designers: incognizance (a lack of awareness or knowledge about such issues), indifference (an awareness of such issues but the choice of methods depends on partners) and speculative approach (a relaxed or playful relationship with truthfulness of accounts). Our interviewees with a more formal training in ethnography seemed to be split between three epistemological attitudes: positivism (empirical material waiting to be

discovered), a realist ontology (empirical material out there independent of researcher) or constructivist (empirical material co-produced by researcher and others or by situation). Unsurprisingly, the ones working in commercial and scientific (technology-based R&D centers) contexts seemed to adopt a more positivist perspective. Moreover, the majority of our participants were unaware of or indifferent to such issues, as represented by these quotes: "the idea is to inspire design, it's not about getting results which are valid and then design." or "we can invent because we don't write academic papers and have to prove a method".

These epistemological differences obviously have important consequences for the field research designers set-up. For instance, we found a large spectrum in the degrees of formality with regards to the reliance on theoretical frameworks, the data collection techniques and analytical approaches employed. As shown in the profiles hereafter, our interviewees would adopt a very informal attitude (subjective) or tend towards a more formal methodologically. The latter case generally reflected their organization (corporate or scientific context) and their theoretical perspective (social science with a positivist spin, French "ergonomie" tradition, etc...). The vocabulary employed was different depending on the focus, with designers talking about "light ethnography", "scouting", "observing" while others mentioned "conducting field research". Depending on the degree of formality, we found designers interested in pattern-finding (recurring elements such as issues, problems, behaviors, or solution) while others looked for specific occurrences (a weird ritual, anecdotal evidence, an exceptional behavior) used as a design stimulation. Similarly, the relationship with the brief also varied between general curiosity (search for inspiration, focus beyond the brief, on personal obsessions for example) to brief-driven perspectives (field research limited to topics defined in the brief or that concentrates on finding problems). An additional remark here concerns the difference we felt between the literature about design thinking or methods and the informal methods we discovered in our study. Unlike the highly detailed prescriptions described in manuals about things such as consent forms, data analysis or research plans, we found a more relaxed attitude in our interviews: "as designers, we're not obliged to follow strict methods and describe the number of houses or the time to

visit places", "we don't do the 'we ticked the box, we did the ethnography bit'", "you should be able to repurpose tools of course, but it should not be a dogma!". These quotes show the interest in adapting and transforming the ethnographic tools.

Finally, the differences between such parameters reveal an overall attitude towards design: an axiology so to speak. We found three general categories here: "heroic" (the designer as an author who does not have to be accountable for her choice), "scientific" (the designer as a problem solver, relying on a rigorous approach and a positivist perspective), and "pragmatic" (a relaxed attitude towards such issues, which leads the designer to make different choices depending on the situation at hand).

Nicolas Nova

ANDREA

INDEPENDENT DESIGNER

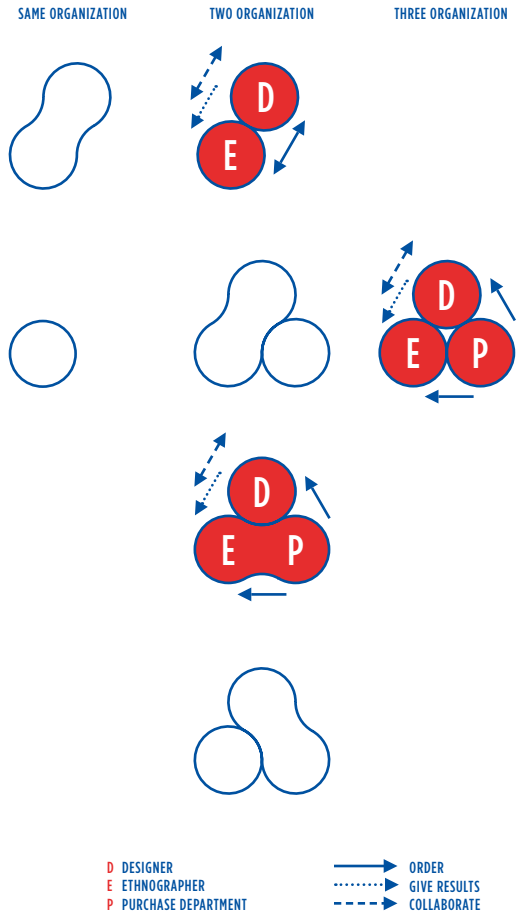
+

WORKS EITHER WITH SMALL COMPANIES OR MULTINATIONALS

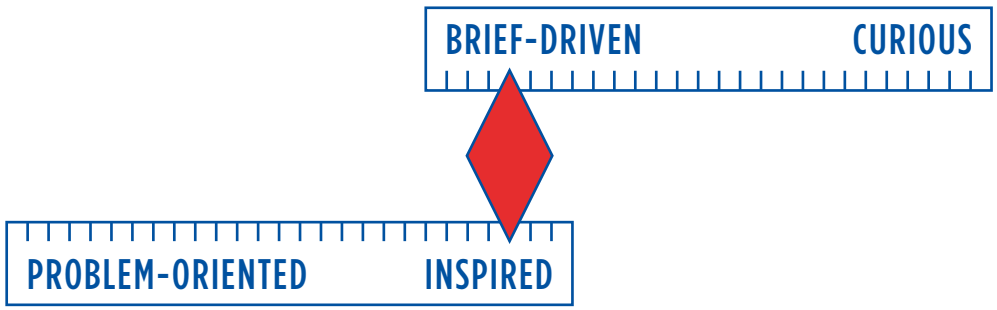
+

PUBLIC OR PRIVATE ORGANIZATIONS

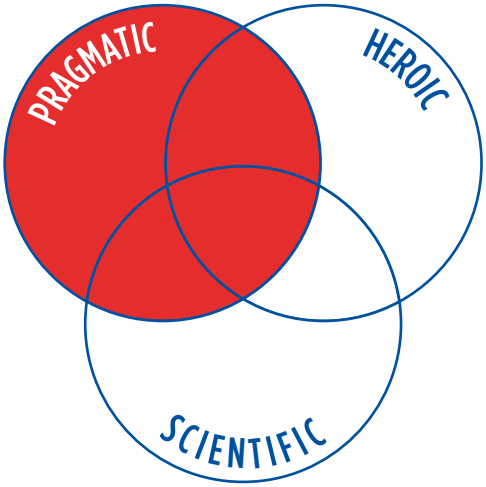
COLLABORATION STRUCTURE



POSTURES ATTITUDES



AXIOLOGY: DESIGN



REPETITION

PATTERN OCCURRENCE

RESEARCH SET-UP

FORMAL

DIFFERENT DEGREES OF FORMALITY WITH REGARDS TO THEORETICAL FRAMEWORK (W/O), DATA COLLECTION AND ANALYSIS

INFORMAL

EPISTEMOLOGY: ETHNOGRAPHY

DESIGNER

- **INCOGNIZANT**
  UNAWARE OF THESE ISSUES
- **INDIFFERENT**
  DEPENDS ON PARTNERS
- **SPECULATIVE**
  A MORE "PLAYFUL AND RELAXED" RELATIONSHIP WITH TRUTHFULNESS

ETHNOGRAPHY

- **POSITIVIST**
  EMPIRICAL MATERIAL WAITING TO BE DISCOVERED
- **REALIST ONTOLOGY**
  EMPIRICAL MATERIAL OUT THERE INDEPENDENT OF RESEARCHER
- **CONSTRUCTIVIST**
  EMPIRICAL MATERIAL COPRODUCED BY RESEARCHER AND OTHERS/SITUATION

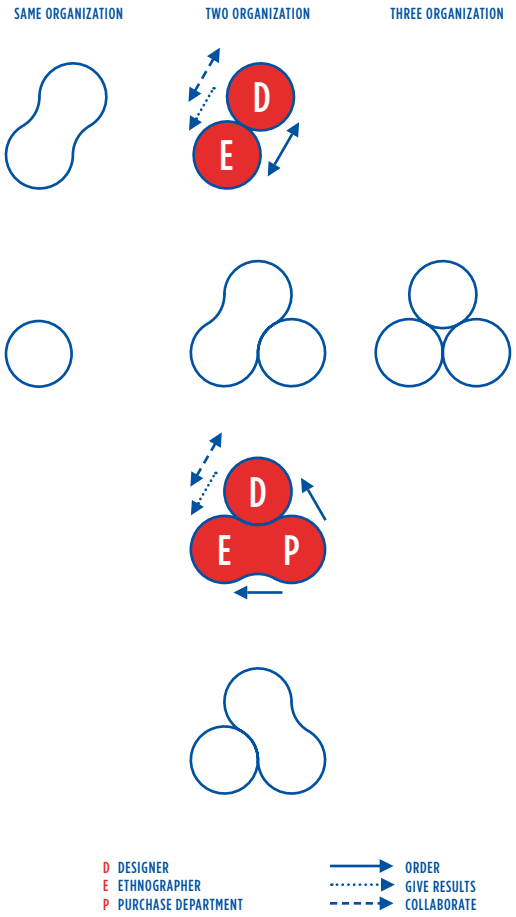
BIRDY

JUNIOR PARTNER IN
A DESIGN CONSULTANCY

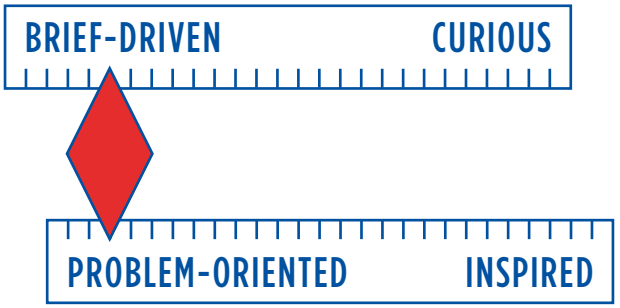
+

WORKS WITH MULTINATIONALS

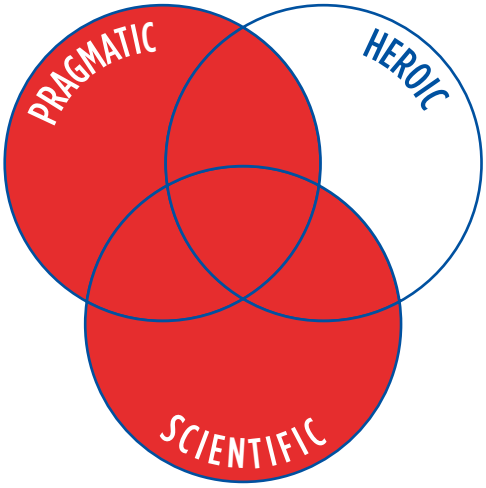
COLLABORATION STRUCTURE



POSTURES ATTITUDES



AXIOLOGY: DESIGN



REPETITION

PATTERN OCCURRENCE

RESEARCH SET-UP

FORMAL

DIFFERENT DEGREES OF FORMALITY WITH REGARDS TO THEORETICAL FRAMEWORK (W/O), DATA COLLECTION AND ANALYSIS

INFORMAL

EPISTEMOLOGY: ETHNOGRAPHY

DESIGNER

- **INCOGNIZANT** — UNAWARE OF THESE ISSUES
- **INDIFFERENT** — DEPENDS ON PARTNERS
- **SPECULATIVE** — A MORE "PLAYFUL AND RELAXED" RELATIONSHIP WITH TRUTHFULNESS

ETHNOGRAPHY

- **POSITIVIST** — EMPIRICAL MATERIAL WAITING TO BE DISCOVERED
- **REALIST ONTOLOGY** — EMPIRICAL MATERIAL OUT THERE INDEPENDENT OF RESEARCHER
- **CONSTRUCTIVIST** — EMPIRICAL MATERIAL COPRODUCED BY RESEARCHER AND OTHERS/SITUATION

