YOU ARE IMPORTANT!

Designing for Health Agents in Vila Rosário

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Introduction

This dissertation is about creating design solutions for health in a very special community, Vila Rosário in the State of Rio de Janeiro. Following local parlance, I call this an invisible community. It is one of those poor communities on the outskirts of a metropolis, which goes largely unnoticed. Most people in this community seem to be invisible as well. They work, have an identity card, and most of them pay their taxes. Still, they feel that they have no power over their fate, and most decisions about structures and rules that direct life in the community are taken without listening to its people. This is a design study with an extensive design research part, but it is also a "constructive study" (see Koskinen et al. 2011). With my wife Andrea Judice, I developed a series of designs to improve public health in Vila Rosário.

These designs were visual and they were made to be accessible to people in this underprivileged community, where not even literacy can be taken for granted. All through our design work, Andrea and I paid specific attention to the socio-economic structures of the community, and developed an empathic and participatory design

approach to work with the community (for empathic design, see Koskinen et al. 2003; for participatory design, see especially Ehn 1988a). These designs were developed to promote an ideology for health, meant to fight several tropical diseases rampant in Vila Rosário. The main attention, however, went to tuberculosis, which was a major killer in the neighborhood. The methods of the study mostly came from empathic design, while the approach of the study is more in debt to early Scandinavian participatory design. The aim in this study - started in 2005 - was to develop designs that would in their part help the community become self-sustainable. The main goal was to find ways to convey information about health to the community, and to educate its inhabitants to new ways of thinking about their own reality.

One of our literary sources was Brazilian social design, which has its origins in the sixties, in the work of Escola Superior de Desenho Industrial (ESDI) in Rio de Janeiro. As Bonsiepe (1991: 266) notes, its research agenda was partly shaped by several instructors from HfG Ulm, like Karl-Heintz Bergmille and Alexandre Woller. In the spirit of these Ulmians, our approach is well in line with what Gui Bonsiepe has said about what designing for Third World should mean. When designing for Third World, design practice has to build on the rational foundations of research, as he writes:

> Design is an instrument by which the ruinous technological dependency of the Third World can be reduced... it is precisely this rationalism [of Ulm design] that has shown itself to be a workable option in the Third World. It acts as a powerful antidote to those frivolous, "ludic" attitudes that make a deep semantic issue out of stylizing a door handle of a table lamp, deploying the needs of the psyche as a cloak for a retreat from technological and economic parameters. The rationalism of Ulm shuts the door firmly against any romanticization of poverty or idealization of "appropriate technology," and dispels the paternalistic attitudes of "aidism." Ultimately, the design problems of the periphery can be solved only in the periphery. Design "for" Third World is no more and no less than an ideology. (Bonsiepe 1991: 267)[1]

We must forgive Bonsiepe for his use of old-fashioned terminology like "periphery"; he was writing almost 25 years ago. However, the implications of his argument about the importance of rationalism in designing for poor people are worth some consideration. Another valuable thing is Bonsiepe's observation about the frivolous quality

1 Bonsiepe, Gui 1991. The "Ulm Model" in Periphery. In Lindinger. Herbert (ed.) 1991. Ulm Design. The Morality of Objects. Cambridge, Mass.: MIT Press. p. 267.

of a good deal of design. Indeed, a good deal of "design for the Third World" still consists of hit-and-run design workshops done in poor neighborhoods, more for exotism and good stories than to help people who live in those neighborhoods permanently.

This thesis treats people in Vila Rosário as if they were any users of design, not as people we should be particularly compassionate about, or as people who should be pitied. We took the challenges in Vila Rosário as design challenges, and used up-to-date techniques to design a slightly better future for them. The process did not change their world a lot, and this book should not be treated as an ideological statement, as Bonsiepe warns about. Nor it is a case of "aidism": by doing our designs together with people in Vila Rosário, we learned as much as they did. In human terms, our work saw the people in Vila Rosário and ourselves as equals, instead of doing what urban designers usually do in slums, one-shot short-term projects aimed at solving problems outside the context in which they arose. Our work was a long-term commitment; we tried not to create better tents for refugees.

Research and design leading to this thesis was done together with Andrea Branco Castello Judice. As both theses build on the same design cases, there is some overlap in them. The two theses, however, have a different focus. Her thesis, *Design for Hope* (A. Judice 2014), focuses on the design process and links it to Paulo Freire's pedagogy (Freire 2005). She describes in detail how the design process and research process behind it took place. My thesis focuses on the actual design work. For example, when I explain user research, I will focus on the actual design decisions behind things like probes and projective devices we used in our studies. Similarly, this thesis approaches in more detail the actual design products we produced for our people. Because of this focus, this thesis is more visual than hers.

This book is a piece of what is known today as research through design today (Frayling 1993), and builds on field research methodology (see Koskinen et al. 2011). The research method is design, and the research process follows the steps of a typical empathic and participatory design process. There was a fairly extensive research period, followed by fieldwork during which I co-designed several products with Andrea and the Health Agents. These were tested with the Health Agents and put to use only after they were happy with the result. I believe this process is easy enough to understand for a design reader, whom I hope also appreciates the way in which design became my research instrument. For this reason, the book is descriptive rather than explanatory, and it follows the design process in quite faithful order. This also dictated the writing style, which was inspired by the Finnish sociologist Pertti Alasuutari (Alasuutari 1998). More than twenty years ago, he proposed that

social inquiry can best be written as as a detective study. Telling the outcome of an investigation early on would be detrimental to the story line. I believe a good design thesis is like this too: it can be a story of an investigation, in which the solution should not be pointed in the beginning, in order to keep reader's excitement.

RESEARCH QUESTIONS

My initial research question was how design can improve communication through information systems. The design problem was how to design best information systems to improve consciousness of health-related behaviors and factors in Vila Rosário. I wanted to focus on graphic design in particular, with the aim of identifying which elements of graphic design are suitable for a community like Vila Rosário, but I also wanted to test my designs and the process in the context, to validate their effectiveness.

Behind these practical questions were two more academic questions. First, I wanted to understand how graphical elements, generated in context, can allow a better communication between information systems and inhabitants with low educational levels. Second, I wanted to develop methods for a process for designing for poor communities, and test these methods in context.

As our study went on, these questions were reframed considerably for several reasons. My initial design-led approach proved to be too narrow to take into account what I learned about life in Vila Rosário. Also, our most important stakeholders, doctors doing research in the neighborhood, as well as Health Agents, to whom we did most of our designs, willingly approached health in holistic terms. They knew that treating tuberculosis alone would be counter-productive because medication cannot solve the problem entirely. To improve the lives of people in Vila Rosário, they looked at both the causes and consequences of the illness, including things like poverty, poor hygiene, other diseases, protozoa, and so forth. When working with them, they had realized that to treat the disease, they also needed to treat the community. Their working methods reflected this hypothesis: Health Agents, in fact, were people who were hired from the community, and their job was to be with the community and work with the disease on foot.

For us, this hypothesis had to be taken seriously. As our empathic design attitude told us, we had to interpret people and understand their way of thinking and acting, not to impose our terminology over them (see Koskinen and Battarbee 2003). We had to expand our design program to reflect this hypothesis away from sharing information about tuberculosis on the Web, to the actual footwork Health Agents were doing. As this thesis later shows, most of our

designs were meant to help Health Agents do their work better when they are on the field, tracking patients, monitoring their treatment, and giving advice to families about health and its relationship to their environment.

Our design program widened considerably with this realization: designing for the Web was not enough. Most designs we did were low-tech designs meant to be carried by Health Agents. Some others were designs for Instituto Vila Rosário, the clinic that was the hub of Health Agents.

When we were doing our study, we also saw a need to probe the limits of our approach. To study whether the process and the methods we worked with in Vila Rosário work in other places, we streamlined the program in Windhoek, Namibia. Still later, in 2010, we had a chance of replicating our work in Vila Mimosa, Rio de Janeiro's main red light district. The transferability of our process became one of our research questions.

LEARNING FROM LITERATURE

When I started to look for literature on graphic design in impoverished areas in Brazil, I quickly noticed that there is not much literature I could build on directly. Many design projects have been done in slums (favelas), and poor rural villages. However, most of those were isolated projects in which a designer had left the studio to do a design intervention of some sort, but without a proper background study and without any method for evaluation on whether the intervention had any long-term effects. This was also the case in exhibitions like "Design for the Other 90%", by the Smithsonian Institute and Cooper-Hewitt in Washington D.C. (2007).[2] Most of these efforts remained as design projects, rather than could serve as a precedent for our study. Most designs we saw were about visual language based on secondary research. Their design interventions remained barely more than hit-and-run design efforts; a frustration with the lack of research literature is evident in Braga's judgment:

> In recent Brazilian Congress of design, has increased the number of papers presented on the social role of the graphic designer. However there are no books from national authors focused on this issue. (...) Overall, there have been highlighted ecological aspects concerning the printing and graphic production. (Braga, 2011)

2 Design for the Other 90%. New York: Cooper-Hewitt, National Design Museum, Smithsonian Institution, 2007.

Following Frascara, we may conclude that perhaps the main part of the problem is that graphic design in Brazil is so market-oriented that other interests find little space in the bigger picture.

> There are many examples of effective visual communication in the field of consumer products advertising, but now it is necessary to guide this experience to reduce social problems and the providing of necessary services to the people. (Frascara, 2000).

There were many things we could learn from these projects, naturally. The traditional approach of implanting designs in poor people's lives does not work. The only way to change things with design is to work with the local community and make a long-term commitment. This conclusion, of course, is no news to sociologists, psychologists, anthropologists, epidemiologists, educators, or even artists like Rick Lowe (see projectrowhouses.org). The main thing to learn from these fields of learning is that changing behavior takes a holistic, social approach, and it is necessary to make a long view on social change.

The social sciences and related disciplines gave us direction, but they did not tell much about how to do the actual design work. To see how to build a design approach for Vila Rosário, we identified two bodies of useful research for a closer study: Brazilian social design literature; and World Design literature from Helsinki.

"World Design": Influences and Approach

When we were doing our studies in Helsinki, one of the informal research groups at the School of Design (now Department of Design) was the World Design group, which brought together doctoral students interested in designing outside Europe and North America. The group had about 10 PhD students.

Influences. In her PhD thesis, Reijonen (2010)[3] described the main influences of the group. The godfather for World Design was Viktor Papanek, whose work has inspired designing outside the West since the end of the sixties. In his writings, he criticized the market-based model of design and sought to replace it with design for need, which would focus on real needs of poor people rather than responding to the insatiable wishes of the consuming West (Papanek 1971, 1984). He has been criticised for misunderstanding the market mechanism, and also for having too broad a concept of

3 Reijonen, E. K., 2010. Enhancing the capabilities of small producers in developing countries to meet global challenges: an investigation into the contribution of international craft development initiatives. Unpublished PhD thesis, Robert Gordon University, Scotland. Available from OpenAIR@RGU. [online]. Available from: http://openair.rgu.ac.uk

design. Another important figure has been Gui Bonsiepe, who has worked in several Latin American countries, consistently pushing designers to use the best technologies and design techniques while doing social design. Says Reijonen:

> For Bonsiepe, decentralization was the key point in development. Bonsiepe has been an active promoter of the Centre and periphery model of development, in which the unequal relations between centre and periphery act as barriers to development, weakening the possibilities of creating indigenous strategies for modernisation. Instead of transferring models from the centre to the periphery, the peripheries should rely on their own innate strategies (Ghose, 1998). In effect, Bonsiepe has been determined to avoid the phrase developing country, replacing it with the phrase peripheral countries. (Reijonen 2010: 72)

Theoretically Bonsiepe has always built on the distinction between center and periphery, which lost a good deal of its validity over the years, particularly in design, which in turn has become very international. The third important figure has been Victor Margolin, who has criticized designers for neglecting social needs in their work (Margolin and Margolin 2002).

Finally, Reijonen sees two trends in contemporary design for development projects. First, it tries to avoid distinctions from the sixties and the seventies, and sees "complements" where the predecessors saw "opposites": in particular, the market mechanism and social needs are not incompatible. Another trend is far away from interest groups on the Web to events like exhibitions and conferences. In contrast to earlier research that saw design as a case of technology transfer, this literature sees design as:

> an empowering problem-solving methodology, that can enable and facilitate fulfilling social and economic needs in marginalized communities (Gomez, 1997). In this view, design can and should be applied for the greater good of mankind. In the development context, design's social application is particularly relevant. Margolin has talked about design healing the world (Margolin, 2003); Guy Bonsiepe talks about design empowerment (Fathers, 2003). (Reijonen 2010: 76-77)

Approach. If we turn to the World Design group in Helsinki, which has produced several PhD theses so far, we can see a few features that well illustrate Reijonen's point. At least four pieces in the group have aimed at reviving crafts by grounding it in a business model. Most of the work has been done in Africa. Satu Miettinen (2007) and Inkeri Huhtamaa (2010) worked in Namibia and tried to revive indigenous crafts by connecting it to tourism. Adhi Nughara (2012)

studied how tradition can be updated in Indonesia to create small businesses, while Elina Sorainen (2006) tried to revive local ceramic tradition in Kalpourkan, Iran, before this 5000-year old tradition was lost. Two other theses had another focus. Richard Kabiito (2010) studied indigenous knowledge and visual storytelling in Uganda in order to integrate it into contemporary art practice. Paula Bello's thesis (2010) looked at how design products change in global economy when they are recontextualized, i.e. when they leave their origin and end up being used in another society.

Another thing the World Design group can teach us is its methodology. Almost without exception, the group has consistently combined ethnography and design workshops. Its participants have always stressed the need to go to the context to gain first-hand ethnographic understanding of it. Its participants have always also organized co-design workshops with the locals, to create design with the locals and to test them as soon as they emerged. This is what described our approach as well, and is the main link to the World Design group.

Social Design in Brazil

To learn from designing in Brazil, I turned to social design literature in Brazil. Its roots go back to the sixties. When Escola Superior de Desenho Industrial (ESDI), the College of Higher Education in Industrial Design in Brazil, was established in the early 1960s, its curriculum was shaped in part by the German School of Ulm. It stressed research, systematic methodology, technology, teamwork, and had a clear industrial orientation (see Bonsiepe 1991). This is still the main hallmark of design education in ESDI, but in most other design schools in Brazil too: students are educated to focus on the industry.

However, there has also been an undercurrent. From the sixties, several designers and design schools have also been involved in social design or "partnership design," as it is sometimes called in Brazil. For example, social design began at Pontifical Catholic University of Rio de Janeiro (PUC-Rio) in 1982. Students were raised to do interventions in real context, and they were taught to work with real users to understand their needs and wishes, in contrast to tradition - in which students were taught to imagine the users and the contexts and to test their idea in the classroom. This model of education based on abstraction and imagination of the real context, with no contact with the real users, yielded projects and products lacking social meaning, and most of these failed (Couto & Ribeiro 2002).

In a different way, social designers are taught to do research projects and design interventions to find ways of influencing people and communities. The aim of education is to understand how design

can be extended to ease the lives of those who are often hidden from society. Social design in PUC-Rio has an ethical basis. It is based on human rights, and its vision is an equal society that respects its members. It is also multidisciplinary: the main proponent of the social design approach in PUC-Rio has been Rita Couto, who has always stressed that social design has to connect with anthropology, psychology, sociology and public policy, in order to properly open to society. One of the main characteristics of social design approach is to do design with people at almost every stage of the design process. This guarantees that design does improve the lives of invisible populations and helps to express their needs and desires to the more powerful strata of society.

Since 2009

Most of the work for this thesis was done between 2005 and 2008. Since then, there have been a few potentially relevant debates in design research. One is discussion about design activism, which has its roots in the writings of Alastair Fuad-Luke (2009), but has been better elaborated by the scholar of design culture, Guy Julier. Julier distinguishes design culture, which describes design on the neoliberalist marketplace. Design culture as it exists today develops through market impulses and works in a framework determined by company-commissioned contracts.

As Julier notes, design culture is reactive. He compares it with design activism, which is his cover term for a variety of tendencies in design, all sharing a self-conscious and political attitude to design-as-usual. For Julier, activist design starts from social, environmental, and/or political issues, but also intervenes in these to improve the world we all live in (Julier 2013: 218-219). His list of current activist tendencies include social design, community design, participatory design, and critical design, and he sees Italian Radical Design and Victor Papanek's work as the most relevant precedents (Julier 2013: 226). Writers like Thomas Markussen have further elaborated the ways in which design work can become an intervention that aims to make people conscious about some of their world's ills. Typically, these ways borrow from art (Markussen 2013).