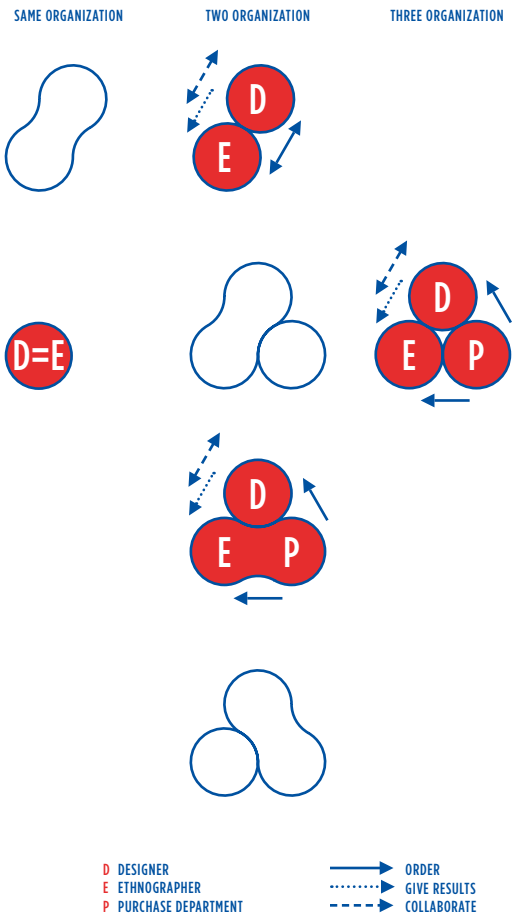
CHARLIE

INDEPENDENT DESIGNER

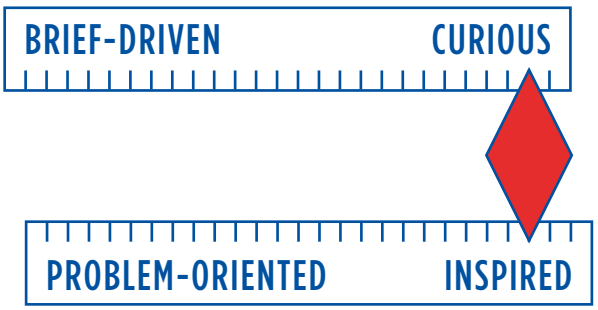
+

WORKS EITHER
WITH CULTURAL INSTITUTIONS
(PUBLIC) OR
WITH MULTINATIONALS

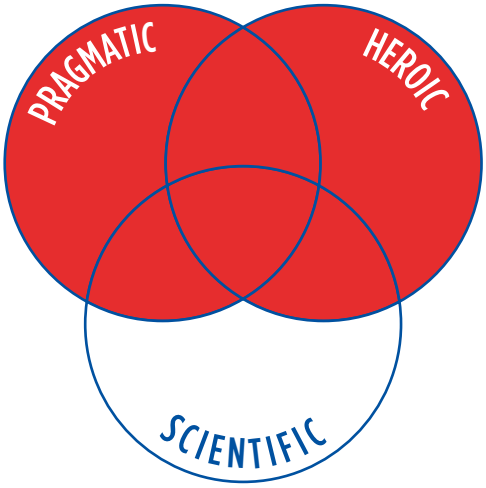
COLLABORATION STRUCTURE



POSTURES ATTITUDES



AXIOLOGY: DESIGN



REPETITION

PATTERN — OCCURRENCE

RESEARCH SET-UP

FORMAL — INFORMAL

DIFFERENT DEGREES OF FORMALITY WITH REGARDS TO THEORETICAL FRAMEWORK (W/O), DATA COLLECTION AND ANALYSIS

EPISTEMOLOGY: ETHNOGRAPHY

DESIGNER

- **INCOGNIZANT** — UNAWARE OF THESE ISSUES
- **INDIFFERENT** — DEPENDS ON PARTNERS
- **SPECULATIVE** — A MORE "PLAYFUL AND RELAXED" RELATIONSHIP WITH TRUTHFULNESS

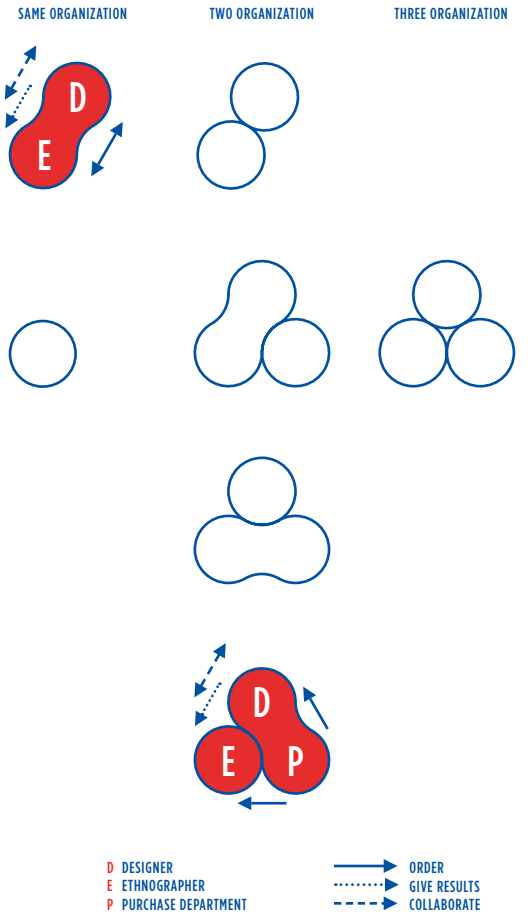
ETHNOGRAPHY

- **POSITIVIST** — EMPIRICAL MATERIAL WAITING TO BE DISCOVERED
- **REALIST ONTOLOGY** — EMPIRICAL MATERIAL OUT THERE INDEPENDENT OF RESEARCHER
- **CONSTRUCTIVIST** — EMPIRICAL MATERIAL COPRODUCED BY RESEARCHER AND OTHERS/SITUATION

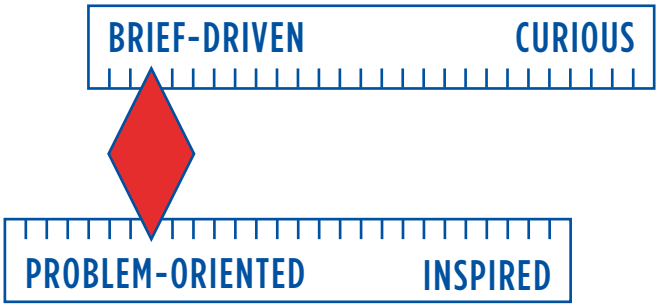
DOMINIQUE

DESIGNER IN A MULTINATIONAL TECH COMPANY

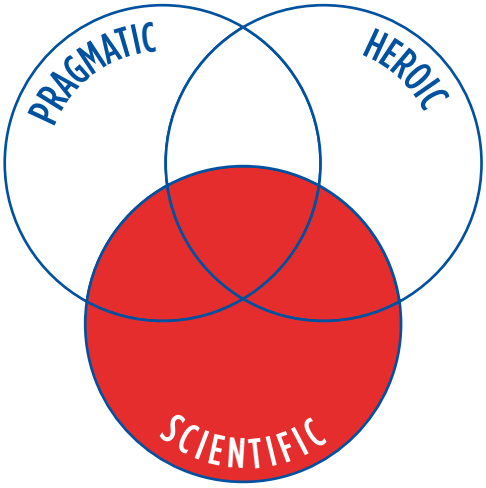
COLLABORATION STRUCTURE



POSTURES ATTITUDES



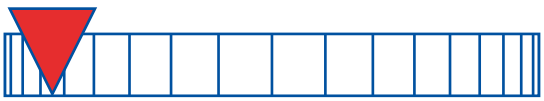
AXIOLOGY: DESIGN



REPETITION

PATTERN OCCURRENCE

RESEARCH SET-UP



FORMAL

DIFFERENT DEGREES OF FORMALITY WITH REGARDS TO THEORETICAL FRAMEWORK (W/O), DATA COLLECTION AND ANALYSIS

INFORMAL

EPISTEMOLOGY: ETHNOGRAPHY

DESIGNER

- **INCOGNIZANT**
  UNAWARE OF THESE ISSUES
- **INDIFFERENT**
  DEPENDS ON PARTNERS
- **SPECULATIVE**
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- **POSITIVIST**
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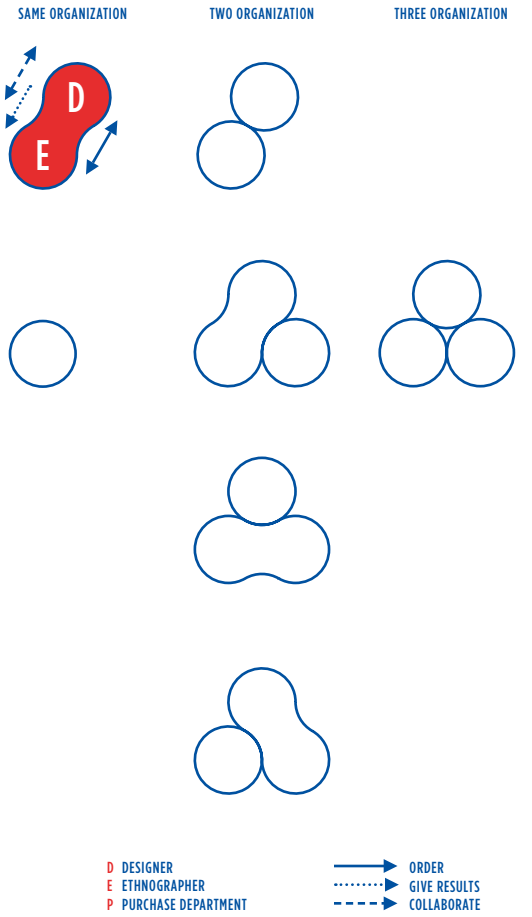
- **CONSTRUCTIVIST**
  EMPIRICAL MATERIAL COPRODUCED BY RESEARCHER AND OTHERS/SITUATION

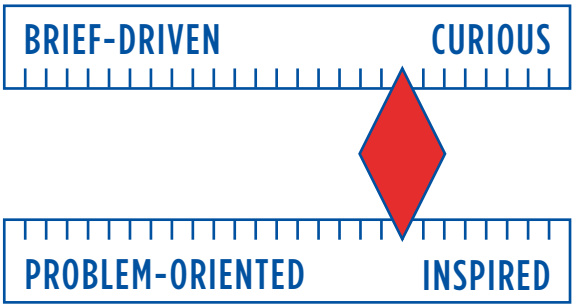
EDWIN

DESIGN RESEARCHER IN ACADEMIA

COLLABORATION STRUCTURE



POSTURES ATTITUDES



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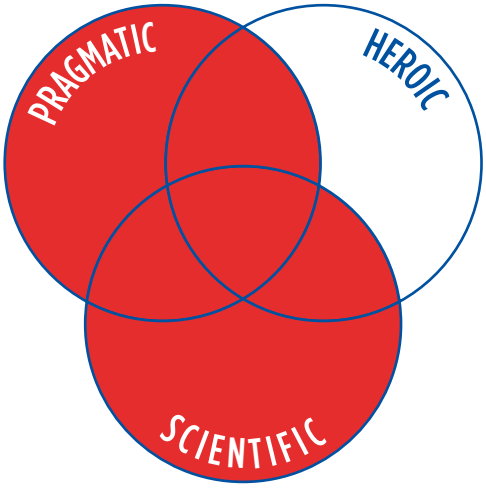
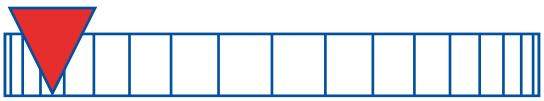


REPETITION

PATTERN OCCURRENCE

RESEARCH SET-UP



FORMAL

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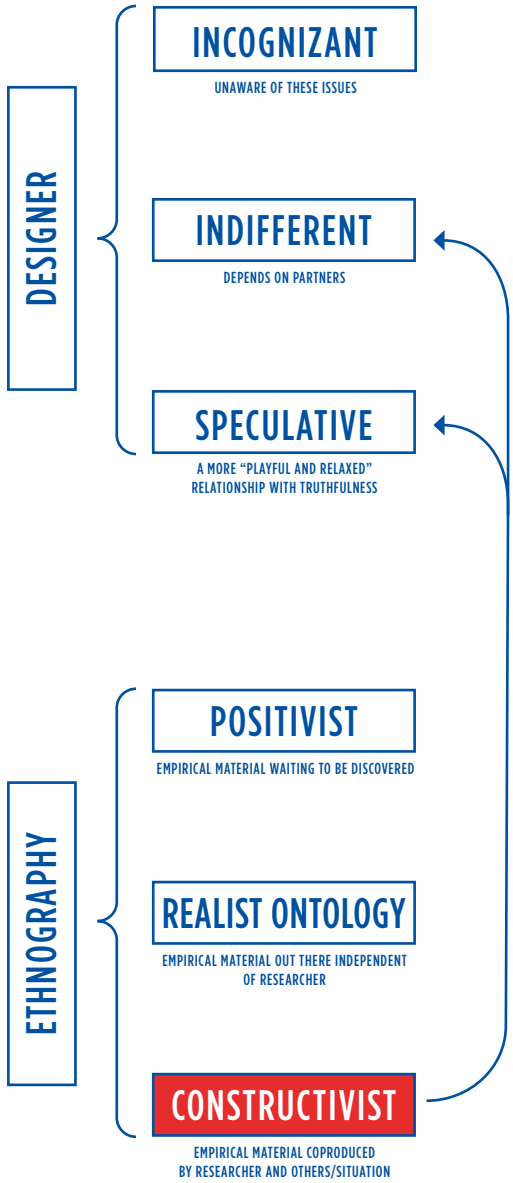


CASE STUDIES

The various cases presented hereafter illustrate the "people-knowing" approaches we just discussed. Written by designers and design researchers from various backgrounds and institutions they exemplify the diversity of tactics and methods. Because of their different purposes and contexts, each of these essays adopts a particular language and format. Some texts refer to theoretical concepts and academic literature, others not. Some appear to be very subjective while others pursue a more objective mindset. We preserved that variety on purpose in order to show the wide range of possibilities, and the absence of a unique model of design thinking.

Figure 5a,b: Set the solution aside

Figure 6a,b: A new gate for the Metro

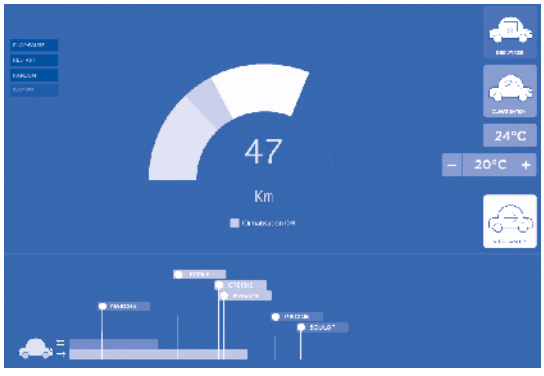


Figure 7a,b: Designing experiential shots

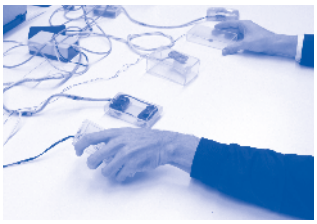
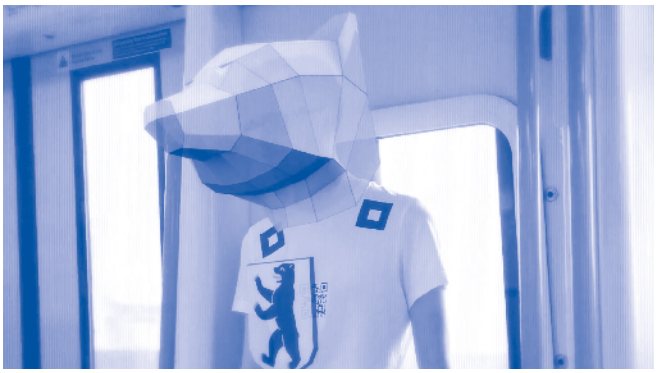


Figure 8a,b,c,d: Using the Repertory Grid Technique in Research Through Design

Figure 9: Marginal or alternative practices as a resource for innovation

Figure 10a,b,c: Unpleasant Design research, or the introduction of spikes into everyday life, from Chindogu to NSA

Figure 11a,b: A Corner Convenience: from observation to design fiction



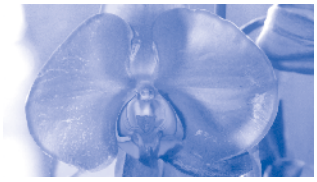


Figure 12a,b,c: Song of the Machine

Figure 13a,b: Electronic countermeasures

SET THE SOLUTION ASIDE

Steve Portigal is the founder of Portigal Consulting, an agency that helps clients to discover and act on new insights about themselves and their customers. In this case study, he describes how a field research project he conducted with Nokia led the team to revisit the design proposal.

We were engaged by the now-defunct Nokia Research Center to help them prioritize development within a set of features and technologies that were meant to improve how people engage across multiple devices (e.g., laptops, cameras, mobile phones) and platforms (Windows, iOS, etc.). This broad ambition was all we had to go on, until the day we officially launched the program. We sat down with the team and asked "What is the thing you have been working on?" They glanced at each other, unsure who should give us the pitch. Eventually one person outlined an audacious product concept that – by definition – would solve almost every incompatibility, awkwardness or failure of today's systems. We saw storyboards outlining new scenarios, a software demo that ran on an iPad and a number of physical form factors of varying fidelity.

"DO NOT PRESUME TOO MUCH TOO QUICKLY"

We asked them what this product (it was more than just a set of features) was called and were surprised to see nervous glances before they told us to call it "JR." If there was an internal codename, they weren't comfortable sharing it with us. No, this wasn't a reference to the scheming patriarch of TV's "Dallas" but instead to a hamburger chain called "Johnny Rockets" (seemingly chosen at random). Eventually, we launched into a detailed discussion of what questions about the product they were hoping to get answers to, and this is where the collective disquiet blossomed. While some people understood their idea as a paradigm shifter and wanted to get some sense of the resonance of the overall idea, others insisted that the idea was by definition a solid one and so they needed to dive into details like form factors, gestures, pocketing, external displays and so on.

After a great deal of back and forth with the different team members, we aligned on a fieldwork approach. We recruited participants in an American city that we considered less tech-forward. We asked participants to prepare by thinking about the devices they used the most

and what they used them for. When we met with them (with Nokia team members in attendance) we talked about their current usage, but quickly moved into describing the concept at a very high level, essentially prototyping the technical and functional benefit statement. We discussed what problems it would solve and what complexities it would create. Then we showed the iPad demo and the physical mockups, again getting into expected benefits and anticipated concerns.

We showed our hand (e.g., the ideas that we were seeking feedback on) early in the interviews, but by this point we had primed our participants to be thinking about the issues underlying the prototypes, and so we focused on (without using this term) the notion of "shape shifting" – exploring how they might envision a future scenario with this product (or another) to move between phones and PCs and home and work and car and beyond.

Finally, we asked people to speak about the mental models by telling us what this thing was, where they would buy it, how they would buy it, etc. In this way, we could cover most of the questions the team had and do it in a way where we felt confident about what we were hearing. While we had worked hard to find an approach to the fieldwork that would cover all the specific questions the team had, we conducted the interviews without being fully directive. For instance, after showing the iPad demo, we might say nothing, leaving the participant to choose what part to react to. Followup questions were used to probe on what they didn't tell us about of their own volition. In this way, we were able to hear the concerns that we hadn't known to ask about beforehand.

It was incredibly impactful for the team to see in person how people reacted to their concept. We heard about soft issues (e.g, existing – if vague – anxieties about data security were exacerbated) and hard ones (e.g., mobile devices are individual but PCs are shared). The team walked away from the fieldwork with the visceral realization that they had presumed too much too quickly. After we synthesized the data we not only were able to point to design areas of success and others that were problematic, but also articulate a strategic framework of increasingly future-leaning opportunities for products and services. This framework included several classes of interactions to the existing JR

concept, as well as emergent adjacent opportunities and newly revealed "dream big" concept spaces.

We held an ideation workshop – a creative, interaction workshop session where participants, working in small teams, are given "How might we...?" questions from this framework and brainstorm and sketch without concern over technical or business feasibility – and this generated hundreds of ideas within these opportunity spaces. Ultimately, the team decided the pushback to JR was so severe that they revisited the entire business question, engaging us for a second phase to look at leading-edge "convergers." They set aside JR as a proposed solution and instead in the subsequent phase we looked at how Nokia could compete in a market where platforms like Apple and Google were dominant.

Steve Portigal

A NEW GATE FOR THE METRO

In this essay, Gilles Baudet, a user experience consultant, reflects on a project he carried out few years ago while working for the public transport operator in Paris. He describes how he used both sociological literature and field observation to re-design subway gates in Paris.

RATP is the public transport operator in Paris. It is in charge of running buses, metro, regional trains (RER) and tramway lines. Historically, the Metro and RER territories are closed, meaning that one has to use a valid ticket to enter the transport network "border". Automatic gates have for the past 30 years replaced the human operators who used to validate the ticket presented by each passenger, as derided by Serge Gainsbourg in his famous song "Le Poinçonneur des Lilas".

In 2007, RATP identified the need to acquire a new generation of automatic gates. The following points depict the context at that time:

— Six gate generations were already operating in the field.
— Depending on the equipment generation and its geographical location, fraud was light to heavy.
— Passages were too narrow (50 cm wide) for the general public (especially with luggage)

— New accessibility norms regarding disabled people and emergency services needed to be implemented.

We first identified three main goals that the new gate equipment had to fulfill. Firstly, be secure and avoid hurting or contributing to hurting someone. Secondly, be sufficiently dissuasive to free-riders. And finally, ease the fluidity of passengers and maintenance. The challenge here was that it should also stay in keeping with RATP's identity, as well as adapt to the existing gate equipment.

Our approach was to adopt a field research perspective that was fed by different sources. First, we investigated existing documents and similar contexts. Since one of the options was to buy an "on the shelf" gate (an existing product), I had the opportunity to create a comparison grid to benchmark the existing products: door opening mechanism, crossing speed and ease, reversibility, maintenance operations compliance, communication, etc. I also used the Internet to find user feedback for the public transport gate equipment of other big cities. This showed us that the "ideal" standard gate did not exist.

We also looked at people's experiences in similar contexts. Arriving at a gate, a passenger is assailed by preoccupations: "where do I buy a ticket", "where is the gate that accepts my ticket", "what is the next direction", "which Metro line do I have to transfer to after", "which gate is the quickest to cross", etc. I found out that French motorways present a very similar context: you have to go through tolls (and pay!) to use them. Therefore, they generate similar concerns to users: "what payment is accepted", "what line is opened/closed", "where is it quicker", "what is the next direction", etc. A raised signage allows people to anticipate the crossing (it provides a quick and easy answer to: "what is needed to cross?") and permits the user to focus on what really matters ("Where do I need to go to finish my journey").

We learnt here that a gate is a nuisance and that its footprint must be minimized in a passenger's journey. Then, Eloi le Mouël, a sociologist working at the RATP, taught me how to use ethnomethodology to look closely at people and observe specific behaviors in public spaces, especially at gates. More specifically, he recommended two relevant notions:

— "Course of action", an idea by which people in public spaces take steps or actions that are important towards achieving a broader goal, which each person might consider differently.
— "Face loss", which according to Erving Goffman, is linked to the importance of defining approved social attributes.