There are also several debates in Europe and North America that encourage designers to step out of their typical role as a player in the consumer market. These discussions center around notions like social design, participatory design, contemporary craft, and co-design. From my perspective, however, the most relevant piece of design activism is a project by a Namibian interaction designer Heike Winschiers-Theophilus. With Nicola Bidwell and Edwin Blake, she has recently extended the notion of participation in design in a series of projects in Namibia. They have tried to build a participatory design framework that is situated to local circumstances, rather than applies

European design methods and techniques directly to the African society (Winschiers et al. 2012).

In the heart of their work is the Zulu language concept of Ubuntu. They encourage designers to function as apprentices rather than technical experts, and do design together with locals in the spirit of this concept, which says that people need to be seen in the context of their community, and vice versa. Design becomes a dialogical and fair learning process, in which designers and locals are exchanging views and in which no one is authoritative. Like Andrea Judice (2014), she references Paulo Freire. Her concept of dialogue may in part be in debt to him.

Noteworthy, Winschiers-Theophilus and her colleagues develop a series of guidelines for designing in Namibia. These guidelines are:

1. *Being participated*. Whenever designing for communities in Africa, design has to be done with people in those villages and towns where the designs are to work;
2. *Situated redefinition*. They encourage designers to build interactions with people, which redefine the terms of the design process, in the spirit of mutual learning. Like Pelle Ehn noted long time ago, design does not function if the designers use their own, esoteric terminology when dealing with people;
3. *Changing roles*. Designers need self-awareness and reflectivity, not to slip into being experts who can ignore local norms because of their knowledge about topics such as materials and manufacturing techniques.

Compared to empathic design (Koskinen et al. 2003), which we learned in Helsinki during our studies, Winschiers's approach and guidelines are a good match. When I was reading other literature about design activism, social design, and critical design, I did not feel like I learned a lot, however. For example, some of the key writings of social design affirm that in the center of social design there has to be a proper understanding of people, not technical knowledge. This is exactly the point we learned from empathic design. New terminology aside, the only new thing was empathic designers neither tried to develop processes, nor build toolboxes of methods for each stage of the process, which is what writers like Lucy Kimbell and Joe Julier are doing under social design (2012).

DESIGN FOR A FORM OF LIFE

How to turn these approaches into methods and processes? For my thesis, the main cue came from one of the classics of participatory design, Pelle Ehn (1988a, b), whose early work built on the philosopher Ludwig Wittgenstein's later thought. Perhaps

the most important lessons Ehn learnt from §Wittgenstein were the notions of language game and form of life. Any use of language, for Wittgenstein, was based on a massive amount of background knowledge that was mostly practical, and often could not be made explicit. As Ehn notes, what a picture or a word describes is determined by its use, and this use is thoroughly contextual:

> "The aspects of things that are most important to us are hidden because of their simplicity and familiarity. (One is unable to notice something – because it is always before one's eyes.) The foundations of this enquiry do not strike man at all. Unless that has some time struck him. – And this means: we fail to be struck by what, once seen, is most striking and most powerful." (Ehn 1988b: 144)

I needed to pay attention to the massive social and cultural background if I wanted to create designs that were understandable in Vila Rosário. To do this, I had to understand the form of life in the community (Wittgenstein 2009/1953: #23). The most important thing was to understand its language games, and how designs take meaning in these language games (Wittgenstein 2009/1953: #7). The problem with language games is that they are local, so there is no way to know precisely what they are, and how many are there (Wittgenstein 2009/1953: #23).

Taking things outside these language games happens often in design. For example, it happens in normal studio-based design, in which designers working in their studio simply trust that they know how people will understand and use their designs. This would have meant that I built on the "pictorial theory" of language, which Wittgenstein and Ehn criticized. With these authorities, I could not trust that I can sit down and trust that know better what works in Vila Rosário and what does not work. Quite simply, I had to go into Vila Rosário to get familiar with its form of life and to understand its language games, which are the background for my designs. I needed to understand the form of life apart of which language and designs are, and build a design process around this idea (see Ehn 1988a: 117 and his reference to Wittgenstein 2009/1953: 225).

Again, a reliable guide was Ehn, who has described his early approach in four bullet points. When designing, he left traditional rational design methodologies like system descriptions and interviews behind, and build on different premises:

1 With his colleagues, he started to think traditional tools not a problem to be replaced, but as design ideals. Graphic workers understood their traditional tools; why not build design on them?
2 They started to make joint visits to interesting places where they discussed with users, to trade shows, to vendors, etc. These visits were done with graphic workers he was designing for;
3 They started to dedicate considerable time to learn from each other: designers about graphic work, and graphic workers about design;
4 They started to use design-by-doing methods like mock-ups and work organization games that spoke a language graphic workers could understand. (Ehn 1988b: 145).

Ehn's experience led me to my design approach. I started with his interpretation of Wittgenstein's later philosophy, and wanted to study the form of life I wanted to design in detail. After that, with Andrea, I designed a process that took Ehn's experiences into account. We put rational design methods aside and worked with methods people in Vila Rosário understood; we visited the place often; we saw things in their form of life as essential resources for design, not a problem to be replaced; and we decided to use what Ehn calls "design-by-doing" methods, all through our research process. Methods like prototypes, mock-ups and scenarios were a bridge between Vila Rosário and us just like they had been in Ehn's early work in the Nordic countries (Ehn 1988a: 116ff). Chapter 2 explains my approach in more detail.

2

Three Language Games of Design

The design research approach of this study builds on two sources - empathic and participatory design - just as Andrea Judice, with whom I did my research and design work. She described her design approach specifically on Paulo Freire, a Brazilian classic in pedagogy, whose *Pedagogy for the Oppressed* (2005) described in detail a way to create content for poor people. Freire's aim was to create a pedagogy that was not dehumanizing, based on the idea that the poor have to learn contents for participating in society as equals. His aim was to build a dialogical pedagogy that would bring – in his language – the oppressors and the oppressed in contact to surpass their pre-existing antagonistic relationship.

Freire also described a process such as pedagogy needs. Andrea Judice built her design process on this process, which begins by searching and analyzing secondary data from some community. It goes on to a community visit, to be done in local community with locals recruited as assistants. During the visit, researchers must learn to immerse themselves with data. Based on the insights generated, they go on to identify what Freire called "themes" to understand the

local universe. These ideas are analyzed in multidisciplinary teams and reiterated until the results are robust enough to be tried out and corrected in the community. The process of correction goes on until the results are accepted by the community. It is only then that the researchers can create didactic materials to the community. A. Judice, of course, created designs rather than didactic materials.

This approach to design, which A. Judice (2014) calls *Design for Hope*, is consistent with empathic design as it has been practiced in Helsinki, where I and Andrea started our studies in 2005. For empathic designers, design is an exercise in which they think about themselves not as experts who know better, but more like interpreters, whose job is to make sense of people and create designs that translate the results of this sense-making into products and services. As Koskinen and Battarbee write:

> In terms of design, we maintain that designers are changing from legislators to interpreters who mediate user experiences into the design process. Instead of seeing designers as legislators who know better, it has become more common to characterize design as an interpretive profession. An alternative is slowly gaining ground: interpretive research that resembles qualitative research in the human sciences. (Koskinen and Battarbee 2003: 40).

However, the problem with empathic design when we created our design approaches in 2005-2007 was that it had developed in Europe, and did not prepare us well to encounter a poor neighborhood like Vila Rosário. Empathic design was a response to demand from high-tech industries in Europe and North America. Although its basic approach did serve us well, it built on many assumptions that were not valid in our case. For instance, in a country like Finland, literacy can be taken for granted; in Vila Rosário, it was a problem we had to deal with. A similar point can be made of technology literacy and many mundane features related to material culture.

For this reason, Andrea turned to Paulo Freire. Her interest to Freire came through one of the classics of participatory design, the Swedish designer Pelle Ehn, whose early work was influenced by Freire (Ehn 1988a).

My approach is also in debt to Ehn, but in a different way. In his PhD thesis, Ehn described the philosophical background of early participatory design in detail. The key thing he wanted to understand through philosophical analysis was why some very practical design methods worked in one participatory design project called UTOPIA, now a classic. In UTOPIA, Ehn and his colleagues had noticed that if they wanted to create a design language that works with union members of the graphic industries, they had to reject system design methodologies related to computer science. Instead, they had to use

simple things like cardboard mock-ups to create design situations that were understandable and engaging for union members.

Ehn's explanation for why these simple representations and mock-ups worked better built on the notion of language game by the philosopher Ludwig Wittgenstein. Without going into his overall work, we can say that his later philosophy taught us that language – or any other representation – necessarily builds on a "form of life", which provides the background for understanding anything. Words are not pictures of things from the world, but defined in a community (Ehn 1988b).

Studying humans and studying nature differs in a crucial way. When studying humans, we are dealing with people who have their own ways of making sense of things and their meaning. They act on these grounds. An apple falling from the tree does not care about the concept of gravity; when a president declares war, he certainly knows how weighty his words are (Winch 2008: 119). Unlike the apple, people always have alternative courses of action available. Even habitual action is, after all, selection from alternatives, and nothing says that one cannot change the rules of the game. New churches do come up, and once there was a boy who picked up the ball and invented rugby.

Importantly, this understanding of human action leads to a design approach that stresses the need to connect with people at all points. It is crucial to study the form of life one wants to design for, in order to respond to the following three demands:

DEMAND 1:	How to understand a form of life;
DEMAND 2:	How to create design methods and create design processes that work in this form of life;
DEMAND 3:	How to create designs that work in this form of life.

The last two of these demands were crucial for Ehn and other participatory designers (see Bødker 1988; Kyng 1988; Greenbaum and Kyng 1991). However, when designing for a poor district in Rio de Janeiro, the first one is a necessary precondition for the last two.

THE FIRST LANGUAGE GAME: EMPATHIC UNDERSTANDING OF A FORM OF LIFE

UTOPIA was a research project aimed at creating computer technology and work organization to – using an anachronism – empower graphic workers in newspapers. When this four-year project began in 1981, the work organization in newspapers was going through a radical shift. Computers were being introduced to

the newsrooms, and the printing process was becoming increasingly digital. While graphical work had previously been highly skilled labour, requiring years of education and on-the-job learning, it was under threat of becoming deskilled. In particular if American technology and the work organization implied in it were to gain ground, most of the layout and other graphic work would soon be done by journalists in their computers, while the graphic department's job would largely be reduced to mere printing (Ehn 1988a: 344).

In this situation, the Swedish Center for Working Life set up a major research project with several partners, including universities, trade unions, and one Swedish newspaper. The aim was to create alternatives to technological developments leading to deskilling of graphical workers (Ehn 1988a: 327ff; Bødker 1987).

Regarding Demand 1 outlined above, UTOPIA gives us a theoretical response rather than a straightforward solution. With their work mostly done in the Scandinavian countries of the 1970s and the 1980s, participatory designers could take for granted the form of life, with the obvious exception of the professional culture of graphic workers. When doing design for forms of life that are far from one's experience, an empathic approach is needed. When designing for a form of life one does not know, the first priority is gaining understanding of this form of life before going into design exercises. This is especially true when one is dealing with issues such as tuberculosis.

From an empathic perspective (see Segal and Fulton Suri 1997; Black 1998; Koskinen et al. 2003), a form of life can be explored in many ways as long as designers are in contact with this form of life in a place where it evolves, and get a rich picture for subsequent design work. Thus, one can build on methods like cultural probes (see Gaver et al. 1999; Mattelmäki 2006) to get a visual and maybe also tangible understanding. Etnographic methods work too, especially if they provide a thick description of the material context of life (see Geertz 1973; Cefkin 2009; Tunstall 2008). By using several methods, one can provide a richer picture, and also get material that helps cross-checking one's understanding. When dealing with health in a place like Vila Rosário, it is important to do such checking, instead of buying into an inspiration-oriented philosophy only (see Boehner et al. 2007). From an empathic perspective, the most important thing is to gain understanding of what people are like, how they think, how they feel, and what they hope for. It should be broad, as is the understanding from which one scans ideas for subsequent design work. Also, details can always be deepened; understanding a form of life is more important than getting lost in the forest. It is this empathic understanding that is the context in which actual methods can be developed.

DESIGN METHODS AND PROCESSES AS LANGUAGE GAMES

Regarding Demand 2, the key message of UTOPIA is that it tells us to create design methods and design processes that work in this form of life. UTOPIA went through a major shift in methodology.[4] Researchers started by using standard methods of description like flow charts and scenarios, but soon realized that graphic workers were not interested in working with them, did not understand them, and withdrew from communication with designers. After realizing this, researchers began to seek methods to minimize the gap in the language games of graphic workers and researchers, and ended up working with mock-ups using "sheets of paper, matchboxes, some plywood, etc., one "builds" a workstation with a "high-resolution display," a "mouse," etc." (Ehn 1988a: 335). Writes Ehn:

> This kind of design-by-doing simulations turned out to be a very good way to get started. First of all it enabled skilled workers to take an active part in the design process. The method is quite cheap, as expensive equipment or time-consuming programming is unnecessary... Another advantage of this approach is that experiments are not just limited to available equipment. Both equipment that just does not happen to be at hand... and future computer equipment can be simulated... Compared to our earlier attempts this approach allowed the graphic workers to articulate their demands and wishes in a concrete way by actually doing make-up work on the simulated equipment. (Ehn 1988a: 335-336).

Designers should work with methods that come from the language-games of the people who one studies for, not from designers' professional language (Valtonen, 2007). As Ehn notes, using simulations like prototypes, mock-ups, and organizational games "allowed the graphic workers to articulate their demands and wishes in a concrete way by actually doing page make-up or picture-processing work in the simulated future environment" (Ehn 1988a: 18). He elaborates elsewhere that "users and designers do not really have to understand each other in playing language-games of design-by-doing together," and that the most important thing is the language-game of design should not be "a nonsense activity to any participant, but a shared activity for better understanding" (Ehn 1988a: 117-119).

4 Shift in design thinking to the post-Cartesian world of later Wittgenstein took place years later when researchers tried to understand theoretically why mock-ups and other low-tech methods worked so well (Ehn 1988a: 352, 377).

DESIGN PRODUCTS AS LANGUAGE GAMES

The answer to Demand 3 also lies in the UTOPIA experience. When one thinks about final designs, these ought to be based on language games familiar to people. In UTOPIA, these high-tech designs were to be developed and produced by a Swedish software company, but few of them came out due to organizational politics and restructuring. Still, the project managed to imagine a system, which essentially took work practices from graphic workers' world and transferred them into the computerized domain (Ehn 1988a: 381-388). Many of these tools are familiar to any current user of graphic programs, but back then, they were ahead of their time. In Vila Rosário, this means building designs on graphical elements and signs that already exist in a form of life called Vila – objects, colors, posters, logos, television shows, comics, characters, and other things in local cultural repertoire. Needless to say, these designs ought to be of professional quality; if they are not, they lose in competition with commercial culture.

For us, this demand meant that our design should build on language games found from a form of life. A good example of how language games can become a base for design in our work was the idea of building stories around the *telenovelas* (local soap opera) that Vila Rosário locals watch. These telenovelas provided a set of characters and story plots that we could turn into design tools. Designs based on telenovela-like characters, for instance, did not need to be explicit to the point of exhaustion, simply because people knew so much about the characters, their hopes,dreams, and personalities. Some of the most effective designs for invisible communities, furthermore, had used similar elements, though not with Ehn's elaborate philosophical explanation.

DESIGN PARADIGM FOR VILA ROSÁRIO

When developing their approach to designing for social action, Battarbee (2004) and Kurvinen (2007) developed a paradigm to describe their approach. These paradigms had anything from four to six points that should be observed when designing a piece of study. For instance, Battarbee proposed that to study co-experience – how people experience design together with other people – it is necessary to get real people involved; have several people involved in the study to create conditions for co-experience; conduct the study in real context; let people author their own experiences and decide by themselves what is meaningful; and follow experiences over a long period of time (Battarbee 2004: 92).

If we follow Battarbee and Kurvinen, we can list a few things that need to be taken into account when designing with language games in mind. My list contains six points:

1. Study a form of life to understand language games in this form of life.
2. Build our design approach around this understanding. Design is a language game with several dimensions. We need to build the starting point of the approach on interpretive foundations, by participating in a form of life and by leaning its language games. This is where empathic methods are particularly useful.
3. We also need to build design methods and processes so that they create joint language games: that is, we need to use mock-ups etc. in user study, to create a joint environment for participants.
4. We need to design outcomes so that they fit to a local form of life and build on its language games.
5. To be able to do that we need to design with people, we have to study people early on to understand their language games. We also have to do our designs with people, i.e. create designs that are based on their language-games by using forms like comics, posters, or telenovelas.
6. Finally, we have to study our designs constantly with people. We have to do field research with the designs to make sure that they are based on language games in the community.

These claims are commonsensical, but lead to a very different design approach than a focus on, say, usability or user experience. In essence they tell designers to go to communities with open minds, try to understand what is happening there, and let people decide what is important and what is not. This may lead to design that stresses things that look simple and obvious, like infographics, instead of technology or things other designers value. However, the idea is to add social value to design, not to place design on a pedestal. The designers will maintain their authority on final design decisions, but not on what should be designed. Ultimately, the value of design lies in people, not in pleasing other designers.

3

Vila Rosário and Health Agents

Vila Rosário is a community located in the municipality of Duque de Caxias in the State of Rio de Janeiro, Brazil. In this project the term Vila Rosário designates an area larger than Vila Rosário's neighborhood, which correspond to the territory situated between the rivers Sarapui and Iguaçu. According to Costa Neto and Castello Branco (2007: 43), the community has approximately 60,000 inhabitants, with a very low socio-economic status, a low educational level, a high level of tuberculosis and tropical diseases, inadequate housing and other problems such as addiction to drugs and alcohol. As in other "invisible", communities Vila Rosário has little (or no) access to new information technologies such as computers, phones and internet (Costa Neto, 2002, Judice & Judice, 2007:48).

When thinking about Vila Rosário, as designers, we asked what would be the best methods for designers to gather daily life information at the community.

People living in a community like Vila Rosário are stigmatized, and some members of the mainstream society and the developed world see them as stereotypes only. When allowed to speak about

FIGURE 3.1
Vila Rosário in relation
to downtown Rio de Janeiro

FIGURE 3.2
Vila Rosário, local map

their life circumstances, these populations prefer to omit important issues from researchers. It is just these issues that make it difficult to have a deeper understanding of these communities. It is the perception of the inhabitants that talking about tuberculosis, hygiene, drugs, alcohol, and so forth can make them even more stigmatized. A behavior like this makes researchers' work arduous. The members of the community are too shy to speak about the reality in which they live, especially when they are face to face, but it is just this reality that has to be known for good design (Judice & Judice, 2007).

Vila Rosário is located about 20 kilometers from downtown Rio de Janeiro, and maybe another 8-10 kilometers from the world-famous landmarks of Rio, including Copacabana, Ipanema, Corcovado and the Sugar Loaf (Figure 3.1). Vila Rosário is a fairly densely built neighborhood of about 6-7 km2. Its streets are in the format of two grids. It is located close to wetlands that extend to the Guanabara Bay. The sea is about 4-5 km southwest from the southern edge of Vila Rosário. Vila Rosário is surrounded by other small communities that once were on the countryside, but are today a part of the metropolitan area of Rio de Janeiro (Figure 3.2).

To give the readers a rough idea of what living in Vila Rosário is like, the following pictures present scenes from the community. Figure 3.3 shows the street on which Instituto Vila Rosário is located. It is only a few streets away from the main artery of Vila

Rosário, Avenida Presidente Kennedy, which leads in the south to Duque de Caxias. As the figure shows, most buildings in Vila Rosário are anything from one to three stories high. The streets are mostly for foot traffic, but there are lots of bikes and motorbikes as well. Figures 3.4–3.5 show some of the areas in the vicinity of the wetlands. The water in these small ditches and channels is very rich and heavily contaminated by a variety of bacteria, viruses and protozoans. Some houses that are built to the edge of the water are in risk of being flooded whenever the rains come upstream.

Figures 3.6–3.8 are scenes of life in Vila Rosário. Figure 3.6 shows Andrea with Dr. Costa Neto and the family of one of the Health Agents in conversation in the darkness, on a clean yard in the front of a well-lit and neat house. The next figure shows a poor family in trouble with tuberculosis and alcohol posing with a Health Agent. Their house is in the background; it is made of bricks, but is barely more than a shack, hot in summer and cold in winter. The third picture shows something else Health Agents were fighting against, poor hygiene. This picture shows a child playing barefooted in the yard with chicken. This was a health issue, as the feces of the chicken get indoors and contaminate food materials.

It is important to keep in mind, though, that Vila Rosário also has richer parts with well-managed houses and yards, intercoms on the doors, satellite dishes on the rooftops, and air-conditioning to make life easier. Vila Rosário is more than a single stereotype.

HEALTH CARE IN VILA ROSÁRIO

Vila Rosário was on a dangerous area, surrounded by drug dealers who did not allow the public service to get in to take care of the neighborhood properly. The government's reputation among the inhabitants was low in any case, partly because of experiences with the government, partly because of its unflattering media reputation. Local people and church supported actions to help health care in the area instead.[5]

ASPAS is an ambulatory supported by the Catholic Church, which brings some relief to Vila Rosário (Figure 3.9). ASPAS allowed Vila Rosário Institute (IVR) to use its facilities until 2008. Vila Rosário

5 In 2010, Rio de Janeiro's government started several actions to bring peace and reduce crimes in the great Rio and surroundings. It is not so clear if it will reduce crime or increase the feeling of danger in Vila Rosário. Taking drug dealers out of rich and touristic attractions could mean that criminals will hide in areas that are not policed efficiently. Vila Rosário is far from tourist attractions, and will not attract police attention, which makes it potentially attractive hiding ground for the criminals.

The front of Instituto Vila Rosário. Health Agents are on the left side on the sidewalk.

Some of the wetlands in Vila Rosário. Lush growth benefits from heat and nutrition-rich water.

FIGURE 3.3–3.5
Scenes from Vila Rosário

Living by the water.

One of the Health Agents in conversation with Dr. Costa Neto and Andrea.

A poor family posing in front of its simple brick house with a Health Agent.

FIGURE 3.6–3.8
Three scenes of life in Vila Rosário

A picture taken by a Health Agent to illustrate poor hygienic conditions. Note that the child plays barefooted in an open yard with chicken, carrying excrements into the house.

Institute is an organization supported by volunteers. It started to fight against Tuberculosis (TB) in that area in 1999. To analyse their situation, it was necessary for us to understand the evolution of TB cases in Duque de Caxias. In 1996, health authorities reported that TB cases in Duque de Caxias were 193 cases/100.000 inhabitants. As a comparison, in Brazil, the national prevalence was 57 cases/100.000 inhabitants. From August 30th to December 31st 1999, Health Agents from Instituto Vila Rosário detected 102 cases/100.000 inhabitants (Costa Neto, 2002). While the prevalence was getting alarmingly high, there was a need to carry an active search for suspicious cases, and to act directly to treat or guide people to treatment in the municipality health center.

IVR was established for this purpose with a grant from FAP, the Brazilian league against tuberculosis. It also had a few other donors. Its heart was Dr. Claudio Costa Neto who, just as Dr. Luiz Roberto Castello Branco, was based in Rio de Janeiro, but who came to Vila Rosário to do pro bono work in IVR. Dr. Castello Branco was also the Scientific Director at FAP. The symbiosis of IVR and ASPAS also brought to Vila Rosário services like pediatrics. The spaces at IVR were kitchen garden, patio, office, kitchen, multiuse lecture room, and administrative room. Some of the spaces of IVR are in Figures 3.10–3.11.

ASPAS – the façade

The patio area within the IVR compound

A multiuse lecture room in IVR

FIGURE 3.9–3.11
ASPAS and IVR

We did not try to measure how the characteristics of the community were related to its health, but the main line was clear enough from stories told to us in Instituto Vila Rosário. The neighborhood was not a favela, but it was impoverished. People had a low level of literacy, and their educational level was much lower than in the richer parts of the state. Their houses were often substandard, and their nutritional habits were typical to poor urban neighborhoods: people ate energy-rich rather than nutritious foods. In lack of good sewage system, the neighborhood suffered from diarrhea, and even had occasional cholera outbreaks. Tuberculosis was a major threat, and there constantly were cases of diseases like yellow fever. The neighborhood did not have major problems with prostitution and its HIV situation was good. Alcohol was a major problem as men in particular tended to drink while out of work.

Health for us, just as for Dr. Costa Neto and Castello Branco and Health Agents, was not

> "a single outcome but as a multidimensional concept with a broad range of outcomes; consider the life course processes, and to look beyond contemporaneous contexts for more complete explanations of health outcomes (...)[6]

This wide concept of health came to characterize our approach. As this thesis will show, our work started narrowly from an effort to use information technology to improve health in Vila Rosário. Soon however, our study expanded from tuberculosis to several other threats to public health. As a consequence of this expansion, our design program became increasingly low-tech and less focused on computers.

HEALTH AGENTS AND THEIR WORK

With the FAP grant, IVR hired a group of Health Agents, women recruited from local population. Their job was to be the foot soldiers of the campaign against tuberculosis. They did home visits to search new cases of tuberculosis, to guide in treatment, and to make sure people go through the entire treatment.

Table 3.1 describes Health Agents during our study (their number varies from one year to another). As it shows, Health Agents came from several backgrounds, were of many ages, and had education

6 Measuring Contextual Characteristics for Community Health. http://www.rwjf.org/en/research-publications/find-rwjf-research/2003/12/measuring-contextual-characteristics-for-community-health.html

ranging from elementary school to university degrees. What was common to everyone was that they knew Vila Rosário and its people, and were willing to help in making it better. Health Agents in 2013 pose in Figure 3.12.

Judice (2014) has described Health Agents' work process in detail, so I will give only the basics here. The work process started with house visits to find cases of illness. They had received some medical training to be able to recognize the symptoms of tuberculosis, and though not doctors, they were able to guide people to treatment if they might have had TB. They gathered basic information about possible patients, advised them, and monitored the treatment as soon as it had begun. Monitoring was an important part of the IVR program; its aim was to make sure TB did not become multiresistant, which happens if people take the medicine only for a few weeks instead of running through the whole course.

TABLE 3.1
Health Agents that were working with us during the main parts of the project.

NAME	YEAR OF BIRTH	EDUCATIONAL LEVEL	HOME NEIGHBORHOOD
Marluce Monteiro de Oliveira	1950	Elementary School	Parque Fluminense
Clara da Silva	1966	Middle School	São Bento
Dulcinéa Araújo dos Santos	1946	High School	Parque Fluminense
Custódia Maria Pereira da Silva	1957	High School	n.d.
Leila Maria Mendes da Silva	1964	Undergraduate	Vila São José
Deolinda da Silva Rodrigues	1941	Middle School	n.d.

FIGURE 3.12
IVR's Health Agents (2013).
Health Agents are wearing one of our designs

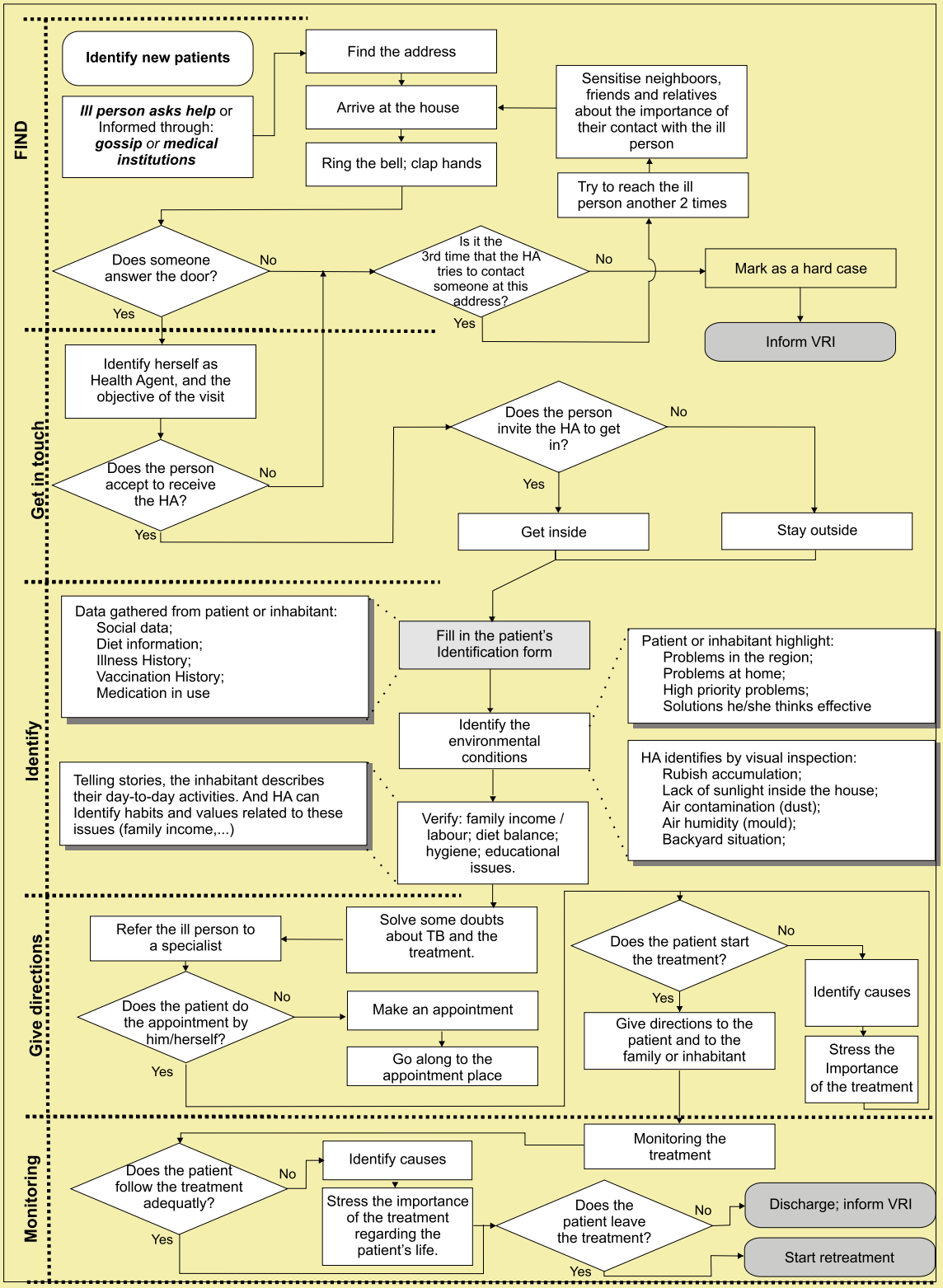

FIND
Identify new patients
Find the address
Arrive at the house
Ring the bell; clap hands
Ill person asks help or Informed through: gossip or medical institutions
Sensitise neighboors, friends and relatives about the importance of their contact with the ill person
Try to reach the ill person another 2 times
Does someone answer the door?
No
Yes
Is it the 3rd time that the HA tries to contact someone at this address?
No
Yes
Mark as a hard case
Inform VRI
Get in touch
Identify herself as Health Agent, and the objective of the visit
Does the person accept to receive the HA?
No
Yes
Does the person invite the HA to get in?
No
Yes
Get inside
Stay outside
Identify
Data gathered from patient or inhabitant:
Social data;
Diet information;
Illness History;
Vaccination History;
Medication in use
Fill in the patient's Identification form
Patient or inhabitant highlight:
Problems in the region;
Problems at home;
High priority problems;
Solutions he/she thinks effective
Identify the environmental conditions
HA identifies by visual inspection:
Rubish accumulation;
Lack of sunlight inside the house;
Air contamination (dust);
Air humidity (mould);
Backyard situation;
Telling stories, the inhabitant describes their day-to-day activities. And HA can Identify habits and values related to these issues (family income,...)
Verify: family income / labour; diet balance; hygiene; educational issues.
Give directions
Refer the ill person to a specialist
Solve some doubts about TB and the treatment.
Does the patient do the appointment by him/herself?
No
Yes
Make an appointment
Go along to the appointment place
Does the patient start the treatment?
No
Yes
Identify causes
Stress the Importance of the treatment
Give directions to the patient and to the family or inhabitant
Monitoring
Monitoring the treatment
Does the patient follow the treatment adequatly?
No
Yes
Identify causes
Stress the importance of the treatment regarding the patient's life.
Does the patient leave the treatment?
No
Yes
Discharge; inform VRI
Start retreatment

FIGURE 3.13
The work flow of Health Agents

Moving from Brazil to Finland to make design research gave Andrea and I a lot of ideas and dreams. Though coming from Rio de Janeiro, which has many simultaneous realities – there is nothing poor in a neighborhood like Ipanema – somehow we felt like coming from a Third World to the First World. How could we learn to design something that could be used in high-tech products? We saw many important high-tech companies in that small country, including Polar, Nokia, Suunto, Kone, StoraEnso, and so forth.