"Course of action", the need to accomplish a journey, and all the sub-needs it implies led me to place the gate crossing in a larger frame. The idea of "face loss" when a human being's ticket is rejected by a machine in a public space and which can lead to dramatic responses was also taken into serious consideration.

Based on such inputs, I visited Metro stations and observed passengers in different contexts (station size, networks), places (stations), time frames (early, late, etc.), among different populations (frequent or occasional travellers, with babies, etc.) to spot behaviors when crossing gates. In particular, I focused on fraud behavior to determine whether free riders where actually without a valid ticket or just facing difficulties in crossing the gate. Surprisingly, a significant percentage of people that did commit fraud were passengers with valid tickets, but who were unable to normally cross the gates! On the other hand, fraudsters will always find a way to get through… it is just a matter of how many are determined to "beat" the system. What I learnt here is that people in a public space behave like water: they go where the context presents fewer difficulties. This includes gate crossings and ways to resist authority threats. People are smart; they will always find ways to fulfill their goals.

In addition to this, I lead several interviews among different gate "stakeholders": marketing, design, project owners, passengers, maintenance, security and emergency personnel, etc. Only passengers interviews were spontaneous and "ad-hoc", whereas all other interviews were planned and prepared. For bias and security reasons, I did not interview on the spot the people that I saw cheating (people will tend to legitimate or over-emphasize the act of fraud). These interviews helped me to define requirements that were added to the design specification of transportation documents (ticket or RFID validation, evacuation norms, power-off behavior, energy consumption, brand identity, mechanism accessibility, etc.). The research outcomes of this field research consisted in a set of design specifications and evaluation parameters to assess the best industrial solution.

Of course, the output was not a 100% compliant with design specifications, but a least the essential drivers survived: the need for a large passage (60 cm), signage positioned on top (140 cm), transparency to limit the gate's visual impact, clear perspectives, user-friendly door opening/closing mechanisms (progressive movement), compliance with people with disabilities, prams or luggage. The new gates are actually visible in Paris now.

Gilles Baudet

DESIGNING EXPERIENTIAL SHOTS

Idsl is an innovation consultancy based in France. In this chapter, they explain how they deploy different user research techniques in a project they have conducted for Renault, the car manufacturer.

We design interactions. Part of our work deals with the services delivered by our clients: which services and how to design their experience. And part of our work is about setting up people-centred internal processes. In France, with the spread of design thinking, field observation is now more commonly one of the first project steps. But turning the field reality experienced by some at a specific moment into active learning that sticks with the whole team in their everyday work is still a challenge for large companies.

"LIFE IS A FLOW OF INTRICATE SITUATIONS"

It was a project on the design of dashboard graphic interfaces for electric vehicles, for which autonomy is key. Information about the impact of single actions (e.g. cooling) in terms of kilometers was available. And the project focused on creating a new visual identity for interfaces which would be quite similar to the ones of gasoil cars to create a familiar environment.

But the experience of driving an electric vehicle revealed two things. First, managing its autonomy is different from that of a gasoil car. For instance, when the air conditioning is turned off, the estimated autonomy increases significantly. The other point is that life is a flow of intricate situations, emotions, decisions, actions. People are into

driving, thinking of what they'll do when they reach their destination, making decisions about the comfort in their car, reacting to the context, dealing with their lives. Everything happens at the same time. On the contrary, organisations with teams working on complex systems need to dedicate people to specific tasks. For that, the real experience is segmented into models, tasks, data.

To integrate this dynamic all-in-one human driving experience, we created a tool made of two basic computer screen interactive animations (see Figure 7a and 7b).

The top part (see image 1) is a visual gauge with buttons that simulate the impact of functions like defrosting, adjusting the interior temperature, etc. The estimated autonomy is displayed as kilometres and as the green decreasing colour-filled part, as if you are driving. The light blue portion shows the estimated loss of autonomy if say, the air conditioning is on, that can be regained if it is turned off. When energy is irreversibly consumed, a dark blue segment appears and is eaten in a couple of seconds.

The bottom part (see images 1 and 2) translates the abstract kilometres into how people think of where they can go. It shows flags with favourite destinations moving as if you are driving. When they are in the light green area, it means you can go there but need to recharge to come back. If they are in the darker green area, then you have enough autonomy for a return trip. If they turn red, you need to recharge on your way. These two parts are connected so that when you deactivate a function like heating, you can see which destinations become reachable as one-way or return trips. And one button enables to play random scenarios.

This light tool could be used by each team member in their individual work. It was also used for group meetings as a placeholder for discussions. The artifact showed that the user experience is like a web, a piece made of several nodes that need to behave consistently and harmoniously. It stressed that a decision about one apparently isolated function could have an impact on the rest, therefore stimulating the group work within the project team.

We actually first detached the question from the visual form to recentre on drivers' experience. Then we used design to translate the field experiential knowledge into a tool that fitted in the project routine, to

stimulate the creativity of the team from the perspective of real life, which is dynamic, multilayered and tangible.

This method is part of our internal research that we have experimented in different formats for project clients. We started with the notion of open-ended objects for brainstorming sessions, drawing inspiration from design, probes, experience prototyping (Cruz and Gaudron, 2010) and evolved it into the idea of stimulators (Ben Mahmoud-Jouini et al., 2013).

Virginia Cruz and Nicolas Gaudron

USING THE REPERTORY GRID TECHNIQUE IN RESEARCH THROUGH DESIGN

Fabian Hemmert is a design researcher interested in the role of the body in daily interactions with technologies. In this text, he describes how he employed observation techniques to assess the use of prototypes.

Research (including ethnography), conducted before designing, might be conceived as belonging to the "research for design" category, as differentiated by Frayling (1993): it is done to help the designer make better decisions. In this essay, I would like to talk about a related, but different approach. Archer (1981) asks how design can contribute to knowledge. A designed artifact, as it has been argued, is full of implicit knowledge (Cross, 2006). Cross names the example of an axe, which, as he argues, contains knowledge about how to split wood into parts. It is this knowledge "in artifacts" that designers are virtuous in "reading" and "writing": the communication with the "material culture".

"I AM NOT AN ETHNOGRAPHY-DRIVEN DESIGNER BUT I DO CARE ABOUT PEOPLE"

Findeli et al. (2008) integrate the pioneering positions of Archer and Cross, coining the term "Project-Grounded Research" for this approach. It is worth noting that this approach by Research Through Design (RTD) does not exclude research "for" and "about" design: it integrates them, as well. In that, it is supposed to overcome the dilemma of rigour and relevance. Research for design, as they argue, is often not rigorous enough by scientific standards. Research about design, they note, is often

irrelevant for design. Findeli et al. argue that RTD should integrate the two – it should be rigorous and relevant.

Research through design oscillates between research and design, and considers the act of designing as a means of inquiry. This makes it necessary to go back and forth between research questions and design questions, finding design answers and research answers. In my opinion, the Repertory Grid Technique (RGT) is particularly valuable in this context.

The Repertory Grid Technique

Originally, RGT was proposed by Kelly (1955), who was an engineer and a clinical psychologist. It is based on pairs of descriptions, so-called "personal constructs" (e.g. "beautiful – ugly") and has found application in various domains, from family therapy to organisations, and also in HCI (Fällman, 2003; Hogan and Hornecker, 2012; Hassenzahl, 2002; Hassenzahl and Wessler, 2000; Dijk, 2013). It is, basically, structured into two main phases: the elicitation phase and the rating phase.

In the elicitation phase, the subjects are (usually while seated at a table) presented groups of three stimuli (for example: prototypes). They then have to split the three up, into a group of two and an individual one – naming a pair of descriptors (a "personal construct") that defines this particular difference (for example: "natural – technical"). This is repeated, with different combinations of stimuli (which is why a minimum of four prototypes is recommendable for this method), as long as the subject cannot name any new constructs. They are not allowed to repeat previous constructs.

In the following rating phase, the subject rates all the stimuli (prototypes) on scales. Each scale ranges between the poles of the personal constructs from the elicitation phase. The big advantage of this method is that it combines openness and structure. The interviewer does not put any concepts into the subject's mouth: all constructs are named by the subjects themselves. At the same time, its well-structuredness allows comparisons between the perceptions of the stimuli by the different subjects. For example, the ratings can be clustered, which may show differences and similarities between the prototypes, and between different perceptions of them. Some constructs may include direct "requests" from the participants, while others may point to issues, yet without offering

a possible (or desired) solution. In any case, such a study can provide valuable, open, yet structured feedback in a design process. Hassenzahl and Wessler (2000) note in more detail how the information gained from a RGT study can be of particular value for designing.

Example Project: Weight-Shifting, Shape-Changing, Living Mobile Phones

In my opinion, RGT is helpful to move back and forth between the designed artifacts and the insights they can help us gain – in a structured, yet open way. I am not an ethnography-driven designer. But I do care about people, and how they perceive designed objects. Hence, I find this method extremely valuable.

For my dissertation, I built prototypes of mobile phones that take literally different metaphors that we use in everyday language, when speaking about the digital world (e.g. "my hard disk is not big enough", "my phone is almost dead"). These prototypes increase their thickness (Figure 8a), shift their weight (Figure 8b), "breathe", and have a "heartbeat" (Figure 8c). In a RGT study, I compared them with vibration-based prototypes.

All six prototypes were placed on the table in front of the subject (Figure 8d) – in total, 12 people took part. After an introduction to the prototypes, they engaged in the elicitation phase and the rating phase. In total, 145 personal constructs were named by them. Following Fällman (2003), I clustered the ratings into 12 clusters, which I then summarized in three "two-sided coins".

Metaphorical: Rich in Associations, but Requiring Prior Knowledge. The prototypes seem to be perceived as highly metaphorical – this made parts of the interaction with them easy to understand, but sometimes also disappointing. For example, the "living" mobile phone did not respond to voice and touch, which users expected it to do, because it seemed alive.

Permanent: Sometimes Ignorable, but sometimes Annoying. The prototypes featured more "permanent" actuation than the vibration-based comparison prototypes. The users suggested that this would make it easy to get used to them (and ignore them, at times), but it could also be annoying in some situations. Life-Like: Cute, but sometimes Creepy.

The perceptions of cuteness and creepiness were, judging from the users' ratings, surprisingly close. The concept of a pocket-worn life-like device seems to be awkward for some users, while others embraced the idea.

Fabian Hemmert

MARGINAL OR ALTERNATIVE PRACTICES AS A RESOURCE FOR INNOVATION

Field research in the context of design does not necessarily imply the need to have "representative samples". Sara Ljungblad discusses here how she observed "marginal practices" to explore the future of technological applications. "...the future is already here. It's just not evenly distributed." William Gibson

Even if inventions sometimes start as technology-related ideas, innovations always start in human practices. Moreover, there are always practices that are considered marginal or alternative rather than general in a specific society. This is an opportunity for innovation (Denning, 2004). As an example, feminism was once a marginal practice that concerned equal rights in political, economical and social questions (Spinosa et al, 1997). Today, at least in several countries, striving for equality has become the norm. When the norm changes, this also affects the kind of services and products that are commonly desired. For example, today there are services bringing groceries and recipes to households, supporting people to share cooking. Such services exemplify innovation that is based on a changed norm concerning gender. Moreover, marginal or alternative use-driven by specific desires or needs related to a service or product, may shed light on general future needs (Von Hippel, 1986).

Transfer Scenarios

"Transfer Scenarios" was initially a technology-driven design method once developed to explore future applications and interaction modalities for interaction design research (Ljungblad & Holmquist, 2006). It has also been considered as an approach related to using analogous practices in design challenges (Ljungblad & Heyer, 2010). Transfer Scenarios is an approach

intended to inspire design and explore innovation possibilities through marginal or alternative practices. In this essay, I will also exemplify how this approach can be a practice-oriented design method for innovation, rather than a method that is technology-driven.