At first, we felt there was little we could contribute in our new country. After some time, however, we were confronted with a new idea: how about developing information systems for different communities in Brazil? A lot of problems that affect communities in poor neighborhoods in developing countries are related to the lack of knowledge and the lack of information systems. How could these persons have better access to the right information at the right time, in the best media for them? Early on, we decided we were not interested in Hollywood gossip; instead, we decided to focus on basic issues of life, like food and health.

The idea originally came from a doctor who worked *pro bono* at the community of Vila Rosário. He had a vast experience in a project designed to fight tuberculosis in the community. When he found out that we were looking for a good opportunity to develop design solutions for poor communities, he made an offer: if we were interested in working with him in Vila Rosário, he would help us in accessing the community. Soon after, Dr. Luiz Roberto Castello Branco came from Brazil to Finland to invite us, as volunteers researchers, to develop a portal that could function as a democratic space to share knowledge and experiences. It was also to increase the communication between residents, stakeholders and doctors in Vila Rosário, but also between other researchers who work with communities like Vila Rosário.

After the first contact, we were in touch with a nurse, Diana Pinho with whom we had previously worked with, to discuss about other communities in which we could work. She suggested three other communities: first, a community of ostomy wound patients[7]; second, a community of ex-slaves living in the countryside; and third, pregnant teenagers. All of the communities were related to ongoing studies conducted by a Brazilian university. Unfortunately

7 According to United Ostomy Associations of America, an ostomy refers to the surgically created opening in the body for the discharge of body wastes.

FIGURE 3.14
Business plan

many delays due to, for instance, bureaucracy and a strike of university workers did not make it possible for us to continue research in these communities. We focused on Vila Rosário instead.

We wrote what we called "the business plan" to explain the whole project (see vignette below). This written paper was useful, as it gave readers a better understanding about what we were interested in; with whom we wanted to work; when we would be conducting our study; why we wanted to study Vila Rosário; for how long we would do the study; and how much it would cost. Throughout the plan, we stressed that the main focus was to be a continuous improvement of community members' quality of life and their self-respect.

The first step was to perform the demand analyses; it was soon obvious that building a portal to a community like Vila Rosário would not be a solution to improve communication. It is necessary to develop other solutions to empower Vila Rosário's community to reach the self-sustainable society. Building on discussions with our supervisor we decided with the approval of the stakeholders to develop both Web-based and low-tech information systems to Vila Rosário. It was the community characteristics that brought this decision to us.

After the main objective was defined, we needed to negotiate our research process. Negotiating access in the health area meant that we had to write down in detail how we intended to move forward in our research. We had to explain our main objectives and negotiate our approach and results, and how they would contribute to public health in Vila Rosário. Our first two steps in these negotiations were building a business plan and a research plan, sending them to Brazil, and then negotiating all the steps with the stakeholders via Skype and MSN. The business plan detailed how we wanted to allocate resources and how we wanted to measure the results of our designs. This plan provided a basis for evaluating and controlling the project performance later in our study. It also helped us to set realistic goals and objectives and make decisions in the right way; it helped us to "anticipate" future decisions and actions; and to communicate our ideas and necessities to all kinds of stakeholders. Although a business plan like ours is not standard practice in academic research, it helped us to understand whether our vision about the project was realistic. It showed us what we needed to sharpen in our goals, and what we had to do in order to achieve these goals.

In addition to the business plan, we wrote a research plan, which reviewed theoretical approachs and methodologies suitable for reaching the goals. In the research plan, the most important point was to identify a good research question and a way to answer it at the end of the process.

BUSINESS PLAN –
RESEARCH AT VILA ROSÁRIO

The Team
Andrea Castello
Branco Júdice
Marcelo Ortega Júdice

Way to Work
Background
Focus (continuous improvement / respect for people)
Our terms philosophy (safe, reliable)

Aims / Objectives
Improve the quality of life of its residents, especially in terms of effective information systems to educate/training.
Develop adequate systems that are useful for the members of the community.
Integration=equal access to opportunities for all.

Why Vila Rosário
The community has around 55000 inhabitants, considered as the highest level of tuberculosis and the lowest economic level in the municipality.

Mission
To promote quality of life, through participatory design process.

Goals
To improve the inhabitants' quality of life especially in health terms.

Values
Commitment;
Citizenship;
Reliability;
Respect to social, political, ideological and economic process that shape Vila Rosário society.

Vision
To establish a sustainable program in Vila Rosário, where the inhabitants can have access to healthier life, to prepare the community health agents to be local and social multipliers.
To be a local/global reference on this kind of social project.

Operations Plan
To identify lacks and new opportunities within misery chain.
To develop products and services focused on innovation through participatory and empathic design.
To demonstrate the project's accountability by regularly measuring outcomes and impact of those on Vila Rosário Institute.
To achieve financial and social sustainability.
Short-terms:
1 to 3 years
Medium-terms:
3 to 5 years
Long-terms:
5 to 8 years

Management Team
Dr. Claudio Costa Neto:
Vila Rosário Institute's president;
Dr. Luiz Roberto Castello Branco:
Key stakeholder;
Community health agents:
Key actors to execute the active search, and be the bridge between community members and the management team.
There should be qualified people to execute the main tasks related to data gather.

Financial Plan
It will be discussed with the stakeholders in Brazil, according to regional issues.

4

The Design Process — Initial Steps

As we were working in Helsinki in the initial stages of our study, our first method of choice was to use cultural probes. They were originally developed in a European study in which researchers were located in London, but their study took place in the Netherlands, Italy, and Norway (Gaver et al. 1999; Mattelmäki 2006). Essentially, they were based on the idea of self-documentation: we had to design a package of tasks and send it to people, who did the tasks. When the packages were returned to us, we could use them to gain an idea of what Vila Rosário was alike.

Before we started to develop the probe packages, we needed some pre-understanding of the place. During this phase, we did several tasks. First, we conducted bibliographic research about the community (see Costa Neto, 2002, 2003, 2004, 2007). Second, research assistants in Brazil were gathering ethnographic data (mostly video, photos, and interviews) for us. Third, we also made some interviews and had conferences with health experts, using videoconference software through the Internet. This information was essential in developing the probes. According to Mattelmäki

FIGURE 4.1
Material for documents analysis

"expertise helps to get a comprehensive idea of the phenomenon, and to direct and focus attention on essential users and areas of experience" (Mattelmäki 2006:68). (Figure 4.1).

The process started with some interviews made by telephone to "stakeholders," as we called a group of persons in charge of Instituto Vila Rosário. These persons are interested in developing and improving life in Vila Rosário; this is their stake.

We also had access to a few documents that gave us background for better understanding Vila Rosário. The most important document was a book from Dr. Claudio Costa Neto (2002), which proved to be a particularly reliable source of information, including a lot of statistical and historical data about Vila Rosário.'

TECHNOLOGY: BENCHMARKING THE WEB

After collecting plenty of information from our distant ethnography and other sources of information explained above, we benchmarked a set of health websites to understand what kind of information, including graphical elements, is important to community members. We believed that comparing other previous solutions could give us new ideas for content, for effective communication, and for how to integrate the internet in community life.

During the interviews with community members and stakeholders, we had asked what kinds of products could be used as exemplars of what they expected from an information system for Vila Rosário community. "Product" here has many meanings. It is not just about a 3D product, but also includes websites and graphic designs. We also inquired when, where and how they access these products. These questions were a way to identify which products should be analyzed during the benchmarking study, and what are situations in which they are accessed. For instance, we wanted to know if they have fast connections to access websites, or if they read posters in a church or school.

At this stage we did not define which products should be designed. Nevertheless, we learned what kinds of benchmarks were relevant: we started to expand our initial thoughts focusing on information technology, to other products suggested by the users, like booklets and posters.

When identifying websites to study, we gave particular attention to Health Agents in Vila Rosário. The majority of Health Agents considered the Brazilian Health Ministry as the most important portal to learn from health issues. It is a good source of information, but has problems related to the speed during use. It was hard to watch movies or see wide images from the site.

Health Agents and other stakeholders also suggested some portals dedicated to fight HIV/AIDS and tuberculosis. They also pointed out that some websites are useful tools for them, including text chat among users, and newsgroup messages sorted by topic.

TABLE 4.1
Websites selected for benchmarking

MS - Brazilian Health Ministry	http://www.saude.gov.br
FIOCRUZ - Oswaldo Cruz Foundation	http://www.fiocruz.br
AIM -Advanced Immunization Management e-learning site	http://aim-e-learning.stanford.edu
AfriAfya - African Network for Health Knowledge Management and Communication.	http://www.afriafya.org
MEDILINKS - The Gateway to Health Information for Africa	http://www.medilinkz.org
Discussion group available at Yahoo Brasil	http://br.groups.yahoo.com/group/saladodesign
Total Discussion group available at MSN	http://groups.msn.com/Design
ThinkCycle Open Collaborative Design	http://thinkcycle.com

Following the ideas given by the stakeholders, we selected a small sample of websites that had services that could be useful in developing a site for Vila Rosário. It is important to notice that the portals have different goals and we did not want to compare as if they were equals.

In terms of items of analysis, we focused on three topics:

1 SCREEN LAYOUT (GRID)
During our analysis process, we considered elements like the amount and organization of information available (texts and images); the controls placement (menus and buttons); and the grouping and aligning of elements. If we saw that a grid layout clearly improved the organization on the webpage, we considered other elements on the website, and analyzed the on-screen composition of these elements.

2 COLOR AS FORMATTING AID, AND AS VISUAL CODE
Next we considered how the use of color helped to give shape and organization to the website, for instance how the colors define menus, areas, and sections.

3 GRAPHICAL ELEMENTS
Third, we considered which kinds of graphical elements are used, and how they are familiar to the audience; are they clear and legible; are they simple; are they consistent. The sites are described in Figures 4.1–4.6.

On these websites, screen layout followed a few principles. Only one of the analyzed websites (AIM) presented a single column to display information (image and text). This was possible because the website has few sections and less content than other analyzed websites. For example, MS was a national portal with a lot of information. Every other website had two to three columns. The main menu was on the left; the center column was reserved to main information; the right column was either for more specific information, or it was a space for secondary news.

Graphic elements were mainly used as decorative/informative elements, aiming to help understanding the websites' main message. Some of the websites dedicated a great part of the screen area to images. In fact, it could be a good way to direct gaze, but in Vila Rosário, we realized that we should think that the computers were old, and the internet speeds were slow.

Some of the websites used only few graphical elements. International internet services providers like Yahoo and MSN used to have users from different cultures. It is reasonable to think that they wanted to avoid misunderstandings and preferred not to use icons or visual symbols. This was our theory of why they used few icons and symbols as communication resources.

Concerning the color contrast, the websites were invariably using different background colors to separate texts and images areas. They also used dark text over light backgrounds on the main text areas, to make text easy to read. It was clear that every website analyzed had aimed at creating a pleasant contrast between the background and the foreground.

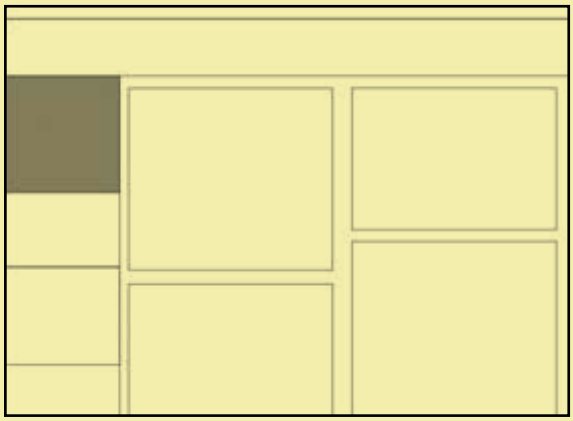


FIGURE 4.1

COLOR	Header from the Brazilian Government Visual Identity program. Use of yellow over white and some touches of blue like the Brazilian flag.
GRAPHICAL ELEMENTS	Governmental visual identity symbols (Brazilian flag, logo, and rescue units). Use of images showing happy persons; a father with his son on his lap; having good experiences. Symbol to inform about contact / toll free.
RECOMMENDED BY	HA. SH

FIGURE 4.2

COLOR	Header from the Brazilian Government Visual Identity program. Following the Health Ministry. Use of red and blue.
GRAPHICAL ELEMENTS	Image of a scientist looking through a microscope. It could represent the main area of Fiocruz, scientific development
RECOMMENDED BY	HA

FIGURE 4.3

COLOR	Head predominance of red, yellowish (like gold) and white. The website follows the institutional visual identity.
GRAPHICAL ELEMENTS	FAP's logo redundancy. Use of text as menu's items. Almost 1/3 of the page is just for images and decorative elements (gradient + logo).
RECOMMENDED BY	SH

FIGURE 4.4

COLOR	Predominance of blue tones. User could define colors.
GRAPHICAL ELEMENTS:	Use of text as menu items. Every text could be automatically switched to different languages. No photos.
RECOMMENDED BY:	DS

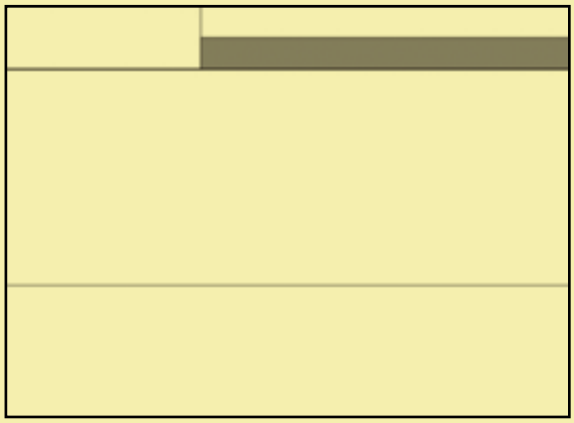


FIGURE 4.5

COLOR	Predominance of gray and white.
GRAPHICAL ELEMENTS:	Use of illustrations as icons to represent some website's sections. No photos.
RECOMMENDED BY:	SH

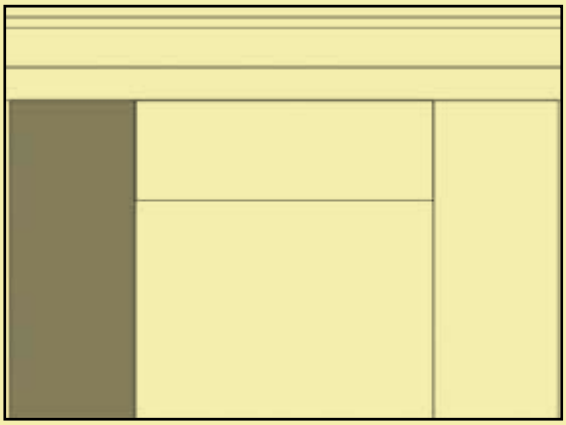


FIGURE 4.6

COLOR	Use of blue, gray and yellow. Blue as a background color for headers. Yellow as background color for headers of menu sections.
GRAPHICAL ELEMENTS:	Use of text as menu's items. Use of images representative of website's interests, like digital inclusion in Africa.
RECOMMENDED BY:	SH

MIND MAPS

With many ideas coming from the benchmark and interviews, we next started to think about how we should develop content for the new information system. The aim was to be holistic, to be thinking in different kinds of categories. The best way to see this wide scenario was developing a mind map, which made it possible for us to integrate information from a variety of sources (Buzan & Buzan, 1996). The main objective was to identify and consolidate previous knowledge about the subject, and organize it around key concepts from the pre-understanding research phase. These mind maps, then, were more analytic than mind maps in brainstorming sessions. Their objective was to identify and consolidate knowledge about Vila Rosário. With the mind map, we could share and communicate ideas both verbally and visually with specialists in Brazil, who became our co-investigators at this stage.

Mind maps produce a graphical representation of concepts, ideas or photographs, and they help to recognize patterns, to see and classify relationships among concepts; and to organize information to identify the main recurring ideas. Visual techniques like mind maps help to:

1. Make abstract ideas visible and concrete;
2. Connect prior knowledge and new concepts;
3. Provide structure for thinking, writing, discussing, planning, and reporting;
4. Focus thoughts and ideas that lead to understanding and interpretation.

With a mind map we could also start sharing and communicating ideas both verbally and visually with medical specialists in Brazil. An example of one of our mind maps is in Figure 4.7. It is organized around "health" (saude), and shows how health is related to prevention, habits, nutrition, and hygiene, among other things.

In building the mind map, we started with some words like "prevention", "habits", "ambience", and went through "nutrition",

FIGURE 4.7
Mind map

"education", and "hygiene". Those most important words opened our minds to concepts, images and representations that were useful in the next steps.

After the development of the mind map, one stakeholder validated it. He was a medical doctor, who could point out missing links and also show variations between different diseases.

We learned a lot from mind maps and discussions with the specialists. According to them, to improve health in invisible communities, designers need to have a thorough holistic understanding of the context. In Vila Rosário, health is the result of many basic needs like having proper jobs, nutritional balance, education, adequate homes, hygiene, and so forth. Only with a holistic approach, it is possible to create a design program to reduce, control and even erradicate diseases. Building on these data, we started to develop the probes packages.

FIRST USER RESEARCH: EMPATHY PROBES

Mind maps were a preparation for our first user study, which was a combination of empathy probes (Mattelmäki and Battarbee 2002) and ethnography. Empathy probes were a necessity for us, as long as we were living in Helsinki and had no direct access to Vila Rosário. We wanted to create a contact with the community and to get a first-hand understanding of the community and its world. Probing also provided us evocative visual material that we could use with our European supervisor, who was even less well prepared than us to understand life in this community.

The Cultural Probes approach was introduced for the first time in *The Presence Project – New Media for Older People* (1999). This project, funded by the European Union and coordinated by the Royal College of Art, focused on creating novel understandings of technology use, and the focus was on ageing people. As Gaver et al. (1999) stressed in their research, the team has to be speculative in its design in order to create new interaction techniques. As the team was working with older people, they had to find ways of getting beyond stereotypes, for example, the stereotype that seniors are feeble and needy. Similarly, as we were working with a community that is accustomed to being seen as a stereotype, probing seems to be very useful for reaching a new understanding about it.

Our probes, however, were not Gaver's cultural probes, but empathic in character. This approach to probing was developed by Mattelmäki (2006), for whom empathic probes were a method aimed at inviting and/or provoking users to reflect on and verbalize their experiences, feelings and attitudes. They were also a way to visualize their actions and those contexts in which these actions took place.

She says that there are four reasons for applying probes: Inspiration, Information, Participation, and Dialogue.

These are powerful reasons for applying probes in our communities. We needed inspiration to get new insights; information to know more about the needs and experiences in an emotional and provocative way. We also needed participation, to understand the needs of the community,and we needed dialogue to create a direct and real interaction between our communities and us, to avoid misunderstandings in our communication.

A study with empathy probes happens in five phases (Figure 4.8). In tuning in, researchers expose themselves to data that helps them to create imaginative and fun probes. Then people get the probes, live with them, and return them. Then the researchers get them, and go through a first creative interpretation. In cultural probes, this leads to ideation, while empathy probing takes two more research steps. Namely, in empathy probing, researchers validate their results with people they have studied. Then, they gather again and redo the interpretation before heading to ideation.

Our study followed these steps. The probe packages were developed on the basis of information received from health area specialists and the ethnographic data that served for turning us into what health means in Vila Rosário. The specialists have a long experience in working with this community, and they could point out most issues for data gathering, and show the most serious problems we should study in this early phase of the project. They suggested some issues for a holistic approach: in their opinion, we need to have a deeper understanding of:

- Attitudes and beliefs,
  (individual and collective experiences in their communities);
- Hopes and dreams;
- Social support;
- Nutritional balance;
- Health support access;
- Environmental and behavioral situations.

They also gave us some key words to help us understand what kinds of opportunities exist for our design project:

- Unemployment reduction;
- Prevention (of diseases);
- Education;
- Information;
- Access;
- Reintegration;
- Health improvement and health promotion.

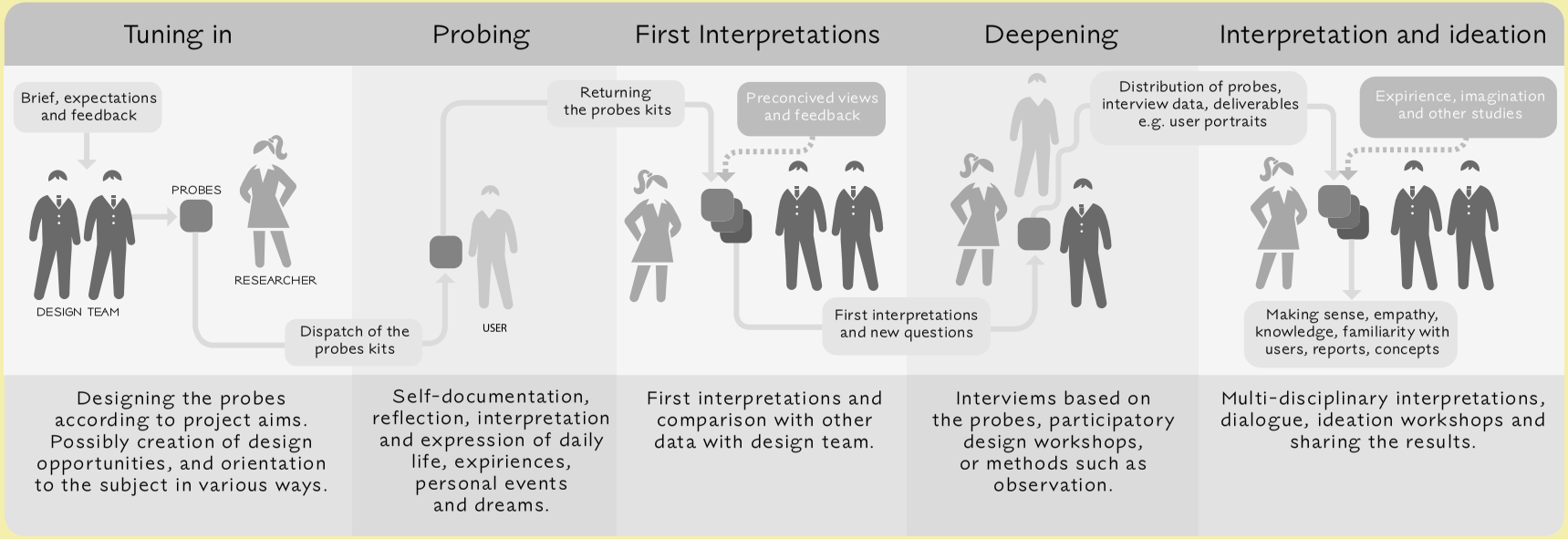

Tuning in
Probing
First Interpretations
Deepening
Interpretation and ideation
Brief, expectations and feedback
PROBES
RESEARCHER
DESIGN TEAM
Dispatch of the probes kits
USER
Returning the probes kits
Preconcived views and feedback
First interpretations and new questions
Distribution of probes, interview data, deliverables e.g. user portraits
Expirience, imagination and other studies
Making sense, empathy, knowledge, familiarity with users, reports, concepts
Designing the probes according to project aims. Possibly creation of design opportunities, and orientation to the subject in various ways.
Self-documentation, reflection, interpretation and expression of daily life, expiriences, personal events and dreams.
First interpretations and comparison with other data with design team.
Interviems based on the probes, participatory design workshops, or methods such as observation.
Multi-disciplinary interpretations, dialogue, ideation workshops and sharing the results.

FIGURE 4.8
The empathy probe process according to Mattelmäki

Supplied with these issues and key words and the probe returns, we understood that we had to consider not just information technology, but also life in Vila Rosário much more holistically. User interaction with technological devices became only a small part of our study.

Empathy probes led to a significant reorientation of our study. Our original brief was to develop information systems for a health context in Brazil. However, we knew that in poor communities like Vila Rosário, there were lots of people with little or no access to devices such as mobile phones, computers, and the internet. So, we needed to know, among other things, whether they wanted to have access to these devices, why they wanted such access, whether they imagined these devices could change their lives, and how they imagined having access to these devices.

ETHNOGRAPHY: DEEPENING EMPATHY PROBES

As we developed our empathy probes, we were faced with another methodic problem. We thought that Mattelmäki's recommendation for interviewing people to check the researchers' interpretations was much needed. However, we thought that we had to understand life in Vila Rosário much better than by just checking whether our insights from the probes were correct or not. We saw that first-hand experience was necessary to understand life in Vila Rosário.

As Mattelmäki explains, empathy probing is different from the classic approach to cultural probes, which sees them as instruments for inspiration. The contrast between cultural probes and Mattelmäki's approach *is* the interview, designed to check whether the researchers' interpretations of probe returns are correct. This is the reason for talking about empathy probes. As she was working in applied research projects with paying customers, this check was a necessary addition. We wanted to follow Mattelmäki, as we were dealing with health, which we thought cannot be a matter of only inspiration.

Interviewing, however, was viable for Mattelmäki, as she was working relatively close to the people she studied, and her cultural distance to these people was small. Thus, although we picked up the idea of empathy probing from Mattelmäki, we could not use interviews only. We had to find a way to go deeper into the context and do an ethnography study in Vila Rosário to understand it well enough as to comprehend what people said to us in probes.

As design ethnography is already a well-established research field on its own (for example, see Cefkin 2010; Hughes et al. 1994),

and Andrea Judice has explained our process and methods in detail in her thesis (A. Judice 2014: Chapters 5-6), there is a need to give only a broad outline of our research.

We flew back to Rio de Janeiro, started our ethnography in Vila Rosário in 2006 and went on for 3 months. During this time, we talked to Health Agents and doctors, psychologists, nutritionists, chemists, agronomers, architects, designers, and also to other stakeholders and residents of Vila Rosário. We used first standard methods coming from the social sciences. We

- Spent time in houses in Vila Rosário;
- Wrote notes into our diaries;
- Photographed Vila Rosário: its environment, significant sites, no-places, and people;
- Conducted and videotaped interviews, usually using storytelling techniques that had proven to work well in Vila Rosário;
- Conducted a usability study and interaction analysis of the Vila Rosário website.

We also used techniques that were slightly outside the normal ethnography. We gave Health Agents disposable cameras and asked them to tell stories about things they saw relevant. To get deeper at technology not only as it exists, but also about how people would like to see it developed, we also used many playful projective techniques to release imagination of the people we studied. These projective techniques were inspired by Liz Sanders (1999) and *The Presence Project*, and they included:

- Imagining a "good fairy" who could help people through magic in problems in life;
- "Magic things," or elementary mock-ups of electronic devices people had to carry with them and make notes about problems they face, contexts in which those problems arise, and then imagine technological solutions to solve the problems (see Iacucci et al. 2000; for more detail, see A. Judice 2014).

Projective techniques in design research today have their roots in *The Presence Project* (2001), in which cultural probes partly built on the idea that by studying basically meaningless objects, researchers can understand deeply ingrained habits and dreams, better than by directly asking them. Where a neurotic person sees threats, an open personality may see beauty. All these techniques provided us a much better grasp of Vila Rosário and its health situation, and also about how to design for this impoverished neighborhood.

5

Designing Empathy Probes

As I described in the preceding chapter, doctors who had been working in Vila Rosário told us that to improve health in an invisible community, we needed to have a holistic understanding. Health is based not only on bacteria and viruses, but equally importantly are basic needs such as proper jobs, nutritional balance, education, adequate homes, and hygiene. They told us that we could reduce, control and even erradicate diseases in Vila Rosário only through a holistic approach, not medical. After listening to them, it became clear that we needed to obtain new insights into the unmet needs of the people from the community.

As mentioned at the end of last chapter, we chose to work with empathy probes for several reasons. They gave us inspiration while also giving us an empathic understanding of what were the needs and dreams in Vila Rosário. This was something Health Agents also told us when we interviewed them: "We want you to understand that we really want to change our situation, but we want these changes in our perspectives, not in yours," said one of them. It was clear to us that we had to have a deeper understanding of what people in Vila

Rosário expected from our work, and what kind of health situation they dreamt about.

Empathy probes were the best available method to get inspiration, understanding, and also to get an idea of what people dreamt of. As in Mattelmäki, we worked with empathy probes because of

> "its expected suitability in a project where the design focus was open and the aim was to gather inspirational, visual and empathic data for new concept creation. The idea was to get data from "sensitive settings" [x], situations and places where designers have no access or the access can only be temporary. [x] (observing and probing)".

As Vila Rosário is a "hidden community," far outside the tourist sightseeing routes of Copacabana, Corcovado, and the Sugar Loaf mountain, outsiders were not able to go there without guidance. It is not easy to reach some places, and some places are very dangerous, especially for outsiders. As a way to get guidance, empathy probes worked well for us. For Andrea and I, empathy was a particularly important element in creating a robust understanding about the needs, dreams and wishes in Vila Rosário.

PROBING EMPATHY

The idea of empathy goes back about two decades in design research. In the context of empathic design, one of the key writers was Jane Fulton Suri form IDEO, who has written a useful paper about empathy in design (Fulton Suri 2003). She notes that as designers, most of our work is about making things for other people, not for us. Design efforts may fail if the people designers are working for are seen as outsiders, "them", but equally well if designers assume that the people are like designers themselves. Instead, Fulton Suri notes that designers need to find a balance between these two extremes and develop new approaches to gathering user information and creating empathy in a design team. Here, empathy is the ability to 'put oneself into another's shoes', or experiencing the outlook or emotions of another being within oneself, a sort of emotional resonance" (wikipedia.org). Empathy for design is the designer's personal connection to the people we are designing (Mattelmäki and Battarbee 2002). This connection supports the design process to create ideas that are useful and enjoyable for the communities. In our case, we had to keep in mind that it is not easy to connect with people in invisible communities, and we took this connection as a challenge to international and multi-disciplinary design work, not as a self-evident thing.

Some things in probing were not radically changed from European practices, however. Thinking about all the process involved in design probes, we believed that many principles we learnt from Mattelmäki and her work were still valid: In particular, the probes package should have certain qualities. It should:

- Be delightful, interesting and organized;
- Have shape and weight compatible with the phases (printing, mailing, and keeping with the participants, and later sending the results back).
- Be cheap to produce;
- Be easy to read, understand and keep;
- Have tasks divided across several probes.

Once we had organized the concepts from our preliminary studies into a mind map, we started a process of learning to know better some members of the community. The idea was to send some cultural probes to them and wait for some results, just like in The Presence Project (1999).

Simple? Not!

We were working in Helsinki, which was around 12.000 Km from Vila Rosário. Few people in Vila Rosário had a fast internet connection. They did not know us. Many of them were illiterate, and as a rule, they had learnt to be suspicious about questionnaires.

Thus, we ruled our several alternatives. The first alternative we though of was to offer a probe package that the users could fill using the computer available at the ambulatory. This option was discarded since the majority of the persons had never used a computer before, and there was just one computer, which had a connection by telephone modem. During the research process, the ambulatory would be without a telephone.

The next alternative was to send some probes packages to Brazil, including many tasks. This choice meant that we needed a specific strategy to organize, produce and apply all the packages.

For these reasons, we decided to send the probes packages directly to Health Agents who work in Vila Rosário. They are members of the community, and at the same time they have contact with many other people in the neighborhood.

In face of the high cost of producing the probes packages (Figure 5.1) in Finland and sending them to Brazil, we started a process of preparing the logistics around a distributed concept. We designed the packages in Finland but printed them in Brazil and distributed them to the community relying on local help. In doing this, we had wonderful help from several internet technologies. Still, without help from real persons, we could never have achieved our goals.

FIGURE 5.1
A probe package sent to Vila Rosário

DESIGNING EMPATHY PROBES

The next step was developing the probes package. We carefully studied the data gathered until then, and sought to add features that people in Vila Rosário felt were important and could motivate them to fill the tasks.[8] During meetings with researchers and professors in Helsinki, many habits, values, economic and cultural aspects were closely examined to see how these could be approached, and the best ways to address these aspects. Some subjects such as *capoeira*, football, drawing in the sand, music, traditional foods, songs and bedtime stories, hygiene, and tuberculosis were discussed in detail, based on the data received from the specialists. Several multinational researchers and professionals analyzed ethnographic data provided by stakeholders in Vila Rosário, led by two Brazilian researchers.

In tuning in, we first compiled all the materials we had collected from secondary sources, Skype interviews and technology benchmarks with mind maps. The aim was to construct a rough picture of what are Vila Rosário and the people in it; this rough picture made us more sensitive to Vila Rosário, and pinted out things we did not know.[9] To get beyond description, we started to pose a series of questions to free our imagination. The questions we asked were these:

- What kind of items can best be used in the packages meant for the slums of this huge city?
- What kinds of cultural issues have to be kept in mind when designing the probes?
- What kinds of messages the physical appearance of the package will have?

8 I did the probes approach with Andrea Judice and Tuuli Mattelmäki. That is the reason I use "we" instead of "I."

9 For these mind maps, see Chapter 4.

- What do we want to know? From whom we want to know?
- Why is it important for the project? What kind of approach can we use to reach the right result?

Figure 5.2 shows some of the materials we explored in thinking about the best ways to design the probes, so that they would be interesting and would respond to these questions.