Overall, "transfer scenarios" consist in transferring scenarios of use from an existing practice to a yet not existing one. It concerns engaging peoples' current driving forces, and existing motivations and desires, and mapping these into a future scenario.

What is the goal of the design challenge? What are realistic future use situations and their possibilities and limitations? The first step concerns data gathering and elaborating on realistic future use situations. For example, when we worked in a robotic and agent technology research project, we tried to understand realistic technological properties (emergent behaviour, agent behaviour). What are futuristic, yet realistic, qualities of robotic artifacts? From a more practice oriented perspective, a design challenge that concerns future waste management could in this instance mean exploring and evaluating the most realistic scenarios of desired waste management, doing research on future trends of garbage disposal possibilities and limitations.

The point here is to match the practice with an existing marginal practice. This practice is not intended as end users, but to spur ideas for desired qualities in use. Is there an existing marginal practice where analogous qualities are found? In the robot example, we looked for practices which already involved qualities of realistic emergent behaviour and agent-like behaviour, and were appreciated and desired for those qualities. Finally, we decided that an analogous practice was to be found among people keeping reptiles as pets. In the garbage disposal design challenge, a related practice could be to look into people who have a specific type of lifestyle that is analogous, and where related driving forces, motivations and desires can be found. For example, are there analogous properties in sorting practices, or practices that concern a specific care of things?

Then, our approach consists in investigating needs and interactions: what are the desires and the motivations in this specific practice? This step involves studying the chosen marginal practice and understanding

peoples' motivations and desires. Why do they consider the practice meaningful? What do they do, how and why? How did they start? What are the prominent driving forces, motivations and desires? A suitable qualitative inquiry method is needed, such as observations and interviews.

The next phase is to analyse and transfer data into initial design. This is where we start to describe and visualize the new practice by combining the design goal with the qualities and the desires of the alternative practice. Which properties of the studied practice are interesting to transfer into the design challenge? Here we sort and use excerpts where people describe what they do, how and why they enjoy this. We then replace the artifacts they describe with a concept that reflects analogous motivations and desires in the future scenario that reflects the design challenge. In this step, techniques such as Affinity diagrams (to sort data) and Personas (to describe future use situations) can be helpful to flesh out the future scenarios.

Finally, we work on detailed design and technology development. This is when the regular prototyping process begins, and the transferred scenarios can be tested and redesigned.

When should this design method be used? Designers always have to be critical about when to use specific approaches. Tools that support designers to reflect on norms and explore alternative perspectives are a resource for inventive ideas. This is an approach intended to support people to engage in alternative perspectives and move away from dominating ideas and practices. However, knowing when to use specific design techniques and methods is part of having design skills.

Glowbots[55] are robots intended for a playful exploration of patterns between people and robots (Glowbots are small wheel-based robots that change their pattern based on communication with other robots nearby, as well as interaction with people who can shake a robot to either spread its pattern or not to spread it (and instead try a different pattern). They were developed based on findings of people having reptiles as pets. For example, we found that some pet owners enjoyed breeding lizards with different patterns, and had a specific interest in watching and caring for their pets. Imagine that you would care for a wallpaper almost as you do when caring for a pet. Flower Wall is a dynamic wallpaper that

[55] www.siggraph.org

transforms digital pictures to unique flowers that are based on pixel information. Several flowers can coexist on the wallpaper and give raise to an entirely new flower. People can chose where to place the flowers. A more detailed overview of the process is found in Ljungblad & Holmquist (2006) and an overall description of the system is found in Holmquist (2012).

Sara Ljungblad

UNPLEASANT DESIGN RESEARCH OR THE INTRODUCTION OF SPIKES INTO EVERYDAY LIFE FROM CHINDOGU TO NSA

Gordan Savičić and Selena Savić form a duo interested in coercive design techniques that prevent certain behaviors in public space. In this essay, they explain how their exploration of such "unpleasant design" fed their creative approach.

The observation of "Unpleasant Design" implementations in our surroundings is an activity that came out of our everyday experience with increasingly estranged urban spaces. We started this research while traveling, noticing the current trends in urban furniture design and restrictive technologies in public space. What we are looking for are "silent agents" that take care of behavior in public spaces, without the explicit presence of authorities such as security or police enforcement. These "agents" are materialised in objects and installations that ensure the intended use of space through design of urban furniture and through different communication strategies. Airports, shopping malls, parks and squares are popular places where Unpleasant Design can be found. There, and elsewhere, they trickle down into our everyday experience.

"WE LITTERALY PUT OURSELVES IN THE SHOES OF THE OTHER"

Unpleasant Design is an accumulation of urban phenomena in which social control and its inherent design play a significant role in the way we perceive and engage with public space. The peculiar thing about Unpleasant Design is that it has a perverted user-centric approach. It treats the design object from an anti-user perspective, resulting in a design brief which carefully examines restrictions and resolution of social problems.

We are fascinated with the possibility to design something purposefully dysfunctional; something that instead of doing its best to be comfortable is intentionally unpleasant. This raises interesting design challenges in a profession that is not overly experienced with its own subversion. There is a limited knowledge in strategies to make objects unpleasant and such design language is rather simple. It's denying or allowing an action; binary.

Over the course of almost two years we collected examples of unpleasant objects while traveling extensively through Europe and Asia. After recognizing some basic principles, we extended the object of our study to all senses; odors, lighting, ventilation systems; even pavement structures became part of the speculation. We gathered a myriad of bench designs that prevent sleeping or long-term occupation. We noticed places that were strongly illuminated at night with very little activity to facilitate. At that time, we lived in the Netherlands where even building corridors in residential areas are lit up throughout the entire night. Thus, we concluded strong lighting was used to deter suspicious and unwanted behaviour that could easily occur in darkness. But strong lights deter any kind of intimacy in public spaces as well. The language of unpleasant design is always ambiguous. It helps some, while being less merciful to others.

Pretty-developed examples of this language can be found in urban seating. According to the British design office, Factory Furniture, their Camden bench addresses 28 design issues when it comes to preventing unwanted use. For example, to simply "wave" a surface in order to prevent skating on it was an idea that emerged from mixing own experience in skating with design experience. We are fascinated with this idea that crime or unwanted behaviour can be simply designed out. Is design really that powerful?

There are some overarching patterns that can be identified in Unpleasant Design. The first one that comes to mind is to study material structures and properties. Cold and polished surfaces or obfuscated edges create a taxonomy of objects that carry an "unpleasant" factor for human experience. Secondly, there are certain shapes that are recurrent. Oval and round shapes are repetitively found in urban structures to prevent littering, skating and similar activities. Finally, perhaps the most enlightening aspect is to look into subversion and misuse of these urban

manifestations. Small interventions very often reveal the immediacy of Unpleasantness and emphasize its authoritative character.

In our research of Unpleasant Design[56], we tried to go beyond cataloguing and collecting existing designs. We also decided not to focus on designing counter-unpleasant applications. Instead, we decided to try a psychological technique of role-playing to better understand the underlying tactics and recipes for unpleasantness. The role playing technique relies on our ability to imagine and act out behaviours that are not always in line with our own point of view. While playing a role, we literally put ourselves in the shoes of the other and imagine what they would do in a particular situation. In our case, we imagined various roles; we switched between city counselors and real estate developers, from conservative citizen associations to senior residents. Those protagonists would act against a certain social group or behaviour that had a particularly harmful impact on our activities. We would begin by brainstorming to identify a group or behaviour to target, and then focus on possible discrimination strategies and constraints based on social, biological, habitual interventions or other deployable tools. We tested this approach through our workshop series at different festivals and public events (like the Lift conference, an innovation and digital technology event in Geneva or Urban Knights, a programme that promotes practical approaches to urban change in Berlin). Some really imaginative solutions came out of these discussions, particularly on the level of social groups or behaviours – how do you address parents with strollers or people collecting bottles in Berlin parks? How do you deter women wearing high-heels or men with ties? What strategies are deployed to prevent people from behaving anti-socially in a public space? Is Unpleasantness able to target certain animals in our urban surroundings?

Very often, Unpleasantness is an immediate reaction to a problem – hence added on top of preexisting structures in order to address a specific issue or unwanted behaviour. However, Unpleasant Design is evolving into an integral direction, becoming the center of a design brief and not just an added function. Contemporary urban design discourse is more and more centered around deterrent functions and less around creating a sense of place. Designers like Factory Furniture believe that if you produce a good

[56] www.unpleasant.pravi.me/

environment the problems of anti-social behaviour will be reduced. However, we would all agree that unwanted behaviour is not caused by urban furniture. If there is a bench that can be slept on, it doesn't mean there will always be a homeless person sleeping there. There will always be teenagers, homeless and poor people in our cities. The question is how are we going to integrate them in the society? And to what extent can design help us with this task?

Gordan Savičić and Selena Savić

OBSERVATIONAL COMEDY: ROOTING THE SPECULATION IN THE FAMILIAR

In this short excerpt, James Auger – a research fellow within the Interaction Design department at the Royal College of Art in London – describes how he follows observational comedy by grounding his design perspective in a familiar reality before extrapolating it towards the fictional and the awkward.

Designing fictions or speculations require a different approach to normative design and normative design research. Mainstream design is predominantly about solving problems in the real world and its research methods in-part relates to examining and understanding those problems. Ethnographic research, for example, provides a qualitative methodology to gain behavioural insights in a specific context. According to the UK Design Council this research helps the designer "understand what it is that people actually need and want, rather than making assumptions" ensuring that "the products and services that are eventually created are useful, useable and desirable." Ethnographic research helps in locating and defining the real-world humans factors that, alongside other issues such as manufacturing costs and feasibility, provide useful constraints that inform and contain the design process.

The purpose of speculative design though, is not to create real products but hypothetical ones. As such they are free from the constraints described above – the designer's challenge is to imbue their outputs with an imaginary value rather than real-world value; the constraints are therefore based on managing the speculation to ensure that the fictional

element elicits a strong reaction whilst at the same time not being too easily dismissed as pure fiction. In his documentary video called "The Pervert's Guide to Cinema[57]", the philosopher and cultural critic Slavoj Zizek examines the borders between fiction and reality: "If something gets too traumatic, too violent, even too filled in with enjoyment, it shatters the coordinates of our reality – we have to fictionalise it." The challenge of a speculative design project is not to shatter these coordinates but rather to stretch them in considered and particular ways (this differentiates the practice from its science fiction cousin). Ethnographic research provides information on the coordinates of reality and assists the designer in working within them; a speculative design project though requires something a little more profound or unexpected. One source of inspiration is the observational comedian, the unrecognised experts on the malleability and exploitation of reality.

[57] www.theperverts-guide.com/

"EXPLOIT THE HUMOR IN THE SITUATION"

Watching a recent performance by the English comedian Sean Lock on the BBC television programme "Live at the Apollo", I began contemplating the techniques he used in grounding a fiction in a familiar reality before extrapolating it towards the ridiculous. Lock described the filthy state of the back seat of his car, boxes of organic raisins and the raising of small children. Here there are several points that are relevant to the design process: first, initial observations are of mundane and unnoticed but familiar aspects of daily life. This type of comedy is popular because the audience can personally relate to the situations described.

Second, observations are often specific to a particular time, place and person. To fully appreciate the observations (and therefore the comedy), the audience need to be a parent of children between the ages of two and eight from a certain social class and culture (suggested by the organic raisins). Third, the importance of attention to detail. Lock meticulously describes how his children open the box of raisins and then shake the box in particular way, scattering them all over the car, and down the small cracks between the seats. As he describes this, a picture forms in my mind of my own children doing exactly same thing. This is a very familiar scene, but one I hadn't previously given conscious thought to.