FIGURE 5.2
Some materials explored in designing probes

In addition, we asked a series of questions about the visual aspects of each possible probe idea. We did this with the help of these questions:

- First, the visual aspect had to be designed to motivate and direct performance, and to show interest in the user. How to do this best?
- Second, it is meant to consider surprising perspectives by provoking and providing stimuli. How to encourage surprising associations?
- Third, the ideation of the probe kit and its make-up is supposed to motivate the designers to user-centered study. How to encourage motivation?
- Fourth, the ideation aims at directing design-specific thinking from the user's perspective when considering design details and their possible solutions. How to give the probes a design-specific feeling (rather than artistic, or social science questionnaires)?
- Fifth, when the appearance of a probe is well-designed, it can be used for demonstrating and reporting the underlying research in a visually interesting way. How to do this best?

The probes package as such was designed, using items familiar from the first probe studies in Europe. There were some:

- Diary;
- Postcards;

- Booklets containing different tasks for addressing specific issues;
- Task books and drawing tasks, like Show Your Products' Face and Once Upon a Time (these are explained later in this chapter);
- Disposable cameras (only in some packages);
- Two pens (one red and one blue) with instructions about what to do.

The objectives of the package were to identify and provoke emotional responses about, for example, how people live and take care of themselves, and what is their lifestyle and access to healthcare. We categorized the issues and decided to make some booklets for each task so that it would be easy for people to do the tasks, to handle and transport the packages, and to keep them safe. As Gaver et al. (1999) and Mattelmäki (2005) have suggested, one of the probe principles is to permit unexpected views and interpretations. This happens by posing open-ended questions and by offering projective and visual assignments to people.

As Gaver et al. (1999) emphasize, we had to develop our probe to make it very pleasant, attractive and enjoyable, but not childish or condescending, and we really considered it during the probes´ design process. However, to build some fun into the packages, we developed a comic character to be used as a "Probe Boy Oscar," who also became the mascot of the project.

"THE PROBE BOY"

The probes' package as such was designed using items familiar from the first probes studies in Europe. There were some booklets containing different tasks for reaching the issues, post cards, two pens (one red and one blue), and disposable cameras (only in some packages).

To make it a bit more fun, we developed a comic character to be used as a "Probe Boy", the project mascot. As Gaver et al. (1999) recognize, we had to develop our probe to make it very pleasant, attractive and enjoyable, but not childish or condescending, and we really considered it during the probes´ design process.

The objectives of the package were to identify and provoke emotional responses about, for example, how the users live and take care of themselves, and what their lifestyle and access to healthcare is. We categorized the issues and decided to make some booklets for each task, so that it would be easy for the users to make the tasks, to handle and transport them, and to keep them safe. As Gaver et al. (1999) and Mattelmäki (2005) suggest, one of the probe principles is to permit unexpected views and interpretations, offering projective and visual assignments and open-ended questions.

FIGURE 5.3
Oscar, the probe boy

As we are geographically distant from users, we made a booklet to introduce ourselves, explaining who we are (they already knew, but they had not seen us face to face); we also wrote very briefly about Finland and explained the objectives of the probe packages. We made clear that there was no obligatory task, and we wanted them to have fun doing the probe. In this booklet, we provided a self-explicative illustration to explain how they can group the material together and send the probe back to us (Figure 5.4).

FIGURE 5.4
Researchers´ self-presentation and instructions to users

We told the research assistants to tell stories to the participants describing the project and to explain why researchers are living in Helsinki. To increase participants' confidence in the project, we wrote down stories about our personal lives, including stories about our son. We also told that we are doing this design intervention because we believe that people in the community want to improve their lives, and because they are confident that through a design project, both community members and researchers can start this process of community development in the health area.

Next, the probes were produced in Rio de Janeiro and sent to Vila Rosário to be administered. This was the first major problem. In studies in Europe (Gaver et al., 1999; Wensveen, 2005; Mattelmäki, 2005), administering probes packages had mainly been a recruitment problem. In most studies, researchers had either recruited people using standard social science methods (like recruiting agencies) or simply had recruited participants through those companies they were working with. In our case, this was not possible, since we did not have networks among our invisible populations. Instead, we had to rely on health care projects and workers familiar with these populations. It was simple to find volunteers to work with us, but at the beginning they were hesitant. They have to trust researchers to be able to cooperate. They told us that most people who say that they will help the community never come back to help or to say why they do not have a solution for the community. Thus, trust was important; our way of gaining trust was to take the package design seriously and not promise too much.

We also wanted to test whether our probes packages would work in Vila Rosário. Most of earlier studies had been done in Europe (for example, Gaver et al. 1999; Mattelmäki 2006; Wensveen 2005). The method relied heavily on diaries and postcards that, however, require reading and writing skills and familiarity with these cultural forms. These skills cannot be taken for granted in a study of invisible populations in poor districts in Brazil. Our solution to these problems took two forms: we administered the packages through health care workers; and we decided to rely on cultural forms familiar to semi-illiterate people, like soap operas. Also, we deliberately tried to design the packages so that they would create a personal connection between people and us.

Sixteen packages were distributed to:

- Two doctors, both of them working for and with the communities;
- Six Health Agents, chosen from among a total of seventeen official Health Agents. These six agents were chosen according to their work experience with the community, their skills in communicating with the communities and their knowledge about the socio-cultural and economical aspects of the community. These Health Agents are people from the community trained to advise on questions related to the health area. They live in the community, so the community's members can reach those agents 24 hours a day, seven days a week. Yet another probe package was delivered to "Dona" Maria do Rosário, a retired health agent who had followed the development of the community for over 60 years;
- Six prostitutes. Three prostitutes were selected by the specialists and three prostitutes´ representatives from the prostitutes Union chosen by

the community's members, in their opinion these prostitutes are most representative of their situation, they have a different vision about their reality; they know more about politics, business, and so forth;

- Probe packages were also given to two volunteers selected by health specialists, Health Agents, and nuns working with the community. The volunteers were chosen based on their good knowledge about current conditions and changes that are occurring in the community.

The packages were given to people by the heads of the Instituto Vila Rosário project, and after one month, the participants sent the packages back to the researchers. During the time when the participants were doing the tasks they were given, we received messages telling that people liked the design project and were participating in it eagerly. One of the research assistants said the mascot was working as a friend. She reported that some participants were thinking and treating the mascot as a person to help them understand and complete the tasks. At the same time, some participants considered the mascot as a "person" who was there to help them talk about their personal lives. The relationship with this "new friend" improved the relation between participants and researchers.

THE EMPATHY PROBES PACKAGE AND PROBES BY CONTENT

The details of the probes package were inspired and designed using items based on packages developed for studies in Europe (Gaver, Dunne & Pacenti 1999; Mattelmäki 2006; Wensveen 2005). The package included four booklets containing various tasks, seven post cards, two pens (one with blue ink and one with red ink) and a disposable camera (Figure 5.5).

FIGURE 5.5
Cultural probes package:
A) A booklet to introduce the researchers to participants;
B) Diary task;
C) Post cards task;
D) Show your products face task;
E) Once upon a time task;
F) Take a picture task;
G) Material for accomplishing and returning probes tasks.

As I have explained above, we wanted to create a pleasant and fun atmosphere, and to this end, we created Oscar the Mascot to be used as the "probe boy" (see Figure 5.3 and 5.5.F). Also, as Figure 5.5 shows, we developed a special instructions booklet in which we made a self-presentation. In this booklet was included a brief introduction about Finland and the researchers' personal life, and also the goals of the probe package (see Figure 5.4, 5.5.A). Table 5.1 shows which probes we constructed by content.

Finally, for feedback, there was a blank space in every booklet. Feedback is essential in understanding many different aspects of participants' experiences. Research assistants explained to participants that they can write or draw whatever they wanted into this space, including things related to the research (what they think about the probes packages, about the research), and stories that they thought could help to improve the welfare at the community.

TABLE 5.1
Probes by Content

	PROBE					
	Diary	Postcards	Show your Product's Face	Once Upon a Time	Take a Picture	Photo Interview
Nutrition/ food	×	×		×	×	×
Hygiene	×			×	×	×
Health experiences	×	×		×		×
Technology interaction	×	×	×		×	×
Technology attitudes	×	×	×		×	×
Technology access	×	×	×	×	×	×
Basic sanitation		×			×	×
A day in the life				×	×	×
Job description					×	×
Physical activities		×				

They filled some of those blank spaces. These data could help the researchers gain a deeper understanding about Vila Rosário.

The covers were made using full colors to facilitate the use of different colors of packs and to gets participants' attention. Even though we needed to reduce the cost of production by mostly printing in greyscale, we still needed to make them feel themselves special. And a good way was showing that the tasks were made especially for them. On the other hand, greyscale helped to reduce the price of the booklets.

Finally, there was an image that explained what participants were expected to do after they had finished the tasks. In this image, an arrow showed how each task booklet should be placed into an envelope saying "Obrigado", which is "Thank *You*" in Portuguese. (Figure 5.6).

FIGURE 5.6
Example of image that was used in every task delivered. It was a visual clue to remind them to collect all the elements and send back to us inside an A4 envelope with a smiling face and "Thank *You*" in Portuguese

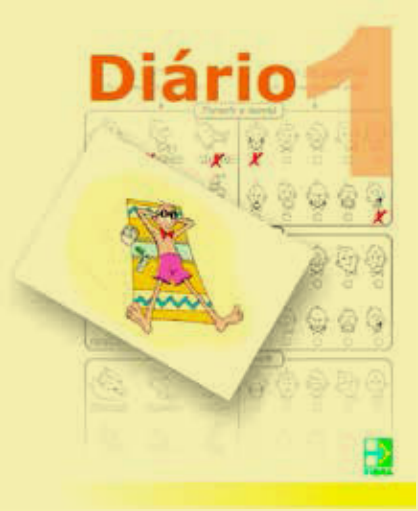
THE PROBES IN DETAIL

The probes packages had five different tasks: Diary; Postcards; Show the Product's Face; Once Upon a Time; and Take a Picture.

In addition, there was a photo interview that was conducted after the probes were returned to us. The tasks were planned keeping in mind the idea of visual representation of a group of tasks; considering the number of the task and different colors to each pack; and whether they helped the participant to see the sequence in which the tasks were to be done.

Diary

In Diary, the focus was on the day-to-day experience of participants (Figure 5.7). Each diary had tasks to be filled over a period of seven days. Each day had almost the same framework and layout; just one space had different questions related to devices. Some of the constant questions were: "At what time did you get into bed yesterday? At what time did you wake up today? What did you have for lunch? Tell us a funny thing about your day!" .



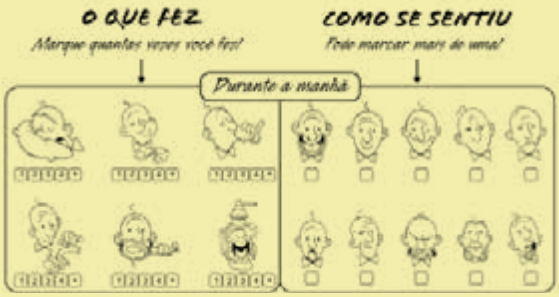


FIGURE 5.7
The cover of the diary

FIGURE 5.8
The basic structure of the Diary. On the left, an identification of the day, sleeping and diary habits. On the right is a visual questionnaire about hygiene habits and personal mood during the day. It was inspired by Desmet (2002), though in his study, icons were typically on a continuous scale while in our study, they were discrete.

FIGURE 5.9
On the left, an open question that can measure type of actions and number of times it was done. On the right, we used many different facial expressions to ask about the respondents' mood

FIGURE 5.10
A filled diary

The daily tasks had to be filled over the course of a week. Each day had a similar structure. On the left side of the spread, there was an open question to elicit issues regarding the day. On the right side of the spread, there were images on media, professionals they met in their lives, and media celebrities. This aimed at probing the role and importance of media in the lives of the participants. Some other questions were related to users´ hygiene, health habits, and emotional states that were asked using visual elements.

There were two reasons for using the Diary as one of the probes. First, it is one of the best and cheapest methods to have respondent's answers over the course of a few days. It also helped us to understand aspects of the respondent's day-to-day activities. Second, it avoided giving people time to think about their answers. One problem with questionnaires is that if the person is in an altered mood, or not too patient, the responses can be superficial.

Understanding the respondent's habits during the week is a good way to comprehend how they use to get organized, how they interact with other people and with themselves.

It was also important to understand how people interact with calendars, so we gave the participants a monthly chart. We asked them to mark the days when they were filling the diaries.

We used a kind of visual questionnaire to test a simple way to understand their habits related to some activities like hygiene and consumption of potable water, and their understanding about their own feelings. Oscar the Mascot and his actions and facial expressions could give a new way to express items of questionnaires. For example, Oscar brushing his teeth or taking a shower could be chosen in an open question, in which the respondent could choose that type of activity and how many times it was done (Figure 5.9). As the users have low skills in writing and reading, we decided to use Oscar as a measurement instrument. Our inspiration for this approach was Desmet (2002). He has suggested using product emotion icons (PrEmo) to measure emotions. These PrEmos are based on facial expressions rather than numeric scales.[10] (Figure 5.8).

Postcards

We wanted to have a deeper understanding of community members´ reaction to media by probing their responses to some images, but without giving them a feeling of responding to a questionnaire. How could we expose them to different styles of images and at the same time ask their opinion about a specific subject? We used the probe Postcards, which has been widely used in other probe studies (Gaver et al. 1999; Mattelmäki 2006; Wensveen 2005). However, we decided to ask them to fill the cards and put them into the same envelope with all the other tasks so that the least cards would be possibly lost. This was in contrast to typical probing, in which cards

have stamps and the researchers' addresses are printed on them, so that they can be sent to the researchers by mail.

FIGURE 5.11
Postcards designed for two unstudied communities

We designed seven post-cards that were to be filled out any which way participants wanted, though we suggested that they fill out one card per day. The post cards were about food/nutrition, safe sex, health access, community support, social relation, the right to choose a job, hopes and dreams, and celebrations (Figure 5.11). There was no numerical order in these cards.

Each postcard had a picture on the front and one or two open-ended questions on the back. The layout of the card was in accordance with actual postcards, including the site for a stamp. For images, different styles were used. Some had scenes from soap operas; some were produced with toys to build scenarios. The images were different in the packages delivered to doctors than in packages delivered to community members because of their social differences. For example, one of our informants suggested not using images from soap operas for doctors, whom in general do not watch those shows.

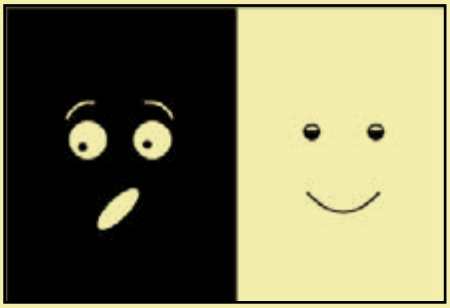
Every card had a face with an image. The back part was a normal postcard, but in the text space there were the questions or text to be filled by the respondents. Once the postcards should be delivered in an envelope, there was no necessity for using stamps, so instead we put in a logo to identify the project.

At this research stage, we were preparing probes packages to three different communities, but as we have explained before, we focused on Vila Rosário. Even though some of these cards were not used in Vila Rosário, it is important to show that we considered using different languages for different communities. For instance, we planned to use just basic elements like lines and forms to graphically represent some visual themes.

Postcards we designed to be used with pregnant teenagers were graphically stylized and very outspoken, as were cards we designed to ostomy patients. Examples of cards are in Figure 5.11.

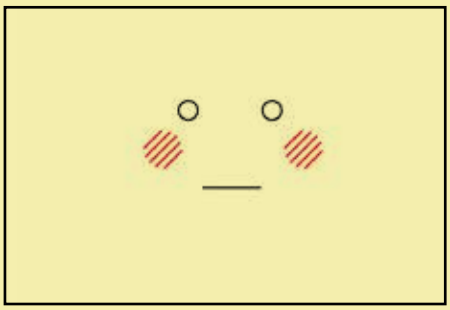
For Vila Rosário, we designed two different kinds of post-cards, one for the community, and another for doctors. During the first interviews, we discovered that people in the community have an interest in soap operas, and they used to discuss a lot about the subject. We used some images from the soap opera "Belíssima," considered by Health Agents the most important soap opera during the course of our research. Given its popularity, we thought that these images could be useful in reaching the dreams and feelings of

10 Desmet, Pieter (2002). Designing Emotions. Delft, the Netherlands: TU/Delft.

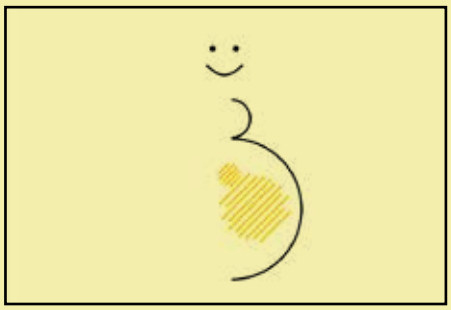


I have fear when...
I feel safe when...