Fourth, once the familiar short story has been told, the foundations are laid for wilder, more extreme anecdotes; these exploit the humour in the situation. In Lock's set he concludes by describing seagulls following his car as he drives past landfill sites and foxes retching as they walk past the open car door.

Of course humour is not the purpose of speculative design, however, certain factors or elements described above can be applied in a similar way. Below are two projects completed by Design Interactions students at the Royal College of Art. Both present concepts based on nanotechnology – the engineering of functional systems at the molecular level.

In his project Sensual Interfaces[58], Chris Woebken imagines hypothetical advances in nanotechnology to suggest new ways of interacting with a computer. His video scenario depicts a familiar office scene – an anglepoise lamp, a desk, a nondescript computer screen, a suited man and a mug. The unusual element is the form of interaction – the keyboard is no longer present, but in its place is a large pile of seeds. The businessman sits at the table and, through a series of choreographed and considered movements, sifts, moves and sorts the seeds. This sounds bizarre and nonsensical when described in words, but, partially through the familiar elements and partially the choreography, it succeeds in portraying a tangible and engaging new mode of human/computer interaction. Its power lies in the uncanniness of the scene, making the film both compelling and thought provoking. As with Lock's scene described above the video works better with specific audiences. Interactions designers and computer scientists enjoy the project because it presents a very imaginative and aesthetic vision of possible future HCI and those working in the field of nanotech appreciate the engaging and (relatively) realistic imagined application of their technology and its potential as a form of public engagement.

[58] www.woebken.net

Using seeds to simulate smart dust, this video visualises new interactions such as breaking, sharing, throwing away and mining data. These new interactions not only generate new behaviours but will also define new relationships with products. Rather than exploring the new interactive possibilities of nanotechnology Mikael Metthey, in his project "The Minutine Space[59]", exploits its familiar promise to eradicate disease – "Imagine a medical device that travels through the human body to seek out and destroy small clusters of cancerous cells before they can

[59] www.design-interactions.rca.ac.uk

spread" (U.S. National Science Foundation). The popular media commonly espouse the future utopian virtues of an emerging technology. With care these familiar narratives can provide another tether through which to ground fictions and present the technology in more accessible, critical or engaging ways. In Metthey's fictional future humans no longer suffer from natural illnesses but as a consequence the historical experience of being extremely unwell becomes recreational – like an extreme sport. Here the familiarity of the core narrative provides the coordinates of reality, these are then carefully stretched; the contemporary popularity of extreme sports and jungle based reality television programmes providing the logic for the extrapolation.

People can visit a space where they get infected by engineered organisms designed to provoke the physical and psychological reactions associated with sickness. The space is designed to emphasise the social aspect of sickness. It is composed of a viral area where the viruses can be chosen, facilities to rest and suffer relatively comfortably, and a "central sick pit" where people can vomit. The visitor, once they have had enough, can leave through the "minutine" zone where all harming organisms are removed by the nano-antidotes. Many speculative design projects arise from informed projections of an emerging technology. When attempting to present concepts to a non-scientific audience problems commonly arise: too much technical information can alienate or simply bore the viewer, but too little can leave the concept intangible or whimsical. The problem lies in the amount of complex knowledge that needs to be communicated before a project can be understood. In their analysis of the evolutionary reasons for humour and laughter, Hurley et al. describe the comedian's solution to a similar issue, suggesting that "shared stories are excellent data-compression devices... The more of a story you can tell with a few words, the more efficient your joke or witticism will be." (2011, p.164). By observing the designer can locate the shared stories, the odd but familiar behaviours and other data compression devices and use them to provide spectacular, even preposterous, proposals with a tangible link to our contemporary sensibilities and understanding. In this way the speculative designer can take the viewer on a journey to a technological future that, whilst potentially alien, does not shatter the coordinates of reality.

James Auger

A CORNER CONVENIENCE: FROM OBSERVATION TO DESIGN FICTION

Field observations and empirical evidence can be an intriguing ways to make design fictions plausible. This is what Julian Bleecker, co-founder of the Near Future Laboratory, describes in this text, showing how it is applicable to a project about the future of convenience stores.

Beyond the formalities of design based on research of market opportunities, consumer aspirations, user behaviors and group demographics is a new, exciting terrain of design based on fictional contexts. Well-beyond fanciful, glossy, perfection "visions of the future", some design fiction contexts take the ordinary, quotidian, every-day as a basis for laying a ground work that allows for legible, engaging design work. There's something in between the gloss of high-vision conceptual design that "visions of the future" produce that makes them like candy for the brain – a bit too sweet; a bit too much. Tasty, yet carrying with them a sense that this can't be good for much other than immediate gratification.

Let's think about the ordinary, but the ordinary in the future. Designed fictions that capture a moment in time hence, yet accept an uncomfortable characteristic of the present which is this: it was once the future of some past yet is never quite experienced with the gloss of the typical, aspirational "vision of the future." The network drops connections. The "e" and "r" keys on your keyboard stick. Data loses itself, inexplicably. Meat protein is full of weird stuff that makes one wonder what, precisely it is. Etcetera. You know the story. The present is more weird than glossy, despite the visions of itself from the past.

Everyday contexts prove fruitful for wondering about what could be. Looking at the world with a mix of the ethnographer's inquisitiveness and the designer's aspiration to do, make and creatd. At least as fruitful as the fanciful, intangible, computer rendered visions.

We did one. It was called "Corner Convenience." It's context was the ubiquitous corner store that serves the community in which it exists

with everything from ready-to-eat food, to bottles of water, to AA batteries, to prophylactics, e-cigarettes, maps, liquor and the like. We took this context for its quotidian character. Its mundanity. Its simple ubiquity. Its familiarity. Your Corner Convenience store is also relevant in this context as it could easily be described as your neighborhood Museum of Innovation. Think about it – the things in there we take for granted.

We, at the Near Future Laboratory, did the project in two parts. First was a little newspaper we produced that documented several present-day objects one finds quite routinely at the corner convenience store. We wrote their history – a biography of the cigarette lighter, the AA battery, reading glasses and road maps. Things that we easily take for granted but in their own right are wonderous inventions that are forgotten essentials.

Why do we take these things for granted? We have at our fingertips the things no one would have taken for granted 50, 100, 200, 500, 10000, 500,000 years ago. There it all is in the form of a lighter. Fire, for chrissake – and disposable? In any color one would like, or with your favorite sports team printed on it? Are you kidding me? Flick and fire. Flick and fire.

Have an achy head? No leaches at hand? Don't feel like chewing on the bark of a Slippery Elm? Well – have some acetylsalicylic suspended in a dissolving capsule that you swallow. Nothing to swallow it with? Have some fresh, filtered water, brought to you by truck and ship and conveniently packaged in a dubious plastic bottle. Feeling randy, but not ready to start a family? Pick your variety, shape, size, texture, degree-of-package-salaciousness condom. Concerned about performance? Have a grab-bag of herbal fortitude. Need to make a phone call to anywhere? Get a disposable cell phone, talk for 120 minutes then throw it out. Etcetra.

Now, if we do some design fiction and project this context into the future, now we're doing some design work, following our instincts and curiosities. We have our observations of a context – today's Corner Convenience – and now we translate it and project it forward, into another hypothetical moment. Take that present context along with the sensibility of taken-for-grantedness, of ordinariness, degloss the spectacular and make it mundane – and imagine the Corner Convenience store of the

near future. And we prioritize behaviors, the grit, grime and clutter, the informal observed human universals – and make Corner Convenience 2.0. It's like making a diorama for a near future, hypothesizing something we could never know exactly, but we know enough to speculate in a productive, entertaining, designerly way. This was the second half of the project, produced at the Emerge event run by Arizona State University's Center for Science and the Imagination. We created three filmed moments[60] in the Corner Convenience store of the near future. These were small vignettes meant to depict the extraordinary made ordinary, just as readily accessible laser light (a Nobel Prize winning technology) becomes a party favor. What would we find? Perhaps the near future of a thoroughly commodified "Google Glass"-like knock-off ecosystem wherein "content" (what we once called magazines and more than likely in the pornography idiom) are available at the point of purchase. An evolution of liquor pre-infused with stimulants – cheap, caffeineated whisky, for example. The endpoint of a desperate, successful science-based bid to increase the panda population results in a problematic – over-population of Pandas, who now are urban pests, lurking back alley dumpsters for food in the wee hours of the morning, causing disruption, frightening citizens, occasionally brutally mauling morning joggers and school children. The solution? Annual sanctioned cullings and delicious, ready-to-eat Panda Jerky. What are the lessons here? What have we learned for the effort we endured in order to speculate about the near future? It is a mode of inquiry that is particular to the design fiction endeavor. We derive insight and start conversations and debates about the near future of low-cost items, about the trajectory of Nobel Prize technology when it is commodified to the point of near absurdity. Corner Convenience forces us to think about the time when the glitz and gleam has worn off of 3D printers, Google Glass-like wearables, marketplaces for buying, selling and winning "a million followers" – all to the point of a ho-hum status, like commodity mobile phones, electronic books, digital cameras and so on. In general, for design fiction the answers are not instrumental in the sense of providing degrees of certainty about what the near future will contain. The answers are talmudic, multiple, inexplicably entertaining, peculiar – and, refreshingly, they are against the grain of the typical "next new thing" narrative.

[60] www.vimeo.com/37870061

Julian Bleecker

SONG OF THE MACHINE

Anab Jain and Jon Ardern are the co-founder of Superflux, a design practice based in London. In this text, she discusses how they adopted an "inverse ethnography" to explore the design possibilities and near-future implications of retinal prosthetics.

What if we could change our view of the world with the flick of a switch? The emerging field of optogenetics combines genetic engineering and electronics to manipulate individual nerve cells with light. Using this technology, Newcastle University's Dr. Patrick Degenaar and his team are developing an optogenetic retinal prosthesis. For this prosthesis to work, a virus is injected into the eye of a visually impaired person, infecting the cells within the eye with a light-sensitive protein. The prosthetic headset fires pulses of light at these newly sensitised cells, mimicking the "neural song" a healthy eye uses to communicate with the brain. This artificial song is then interpreted as "vision" by the brain's imaging centers.

As designers exploring the potential applications as well implications of emerging technologies, we were invited by the scientists working on this project, to create design concepts, and interactions for this new prosthetic. The complex nature of any such work would require a rigorous design process, starting with ethnographic research. However, in our project, we were dealing with ethical and legal constraints when it came to ethnographic work, because of the confidential nature of the project, and the legal requirements of the bioethics committee. We would only be able to have brief interviews with a very fixed user group that Dr. Degenaar's team was already interviewing for their research; participants who were aware of the technology's possibilities as presented by the scientists, and hence had significant opinions about its potential.

So we decided to explore the potentiality of the technology first, to get a deeper understanding of how it will manifest in people's lives and impact their lived experiences. One of the most fascinating aspects of this project was how this prosthetic technology required the body to be modified to better interact with a machine, rather then the machine adapting to the body's needs, like most wearable technology designed today does. As the body receives this new virus, which in turn creates an interface

between machine and the brain, it would over time influence one's sense of reality. As designers, we became interested in exploring the design of the operating system of this new interface, an interface that takes into account the deeper connections between such prosthesis and the brain's most vivid functions – that of memory and consciousness.

"CREATE A SPECULATIVE VISION THAT WOULD SERVE AS AN EVIDENCE PIECE"

An important question emerged as a result of this exploration: What if people with this prosthetic could start to see in areas of the electromagnetic spectrum not visible to the fully-sighted? This was not something considered by the scientists and it became important to make tangible the experiential possibilities of this prosthetic to move beyond pure functionality towards a rich, even poetic experience. We decided to create a speculative vision that would serve as an "evidence piece" for the scientists – a tangible manifestation of our ideas to show them the potential of their own work. The final outcome is a film titled "Song of the Machine[61]" that explores the possibilities of the new, modified – even enhanced – vision, where wearers adjust for a reduced resolution by tuning into streams of information and electromagnetic vistas, all inaccessible to the fully-sighted. We actually worked with specialist camera equipment to film in these different spectrums and get a real sense of what the world would look like.