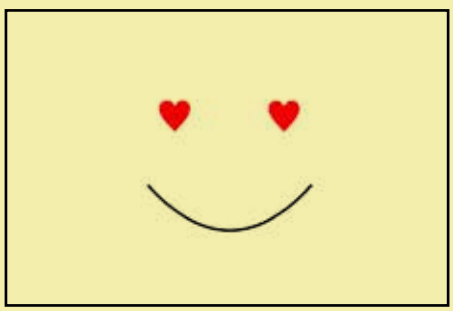
Every woman is prettiest when pregnant... Tell us how you feel



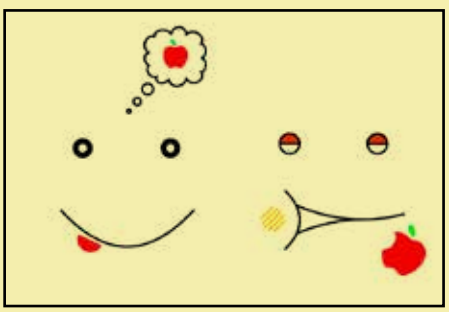
I feel ashamed when...
Tell us about what makes you feel ashamed...
If you prefer tell us a moment when you were very ashamed



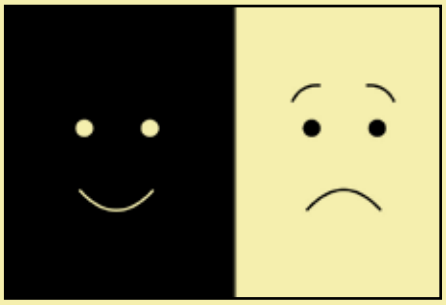
The moment of giving birth is a very special moment for pregnant women... Tell us what you wonder about this moment.



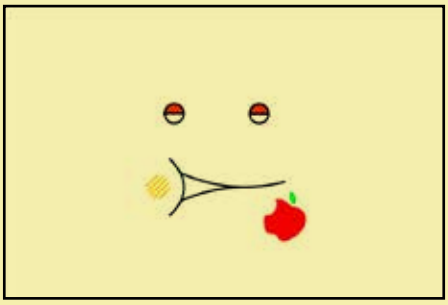
"I love to be like this... PREGNANT!"
"I can eat at any time!" These are phrases that we use to hear from pregnant women... Do you agree with them? Why?



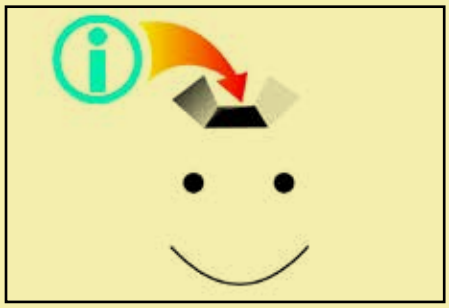
I have a craving for...
I feel good when I eat...



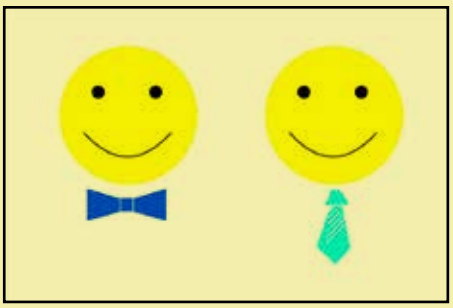
Feeling happy means...
Feeling sad means...



Health habits are...

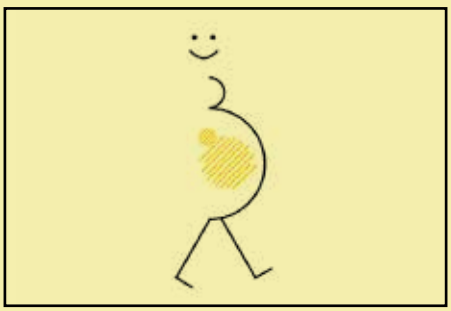


Do you think that you are well informed about your situation? What kind of advices should you suggest to persons that are like you?



Have you changed something related to your lifestyle in the past years? What was that?

Every one of us has dreams...
Tell us what is your biggest dream...
if you prefer tell more than one!



Do you work out?
( ) Yes ( ) No. Why? Was it a medical recommendation? Did you workout before getting pregnant? Why?

people in Vila Rosário, as well as their relation with stereotypes and common situations. We made questions related to their experience with hospitals; dreams; feeding habits; leisure; living in community; job; safe sex. In parallel, we sent the same questions and theme but with different images to the doctors and specialists, as we were warned that they did not watch soap operas.

All cards were presented with the first card being used as a cover. With this card, we could have the identification of the number of the task and the visual identity related to all the subsequent tasks (Figure 5.12).

Examples of cards given to participants in Vila Rosário are in Figure 5.13. As the reader can see, these cards have faces and situations from TV soaps. Even though their worldview is considerably more upper class than the reality in Vila Rosário, the characters in these soaps were intimately known, and people knew many situations in the cards. For these reasons, we figured they responded emotionally to the cards. Also, they knew that soap operas are fairy tales, and using their imagery would suggest that these tasks are about dreams, not reality.

Other cards were about:

- Parties, asking questions like "Do you go to parties?"; "What are these parties like?"; and "What makes them enjoyable?";
- Community, asking things like community help ("Do you discuss problems together with your neighbors?") and strain ("Tell us about the problems you have with your neighbors");
- Jobs, exploring dreams about jobs and professions, by asking what people would like to do if they had the right to choose;
- Safe sex and its importance, asking whether people think it is important to worry about safe sex and why.

As I said above, we decided to use images from soap operas. Soap operas are a very popular media for promoting discussion of important issues in Brazilian culture. An issue that would normally be taboo can be presented on soap operas and thus become a public subject.

For example, Melo (2002) described the social legitimization of soap operas, and how nowadays they can intervene in the citizens' lives, create new habits, change the audience's routines, and improve social relationships. The probe package sometimes used some suggestive but ambiguous images, like the projective tests used by psychologists. These images could reveal "fragments" from participants that inform and inspire designs (Gaver, 2001).

Figure 5.14 gives an example of two postcards returned to us. In these cards, we see pictures from soaps and answers to two questions, one probing dreams, another probing the main problems of life in Vila Rosário.

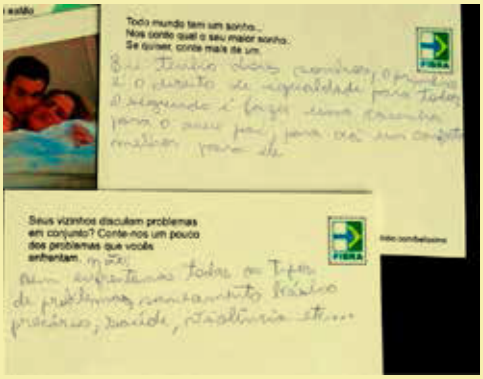
FIGURE 5.12
The first post-card had instructions about the task

FIGURES 5.13 (below)
Cards for people in Vila Rosário based on soap operas:

DREAM
Everyone has a dream... Tell us what your biggest dream is. If you want, tell us more than one dream.

FOOD
Are you feeding healthily? Tell us about your eating habits.

HOSPITAL
Have you been in a hospital? Tell us how your experience there was.



I have two dreams; the first one is the social equity. The second one is to build a little house to my father so that he can have more comfort.

No, but we face all kinds of problems: inadequate basic sanitation, health, violence, etc...

— Custódia da Silva. 49 years old

FIGURE 5.14
Two examples of returned postcards

Show Your Products' Face

To reach the understanding about how community's members interact with some products we designed the task "Show your product's face!" It was based on a task created by Stephan Wensveen called "Emotional Propaganda" (Wensveen 2005), which we used as the base to develop this task.

Our focus was on access to information technology (Figure 5.15). Specifically, we were interested in barriers to access to technology, such as knowledge of technology, and problems in user interaction. We sought to understand the relationship between users and artifacts. For this purpose, we defined five categories we wanted to explore: diaries, telephones, computers, televisions and professions. As in Wensveen (2005), we chose a category that could provoke participants. In Vila Rosário, key professionals for the community were chosen to evoke community feelings and hopes related to information technology.

The task proved to be complex in that we had to study choices related to products. Therefore, we designed a booklet with the tasks and instructions, and included not just visual explanations in it, but also gave examples of how to perform the tasks (Figure 5.16).

In terms of content, we developed a simple format. We asked the respondents to choose which product they liked most, from a list of four products. After this, they should choose some words to describe the product from a list. Then they should choose two persons to use as a model in an advertisement for the product, and explain why they were chosen. (Figure 5.17).

The category of "professions," also in Figure 5.17, was added to explore the devices in terms of professions. In Brazil, some professions had become untrusted because people had started to think that they have to pay too much to benefit from the services these professions provide.

With this probe, we expected to understand how people were familiar with some electronic products, and how they reacted

FIGURE 5.15
The Cover of "Show Your Products' Face"

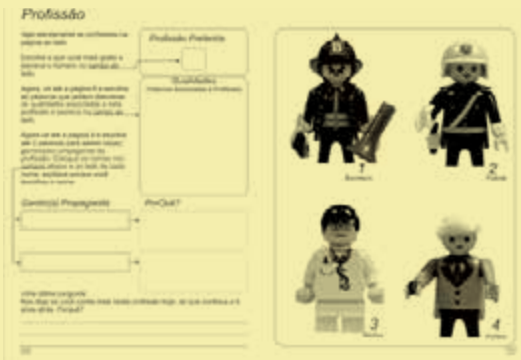


FIGURE 5.16
Instructions to how the probe should be filled

FIGURE 5.17
The category of professions in the "Show your product´s face" booklet

FIGURE 5.18
Show your product´s face: an example of a filled task

emotionally and functionally to these products. We wanted to understand whether people prefer products like pay phones to mobile phones, or whether they prefer the reliability of politicians or fire fighters. Figure 5.18 shows how one patient filled the probe.

Once Upon a Time

In the task Once Upon a Time, the attention was directed to understanding the perception and reaction of the participant to tuberculosis (Figures 5.19–5.20). This probe explored the meaning of tuberculosis to people, and its consequences in the lives of patients. We decided to evoke narratives to elicit experiences with the disease. Some aid, however, was provided for the construction of the narrative. The task was to complete a story; it was also suggested that participants make collages and drawings to complete the narrative.

We focused this booklet on perceptions of tuberculosis rather than the actual disease, not to be too direct with this stigmatizing disease. In particular, we were interested in the significance of tuberculosis, the consequences of tuberculosis in the patients' lives, and so forth.

Figure 5.20 shows the probe in more detail, and also gives an idea of how people filled the task. In essence, they wrote a tale that took place a long time ago, as suggested by the idiomatic "Once upon a time". As the picture shows, there was also extra material about tuberculosis to function as research material for the story.

Take a Picture

Finally, in Take a Picture, the objective was to have a holistic visual view of the participants' lives. Sixteen topics were suggested for photos, while in 11 photos, participants were directed to take pictures of things, places and situations important to their lives as community members (Figure 5.21). We asked the participants to show significant aspects of their lives by taking photos like:

- Take a picture that illustrates your lifestyle;
- Take a picture of a nice place;
- Open your fridge and take a picture of what's inside;
- Take a picture of your meal;
- Take a picture of an object that you cannot live without.

As these questions show, the aim was to have a vision of users' lives. We suggested sixteen photos and left eleven photos unassigned, simply asking users to show us important things in their lives.

These photos were used in many ways, later in the study. First, they gave us an idea of what Vila Rosário is alike. Second, they also gave us material to go through with people in the community. They

FIGURE 5.19
The cover of Once upon a time

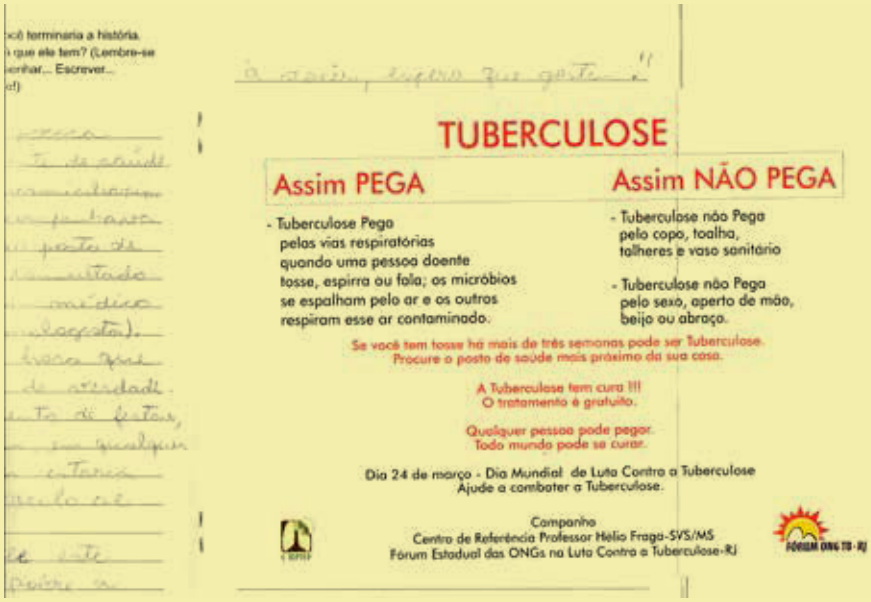


FIGURE 5.20
Once upon a time

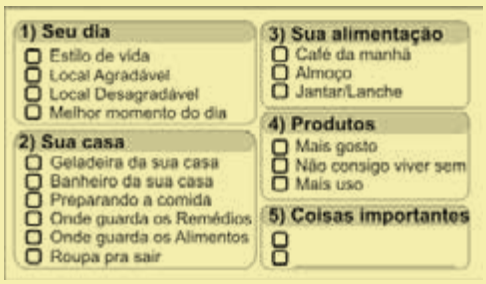


FIGURE 5.21
The cover of the photo probe, and instructions about what to shoot

provided good material for photo interviews we conducted later, and they also served as a good storytelling instrument. In many ways, this was a very successful probe. It gave us an idea of places in which people live, places they enjoy, what they eat, and what they do find acceptable. Figure 5.22 provides an illustration; in this picture, Health Agent Leila shows us her favorite spot in her house.

REFLECTION: RELEVANT ASPECTS OF PROBES

As Gaver et al. (1999) designed them, the probes are an approach to find out new pleasures, new cultural forms of sociability, and so forth, in the users. We have to stress that it was delightful for us, as designers, to develop the probes. They were time consuming to imagine and build, and it took a long time to reflect what we wanted. The negotiations in Vila Rosário took a lot of time, and were difficult to manage. The topic we explored was complex, as health has connections to most areas of life. Still, the end result was provocative, enjoyable, and very useful if the measure is our understanding of Vila Rosário.

What happens to the method when we try to use it in an "invisible," disadvantaged community, as in Vila Rosário, or in one of the *favelas* of Rio de Janeiro? I believe that the probes may prove to be a particularly important method for studying invisible populations. They are personal, enjoyable, fun, and can be designed to be as easy to understand as possible. Probes packages can also be designed to be cheap to produce. If we think about the amount of money that we usually receive to research in Brazil, however, the probes are not at the cheaper end of the spectrum. The complete package, including camera, costs around 22 euros, which is much more than the price of a questionnaire. However, if we consider the few samples needed, how rich is the result and the positive feedback we received, the cost is insubstantial. This was our opinion, and doctors we worked with agreed. For designers, the probes provide essential information about the visual and tactile aspects of the world. This is essential to designers, just like it may be essential to doctors dealing with tuberculosis.

Despite the initial bafflement, it was interesting to see that some doctors we worked with started believing in probing as a particularly good way to collect emotions from their patients. Even though they thought that the probes would provide a very unusual way to collect data, they saw the logic behind them, and were confident enough to try probe packages.

When we sent the packages to Brazil some of the people responsible for the probes had no idea of how much time we had spent preparing them, and what kinds of considerations we had in

FIGURE 5.22
The most enjoyable place in the house

developing all the assignments. However, at the end, when they received and analyzed the probes, they said that the package showed the effort we did to develop it.

Of course, we could see individual and collective differences in how people and doctors reacted to the probes. For example, it was fun to hear people complaining about how time consuming they were and how much effort it was needed to complete the tasks. What made this fun was that they complained before doing the tasks, not after: afterwards, they said they enjoyed the packages. When people complained about the tasks, we told people to not do the tasks, and we reminded them that they were volunteers, the tasks were not compulsory, and we could give the packages to others. When faced with these points, everyone said: "No, I want to be a part of this study."