[61] www.superflux.in

At no point does the film suggest a preferred world that the visually impaired person inhabits. It is a pragmatic manifestation of the potentialities of emotional and aesthetic landscapes of technology, rather then just a possible trajectory of technological development that focused on functionality. It was through this speculative work that we were able to raise a set of crucial questions about the impact of this prosthetic on users: How might you choose to "compose" your vision of the world? How would that affect your sense of the world, and your place in it? What would it mean for your memories, your dreams?

In many ways this process could be referred to as "inverse ethnography", to reference not just the inversion of chronology of research process and how they are used within the design industry, but to inherently inverse the idea of what ethnographic evidence brings to research

as opposed to a speculative film (or artifact) that presents a world of mixed realities. This film became a probe in the ethnographic work, not just internally within the science lab, but also with a new set of participants recruited by the Royal National Institution for the Blind for the next phase of this project.

Anab Jain & Jon Ardern

ELECTRONIC COUNTERMEASURES

Liam Young is the director of "Unknown Fields", a nomadic design studio that ventures out on annual expeditions to explore intriguing places. In this text, he describes how they[62] visited an Internet data center and how that informed the design of a drone-based project.

[62] with Eleanor Saitta, Oliviu Lugojan-Ghenciu and Superflux.

Our cities and the technologies they contain cast shadows that stretch far and wide. With my architectural futures think tank Tomorrow's Thoughts Today we borrow from the techniques of fiction, film and futures to deploy design speculations as imaginative tools to help us explore the implications and consequences of emerging trends, technologies and ecological conditions. Underpinning this practice is an ongoing series of research expeditions tasked with the collection of weak signals and the unearthing of trends to be exaggerated into possible futures, fantastic, speculative and imaginary urbanisms.

These expeditions are embarked on with the nomadic research studio Unknown Fields that I have cofounded with London based architect Kate Davies. With the architectural explorers of Unknown Fields we set out across remote territories to explore our changing relationship with technology and the city. Our distant travels map the consequences of technology at a global scale. We look through the flickering screens, beyond the fog of the cloud to explore the hidden worlds they set in motion. The city is no longer a single point on a map, it is caught within a global network of landscapes and infrastructures that are too often forgotten, unseen or ignored. Across the last few years we have taken research expeditions through the old fields of the Ecuadorian Amazon, the irradiated wilderness of Chernobyl, the outsourced production lines of Central America, the

mining landscapes of outback Western Australia and the factories floors and rare earth processing plants of China.

In our design projects at Tomorrow's Thoughts Today we exaggerate these present conditions and extrapolate possible futures. We develop alternative worlds as a means to understand our own world in new ways.

"WE EXAGERATE PRESENT CONDITIONS AND EXTRAPOLATE POSSIBLE FUTURES"

We observe the world in order to re-present it back to us, not as a form of data visualisation but as data dramatization. A research road trip we have taken through the US traced the fibre of the physical internet home to its unlikely source, to the middle of Oregon, where a confluence of cheap hydro power and tax incentives has given rise to a hive of technology company's data centres. This is where the internet lives, it is here that every Facebook photo is stockpiled, every google search and email, every amazon cloud folder. What does it mean for all our culture, our collective history to be stored away in these anonymous warehouses on the distant periphery? The public forums have migrated from the open spaces of cities to online communities and social networks. It is a new public space now monitored, censored and monetised, owned and managed by just a small number of private corporations. Our cultural record now has an off switch, and we can't reach it.

In the riots of the Arab Spring we saw revolutionary communities coalescing in the city around social networks and through text messages with a scale and force to topple governments. The key role that the network played at that time was one so important that it saw governments cut off internet access nationwide in a bid to slow the momentum of demonstrations.

If we extrapolate from this context of privatised data infrastructure can we imagine a reactionary movement? Can we speculate on a pirate infrastructure, an off grid network with local action that could emerge within the city. Fabricated from repurposed components that were originally intended for aerial reconnaissance and police surveillance "Electronic Countermeasures" is a flock of GPS enabled quadcopter drones that broadcast their own wifi network as a flying pirate file sharing infrastructure. They swarm into formation, broadcasting their pirate network, and then disperse, escaping detection, only to reform elsewhere.

The flock becomes a highly site-specific means to create peer-to-peer communication. Electronic Countermeasures is a nomadic infrastructure formed from digital broadcasts not concrete and steel.

As a form of aerial Napster, the public can upload files and share data with one another as the drone servers float above the significant public spaces of the city. It is a site specific file sharing hub, supporting a temporary, emergent augmented community where content and information is exchanged across the drone network. Impromptu augmented communities form around the flock. Their aerial choreography and dynamic formations give visual expression to the new forms of community, new forms of city even that form around these digitally enabled locally accessible networks.

Liam Young

CONCLUSION

"It's a design equivalent of an ethnographic study, both in the sense of field research and as well as more tangible exploration, we observe people or situations and make things and objects." Julian Bleecker

As described in this quote from one of our interviewees, the ways ethnography is employed by designers differ from its earlier roots in anthropology. In our study, we saw that there are obvious nuances between these forms of enquiries: the time spent on the field is shorter, the focus is more narrow, the analysis of the material is closely linked to design practices with the production of intermediary objects (new forms of descriptions and models such as persona or user journey, design prototypes), the field data are widely heterogeneous, the ways that "results" are presented are so distinct from anthropology that it's sometimes difficult to draw a clear line between "field results" and "design work". The study also highlighted the different degrees of formalism and epistemologies in designers' practices. More specifically, field research is not always planned or prepared, the approaches are not necessarily linear and rigorous; and designers deploy various personal (and messy) tactics to register or analyze what they perceive, as the various cases described have exemplified.

Said differently, with all these "undisciplined, border-crossing, trouble-making" approaches, one might wonder whether all of this is ethnography strictly speaking[63]. For most of the participants in our study, this issue was not the main concern. Their goal was actually not to "do ethnography", nor to offer a "truthful account of reality". Instead, their purpose here was to frame the design work by taking people and context into account. Our study, and the cases presented before, uncovered the diversity of individual moves and tactics used to attain this goal. From a more general perspective, we saw how designers adopt several forms of logic in the articulation between field observation and design. On the one hand, inductive reasoning is obviously important given how field research helps to generate descriptions, models and prescriptive elements for design (design space and principles,

[63] Nervous anthropologists might argue that proper ethnography is hard to grasp too.

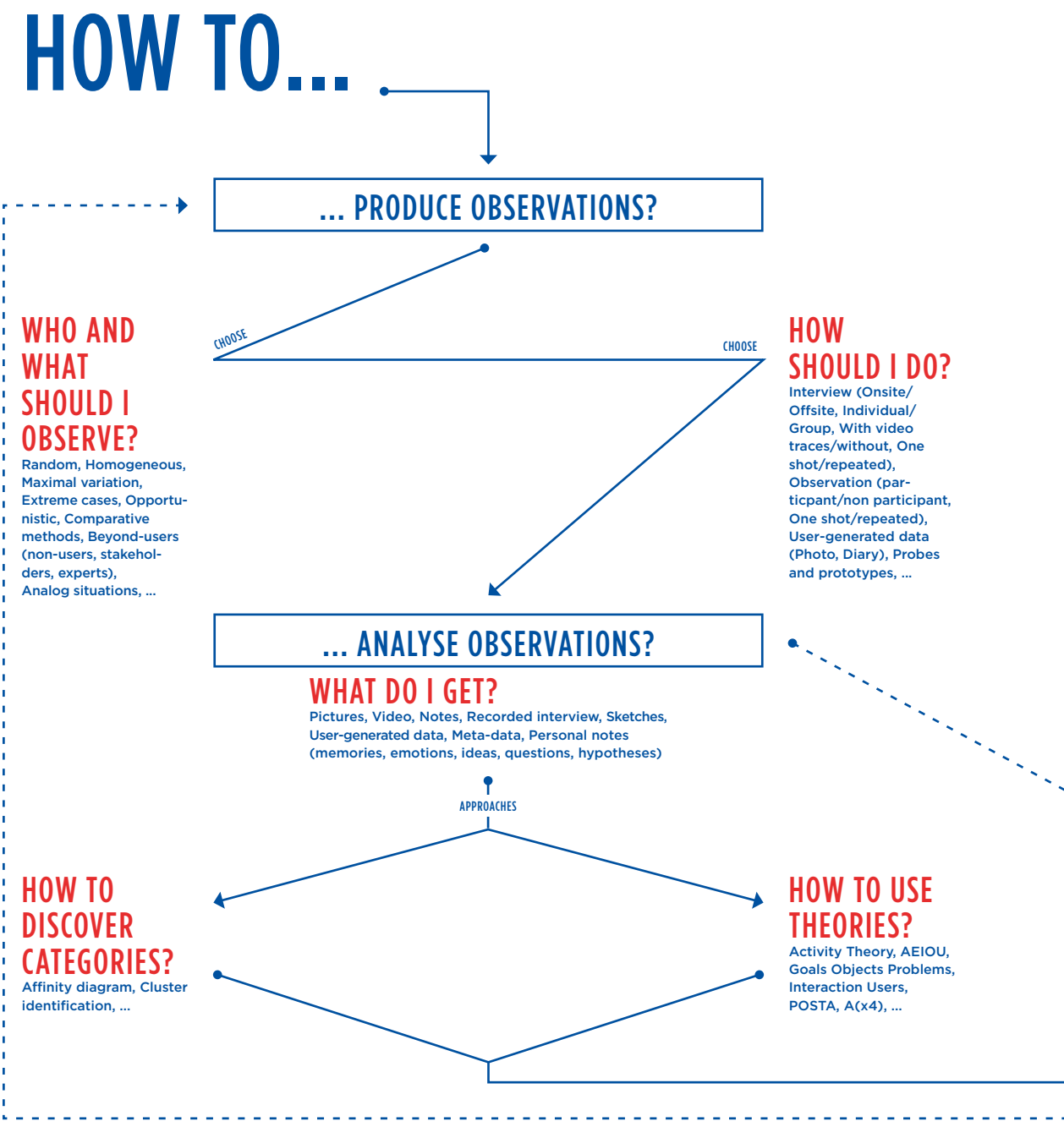
prototypes). On the other hand, deductive reasoning also plays a role with existing ethnographic theories and models which may help designers frame their interventions or analyze field data. While the two are pretty similar to what happens in social sciences, the main difference lies in the ways designers merge analysis and design work: a peculiar habit is used as an hypothesis to sketch a product concept, which is then turned into a non-functional prototype, and then tested with a group of potential users... to be reshaped afterwards based on the fresh outlook from the targeted group.

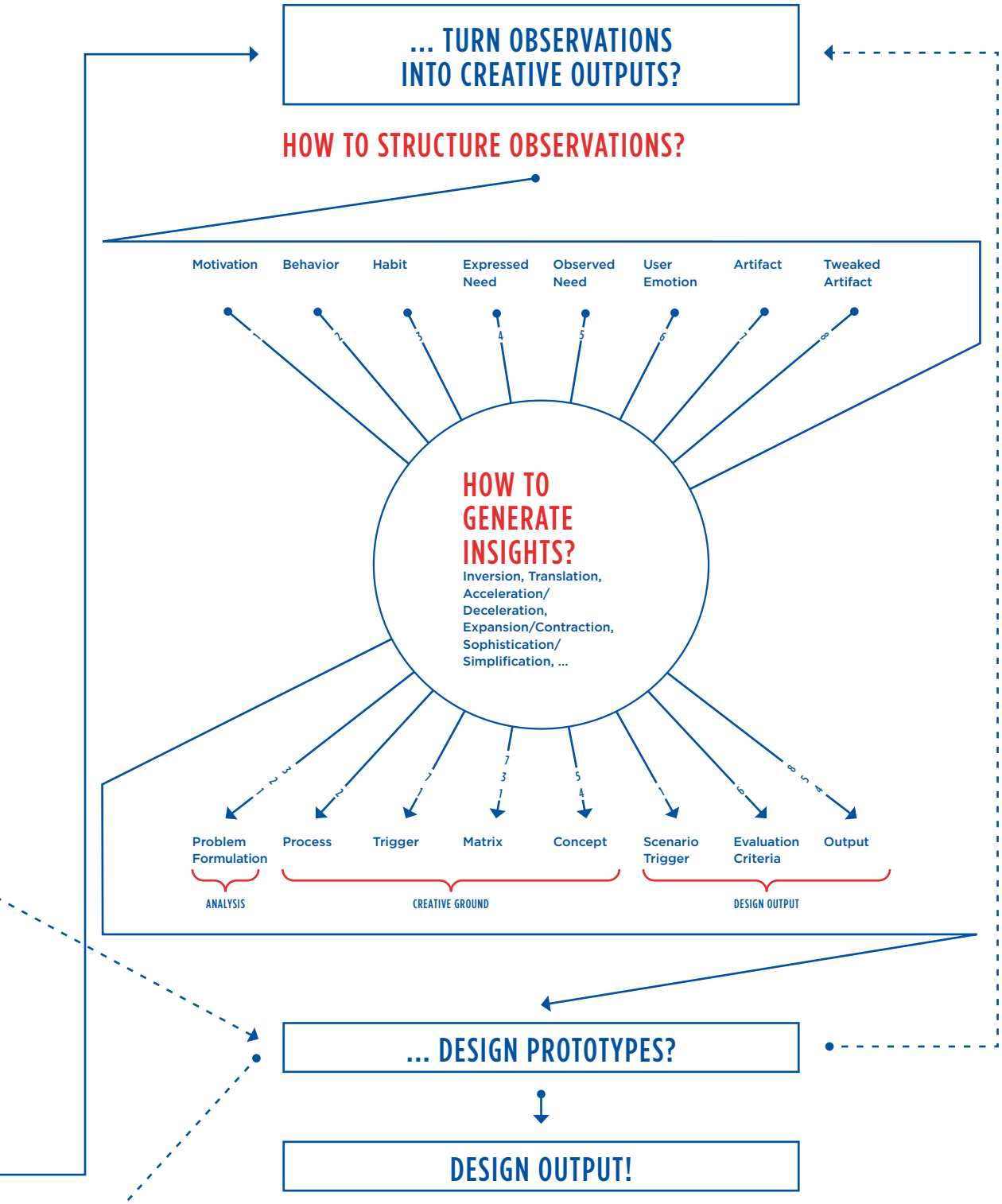
There are two consequences to this combined reasoning. The first is that the distinction between user research and design work is hard to pin down, especially because of the intricate relationships between these different forms of reasoning. The articulation of analysis and design work modifies the data; and this very transformation becomes the springboard to design speculation. The second consequence is that this complex "process" corresponds to the very essence of what we might refer to as a "designerly" way to conduct ethnography. Even though their end purposes might differ, our interviews also revealed that media/interaction design share similar approaches to critical design. The observational tactics presented in our research model, as well as the ones described in the cases, are very similar. More specifically, the conceptual framework we proposed concerning the articulation between fieldwork and design actually reconcile these two sub-domains of design.

Although this book is not a manual per se, we think it is important to show the practical implications of our work. The following diagram gives a visual depiction of the entire approach. Following the results of our study, we do not consider that the process must be linear; one can start at whatever level: with a non-functional prototype to be tested (bottom of the diagram), with a need to conduct observation before generating design concepts (top of the diagram), from a theoretical angle (middle part of the diagram). Also, one can repeat these steps and do loops of iterative tests, or only one pass to get a "quick and dirty" perspective.

Nicolas Nova

APPROACH


HOW TO...
... PRODUCE OBSERVATIONS?
CHOOSE
CHOOSE
WHO AND WHAT SHOULD I OBSERVE?
Random, Homogeneous, Maximal variation, Extreme cases, Opportunistic, Comparative methods, Beyond-users (non-users, stakeholders, experts), Analog situations, ...
HOW SHOULD I DO?
Interview (Onsite/ Offsite, Individual/ Group, With video traces/without, One shot/repeated), Observation (participant/non participant, One shot/repeated), User-generated data (Photo, Diary), Probes and prototypes, ...
... ANALYSE OBSERVATIONS?
WHAT DO I GET?
Pictures, Video, Notes, Recorded interview, Sketches, User-generated data, Meta-data, Personal notes (memories, emotions, ideas, questions, hypotheses)
APPROACHES
HOW TO DISCOVER CATEGORIES?
Affinity diagram, Cluster identification, ...
HOW TO USE THEORIES?
Activity Theory, AEIOU, Goals Objects Problems, Interaction Users, POSTA, A(x4), ...


... TURN OBSERVATIONS INTO CREATIVE OUTPUTS?
HOW TO STRUCTURE OBSERVATIONS?
Motivation
Behavior
Habit
Expressed Need
Observed Need
User Emotion
Artifact
Tweaked Artifact
HOW TO GENERATE INSIGHTS?
Inversion, Translation, Acceleration/ Deceleration, Expansion/Contraction, Sophistication/ Simplification, ...
Problem Formulation
Process
Trigger
Matrix
Concept
Scenario Trigger
Evaluation Criteria
Output
ANALYSIS
CREATIVE GROUND
DESIGN OUTPUT
... DESIGN PROTOTYPES?
DESIGN OUTPUT!

LEXICON

Activity Theory

A theoretical framework to describe the structure, development, and context of people's activities. It considers an activity system beyond just one user and accounts for the role of the environment, the history of the person, artifacts and culture.

Affinity Diagram

A technique used to organize ideas and data into common themes by creating visual clusters of similar concepts.

Critical Design

A design current that uses designed artifacts as an embodied critique or commentary on consumer culture. Proposed by Anthony Dunne and Fiona Raby, it has roots in the radical design approaches of the 1960s.

Coding

The writing of computer programs, or the analytical process in which data, in both quantitative form (such as survey results) or qualitative (such as observations or interview transcripts) are categorized to facilitate analysis.

Contextual Enquiry

A user research method proposed by Beyer & Holtzblatt that relies on interviewing people in the context of their activity. The researcher observes the user do their normal activities and discusses what they see with the user.

Cultural Probes

A user research technique that consists in using a "probe kit" (e.g. diary, map, postcards, camera) given to participants to allow them to record

specific elements. This material is used to gather inspirational data about people and stimulate designers' work.

Design ethnography

A design approach that repurposed ethnography in order to ground creative work and speculations in field research.

Design Fiction

An approach to design that speculates about new ideas through prototyping and storytelling. It uses standard objects and media conventions as a way to express ideas about the future: fake product catalogue, map of a fictional area, journal, short video showing a day in the life of a person, etc.

Design space

A mapping of the design possibilities often presented visually and used in Human-Computer Interaction. This overview also highlights key issues and design parameters to be considered in a project.

Design Thinking

A business and design current that sees design as a problem-solving activity, and proposes that the ways designers approach problems and the methods they use to ideate, select and execute solutions, can be applied to business and innovation issues.

Epistemology

The branch of philosophy concerned with the nature and scope of knowledge. It questions what knowledge is and how it can be acquired.

Ergonomics

see Human Factors.

Ethnography

Originally corresponds to the scientific description of people and their cultures with their customs, habits and differences. In our context, it refers to the field research methodologies employed for this purpose.

Ethnomethodology

An approach to sociological inquiry, introduced by Harold Garfinkel and Harvey Sacks, that focuses on documenting the methods and practices through which society's members make sense of their world.

Grounded Theory

An approach to sociological inquiry developed by two sociologists, Barney Glaser and Anselm Strauss, that aims at the discovery of theory in an inductive fashion (through the analysis of data).

Human-Centered Design

The ISO term for "User-Centered Design" (ISO 9241-210). Also used by IDEO to refer to their UCD methodology.

Human-Computer Interaction

An area of Computer Sciences that consists in the study, design and uses of the interaction between people and computers.

Human Factors

A multidisciplinary field that involves the study of designing equipment and devices that fit the human body and its cognitive abilities.

Interaction/media design

An area of design that consists in defining the behavior of interactive digital products, environments, systems, services and new media.

Persona

A fictional character, generally based on field research data, aimed at solving design questions. Personas are a common output of field research for designers in corporate settings.

Sampling

The selection of a subset of individuals from within a population.

Tool

An approach or procedure aimed at framing, analyzing or generating concepts (in our context).

User-Centered Design

An approach in which the needs, wants, and behavior of users of a product or service are given extensive attention at each stage of the design process.

User diary

A field research approach that involves asking a number of people to record their experiences related to a particular subject over a period of time. Generally used to learn about people's behaviors and habits.

User research

Field research aimed at understanding the existing (or expected) user of a product, service or system.

User journey (also Customer journey)

A diagram that maps the experiences a person has when interacting with a product or service.

User Experience (UX)

A term coined by Donald Norman in the 1990s that refers to the holistic perspective of how a person feels about using a system (behaviors, attitudes, and emotions).

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IMPRESSUM

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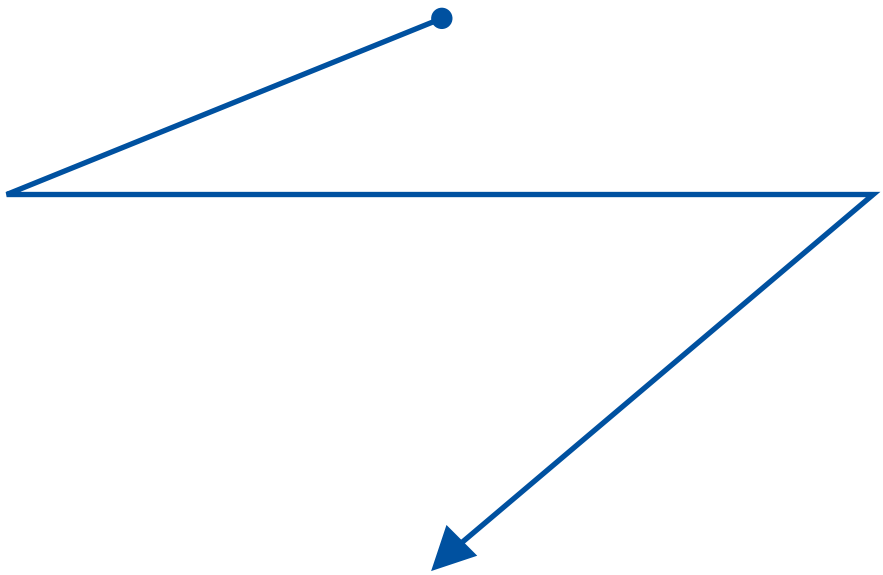
What do designers mean when they say they're going to do "ethnography" and "field research"? What are the relationships between observing people and designing products or services? Is there such a thing as a "designerly" way of knowing people? This book is a report from a research project conducted at the Geneva University of Arts and Design (HEAD – Genève) that addressed the role of people-knowing in interaction/media design. It describes the wide breadth of approaches used by designers to frame their work, get inspiration or speculate about plausible futures. This book presents practitioners' tactics and illustrates them with several cases. Unlike many resources on user-centered design, it takes a broader approach to design by considering cases in which design is not only a problem-solving activity, but a tool to speculate about the near future, reformulate problems or propose a critical discourse on society. In doing so, this book helps designers, students and consultants to challenge their own perceptions and update their approaches.



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