Our empathic probes, then, were a success – at least initially.

6

Analysing Empathy Probes

In this chapter, I will explain how I worked with empathy probes with Andrea as soon as they were returned to us. The account is slightly different from what most of the literature describes. Usually, the analytic phase of probe studies happens in two ways. Either it takes place over time in a process that is roughly similar to getting acquainted with someone (Gaver 2002), or it happens in workshops in which observations from probes are clustered with "Post-it" notes (see Mattelmäki 2006). In the former case, the process has been likened to gossip, but it also has features similar to the artistic process (see Gaver 2002). In the latter case, the process is roughly analogous to analytic induction in social sciences (see Koskinen 2003).

In our study, in contrast, the analytic phase had four distinct phases. In the first phase, we went through feedback about the probes, and through this feedback, created a rough idea of what worked in each probe, and what was the main message of each probe. The second phase was a workshop in Helsinki; this workshop was typical to most probe studies (see Mattelmäki 2006). In the third

phase, we took seriously Mattelmäki's advice to check our newly-found interpretations through ethnography in Vila Rosário. In the final phase, we still treated our interpretations and ethnographic finding as preliminary, and submitted them to another workshop in Brasilia. The idea here was that as the participants came from Brazil, they had intimate cultural knowledge that could help us to see things we had not noticed so far.

FEEDBACK ABOUT THE PACKAGE

We got lots of interesting feedback from our participants who had filled in the probes. The feedback came from all groups that participated in the study, including Health Agents and doctors, but also other groups like prostitutes. This feedback helped us to make sense of the probes, and also gave us an idea of what people in Vila Rosário dreamt of, what their expectations in life were, and so forth.

First of all, the participants commented about the disposable camera. Most of the specialists said that they originally thought the cameras would not be returned to us. They believed that the users would sell or trade them, or that the cameras would be stolen. They also said that users were so enthusiastic about using a camera for the first time that they asked whether they could take pictures of whatever they wanted to, and, at the same time, they were afraid that they would not know how to use the camera. One quotation that illustrates this situation is the following: "Madam, I can take a bus with it, and leave the bus without it!" (user to specialist on receiving the probe). The health care informants said that most likely, the cameras would be sold to raise money. Initially, we were inclined to agree. We thought that giving a seven-Euro camera to a prostitute or a drug addict living in a slum is an issue. We though that we had to find other methods to make sure that the packages would be delivered and raised back. However, when the probes were returned, we were pleasantly surprised: all the cameras were returned. Moreover, the photos were significant.

Another thing in the probes that elicited comments was Oscar the Probes Boy, and the diary. Our informant in Brazil who sent the probes packages to the users said the mascot could work as a "friend." In her opinion, some users could transform the mascot into a person who helped them to understand the task. At the same time, as some probe tasks ask for personal information, the mascot was "a person" who was there to listen to their history.

This turned out to be true, as least to some of the participants. One of the prostitutes wrote on the diary: "It was really good to do the task, because I could feel that someone wanted to listen to me and I did not have to beg someone to listen me!" Another

prostitute could share a bad moment in her life with the mascot: "I was in my boyfriend's house and some persons who stayed there were looking at me and talking about me all the time. I felt terrible!" For her, having Oscar helped: in some ways, he was in a situation similar to hers. These two quotations were important for us; they not only told us about the probes, but also taught us a little bit about the prostitutes' relationship with their community, once they were outside the red light district.

> "This is a very cool methodology; I think it is a good way to collect real data from this kind of population." This psychologist quotation can highlight the effectiveness of the probes. As she had to help some prostitutes to fill some probes tasks, she said that she could see that the prostitutes wrote about really significant issues in their lives.

The psychologist told us that the best feature of the probes was that they were indirect. As the prostitutes had an opportunity to write things down, and did not need a face-to-face contact, they wrote stories that they used not to talk about even in an appointment. Our subsequent observations and interviews with some prostitutes confirmed this insight: prostitutes felt free to express their opinions in writing because the writing situation did not stigmatize them.

We also received some feedback about the probes packages as a whole. Some users said positive things about the probes packages:

> "The booklets are so beautiful that my son wants to have one!"

> "Wow! It is so beautiful! I want to collaborate, but there's a lot of tasks and I have a lot of things to do... can I take more than one week filling it?"

> "These booklets are the most beautiful booklets that I had in my entire life! It will be so good to use it!"

It was interesting to notice that in most of the probes we received, we found these kinds of opinion about the visual qualities of the probes. As in European studies, it was important to participants to receive a personalised probe package. Also just like in European studies, people appreciated the fact that we had put lots of effort in developing the probes. They took this as a sign of care and respect:

> "It's good to know they care about us. When they invited us to be volunteers, I had no idea about 'probes'! The doctors explained but I could not understand! Nevertheless, when I saw the packages I could understand and I felt important! They did it for us!" (Health Agent to our informant).

> "It's good to know that they respect and understand my needs: when I asked to have more than one week to do the tasks they agreed!" (Health Agent to our informant).
>
> "The probe tasks were enjoyable, they let my imagination fly. In my case, I could remember about my childhood." (Leila, Health Agent)

For us, it was nice to see that the probes helped to break the ice and through them, they started to trust us. The most important point is that they did the tasks carefully and they really tried to show us important points in their lives. It was also interesting to see that it was happening because they could understand that we really cared about them.

WORKSHOP IN FINLAND

After having gone through the feedback, we could trust our probes better. At least we knew that they had been successful and people had taken them seriously. The approach was working. Having the feedback from the community, however, was not enough. We were still in our continuous design process, and had to make sense of the probes.

As soon as we received the probes packages from Brazil, we organized a workshop in Helsinki to analyse and interpret them, to create themes that we could use in design. During the workshop, we tried to reach a deeper understanding of data and to build the first guidelines to a design project. In addition to us, there were three participants from Finland, all researchers at UIAH. The workshop lasted four hours. Its main aims were:

1. Understanding people in Vila Rosário: their problems, needs, lifestyle and values;
2. Finding design opportunities to guide information system design (either high-tech or low-tech).

The workshops roughly ran in two stages, interpretation of the probes, and finding design drivers.

The first phase was an exercise in context mapping (see Sleeswijk Visser et al. 2005). Many interesting interpretations arose from the workshop session. It started with the perplexity experienced by the Finnish researchers, who had never been exposed to this kind of community. We went through markets and products to communities like Vila Rosário. The focus was not only on problems but also on hope, and the aim was finding new possibilities that could be useful for design.

FIGURE 6.1
Finnish design researchers analysing the results of some probes packages

FIGURE 6.2
Probes workshop at UIAH - participants immerse in the material

Through immersion in data, workshop participants could identify different contexts and different needs. For example, they realized that Health Agents, inhabitants, doctors, and volunteers were different and needed different kinds of solutions. One theme that arose from conversations became one of the main hypotheses guiding our design work: the participants of the workshop became convinced that low-tech solutions were better suited to the community while high-tech solutions were better suited to specialists.

This was a significant observation to us. The workshop in Finland was open-minded, and aimed at finding new ways of seeing the community and to develop solutions. Researchers from Finland are accustomed to developing and implementing their products, and they are also able to think about global solutions, based in interconnection between many different technologies and industries. Seeing value in low-tech designs like posters was not an issue of professional pride; for them, it was an issue of functionality.

These workshops were recorded using audio and video, and they were later shown in Vila Rosário during the first interviews. What was stressed in the workshops and in video sessions in Vila Rosário alike was that we were interested in the lives and experiences of the people in the community.

FIELDWORK IN VILA ROSÁRIO

The probe returns were a good element in the beginning of our study, but we needed to go deeper in some data and gather more data to fill some gaps in probes. We believe that these gaps could result from several issues. For example, some people had not understood the probe instructions, and some did not give us feedback. We could

FIGURE 6.3
Probes workshop at UIAH - participant analysing the photos from the probeswater

FIGURE 6.4
Professor Ilpo Koskinen organizing the design drivers after the probes workshop

easily see that one of the worst problems of doing design research from a distance of 12.000 km is the difficulty of having fast feedback and keeping the participants' minds in the subject.

Taking this into account we went on to the next phase of our study, which was fieldwork in Vila Rosário. Being in front of them, showing what they did, and validating this with their answers was a good way to show our commitment to their cause. Even more important was that fieldwork in Vila Rosário gave us first-hand experience with the community. For us, fieldwork was a way to check our interpretations of the probes, just as interviews had been for Mattelmäki.

ETHNOGRAPHIC OBSERVATIONS AND STORYTELLING INTERVIEWS

Ethnography has become a routine part of design in many companies lately (see Cefkin 2010). Its roots lie in Chicago and Silicon Valley, but also partly in participatory design. It has been a particularly useful method in interaction design, in which the main design material is software, which has no obvious form. Instead of just inventing new applications and products, designers have learned to observe people and society to gain insight and inspiration (see Nardi, 1997; Suchman, 1991). Ethnography takes design into context: it is about studying people in their social and other environments. It is typically qualitative in nature, though ethnographers often count things as well (McCleverty, 1999).

As Bonnie Nardi notes, there are many ethnographic methods. The most typical methods are interviews, observations and participatory observation (Nardi, 1997). Interviews are typically

FIGURE 6.5
Garbage problems

FIGURE 6.6
The researchers and the oldest Health Agents

FIGURE 6.7
Probes workshop at UIAH - participant analysing the photos from the probeswater.

done with open-ended questions, as in the interviews described above (Baranauskas, 1999). Observations, on the other hand, are typically direct: people are observed in real situations by a researcher who is involved in those situations. Indirect observations can be done using things like video recorders (Baranauskas, 1999). In participant observation, the researcher gets more deeply involved in the life of people to understand their world as if he was one of them (Nardi, 1997).

As Andrea Judice has described our ethnographic techniques in more detail in her thesis (A. Judice 2014), I will only explain the basics of our ethnography. In addition to the interviews and photo interviews I have described above, we also spent time with some inhabitants in their homes and participated in their daily lives. For example, we went to Health Agent Maria do Rosário's house to see her life not only through her stories, but also *in situ*. On our way there, we saw things like houses protected by tall walls, intercoms, and air-conditioning systems. We also saw heaps of garbage in empty plots between houses (Figure 6.5). This helped us to map and understand

social differences in Vila Rosário. When we met Deolinda's family, we also saw how it has characteristics from many social classes. For example, Deolinda´s grandsons are undergraduate students. Both work as Webmasters and Web designers, have computers at home, and are well connected to the internet and by mobile phones. Similarly, we saw how they eat, what kinds of religious symbols they have in their homes, and what kinds of electronics they had at their places (Figures 6.6–6.7).

During these visits, we also heard many stories, which we collected (see Battarbee 2004). These stories gave us access to many aspects of community life and community history that would not have been difficult to access using any other method. These stories taught us, for example, about the importance of hygiene and nutrition much more than statistics.

Probe Interviews

We also did extensive interviewing around the probes. These interviews were done to validate our interpretation of probe returns. The interviews focused on the probes. We wanted to build a direct dialogue between researchers, participants and other parties involved. Our secondary aim was to create new insights and scenarios from diary notes and photographs that reported dramatic emotions and events that prompted these emotions (Mattelmäki 2006: 78).

The probes can offer a lot, but there is a lot of information that needs to be checked before research can go further. One of the best ways to validate the information submitted by the probes respondents is to confront the respondents with their answers, and solve any doubt that we had during the probes analyses.

> "The empathic design probes have typically contained an interview with the users after the self-documentation stage, which has supplemented the understanding extracted from the probe material, which is often fragmented, and a way of correcting possible misinterpretations." (Mattelmäki 2006: 50)

We can highlight two important reasons for why interviews help to get more information out of probes. The probes fed the participants' imagination, and provoked them to reminiscence old memories and analyze these memories from many angles. For example, in one interview, one of the Health Agents gave us a kind of "timeline" of the community by comparing issues from the past to what is happening today. The researchers did not ask her to do a timeline, but some of the tasks and questions were so open that they fed her memories and provoked her to open her personal memories to us. The next excerpt illustrates how participants could talk about their lives during the probe interviews.

> "We always need to be worried about our health, and the safe sex is the best way to avoid illness and unwanted pregnancy." (Report of a volunteer)

This quotation shows how with a little help from a post card and images from soap operas, it is possible to discuss sensitive themes like unwanted pregnancy and safe sex. During probes interviews, these subjects were discussed again, by using the quotation above and by talking about the soap opera. The discussion conducted in this way allowed Health Agents to talk about how people in the community experience these issues.

The interview also allowed the researchers to have different points of view. As both doctors and Health Agents were there, they could jump into the interview and tell their perspective to things they heard.

> "I loved spending my time with this task. It was a good experience for me. It made me think (...) In this diary I described my way of life, my habits. I explained how I eat. I know I have to feed myself properly, but still, there are other people worse off than mine, so I try to help others." (Marluce's text at feedback space in task diary.)

Having written feedback like this in spaces available for comments and suggestions, we could understand an important feature about the community: the feeling that it is important to help the less fortunate in the community. Some Health Agents, for instance, wrote that they are more than nurses. They are also people in the community and, as such, have the same problems of the population.

An important point to highlight is that before the participants received the probe packages, they had many reservations about participating with the project. Typically, these reservations were related to literacy. Some participants had little formal education and had heard that it might be necessary to write things down. However, after the arrival of the probes packages, they felt comfortable with the idea of writing and speaking to us. They began to understand that the knowledge they had about Vila Rosário is the most important thing for the project, not their writing skills. We did not want to judge the participants' level of education or skills in Portuguese, but wanted to find a common language game to improve the life of people in Vila Rosário. Judging by their responses, we were successful; the probes became a language game in which we both could participate, and they took attention away from us as researchers.

Interestingly, we could talk to participants almost like we had been friends for a long time. This we attributed to the probes. The package was the first impression that participants had about us.

FIGURE 6.8
Probe interviews: validating photos

FIGURE 6.9
Probe interviews: drawing a house

For interviews, we were invited to go to participants' homes. During these visits, it was possible to understand some aspects of life in Vila Rosário much better than through the probes alone. For example, we heard stories about

- *Childcare*. For example, one elder lady took care of her great-granddaughter just to show us what kind of things we should consider if we were interested in how babies are taken care of;
- *Television and visual culture*. We heard about which kinds of TV programs people like, and why they like these programs. It was useful to understand and start to think about other visual forms of culture in their lives;
- *Community life*. We also could better understand family interaction at home and with neighbors. We were invited for supper at homes several times as they wanted to show us bits of the food habits of some families;
- *Homes*. Largely due to our probe-based research approach, people opened their homes to us and allowed us to have access to their families and their lives.

Another moment during which we could feel the good atmosphere created by the probes was during the interviews. Participants, volunteers, experts and some community members opened up their lives very freely to us, as they loved to talk about their probe returns. They told stories without having been requested, and they brought personal photos and tapes into interviews. They also brought stories from members of the community who could not attend the interviews.

During the interviews, we realized that the participants had taken great care of completing the tasks. They had interacted with each other to complete them, and they had discussed issues they had never talked about before. This reminded us of something Mattelmäki (2006) had written. She had noted that successful probes can help users to step out of their ordinary roles and routines, and observe their experiences and environments from different angles.

Photos in Interviews

When interviewing people in Vila Rosário, I paid specific attention to photos. They are rich objects that tell not only about what the photographer intended, but also about many other things that were just background for the photographer. Photos were also a particularly rich source of information. With probes, we were able to collect more than 400 photographs. To make sense of such a large amount of data, it was essential to have empathic knowledge of the community to share feelings and experiences with community members. This knowledge worked as background in making sense of images.

For example, there are interesting cases described by the Health Agents using pictures they took when doing the probes. Figures 6.10–6.11 show two cases related to hygiene and sanitation. Deolinda is a Health Agent who took image 6.10. This family is a good example of persistence: despite all the problems related to basic sanitation hygiene and so forth, it was concerned about keeping everything clean. Deolinda explained why she took the photo:

> "There is no running water. Even with that situation she (the matriarch) tries to keep everything tidy. If they (residents) want, they can change their habits and have a better life." (Deolinda's description).

On the other hand, in Figure 6.11, we see a bathroom from a family with no care for hygiene. Health Agents underlined that unfortunately most parts of the families have the same situation. They have poor hygiene habits, which Health Agents say is a deeply rooted cultural trait: it will take time to change it. Says Deolinda:

> "Here you can see another family that has a lot of children. They live in a house with a single space, but do not have the slightest notion of hygiene and nutrition. The bathroom is just what you are seeing. This is a space in which they do everything, bathroom, pee, etc." (Deolinda's report)

Based on our around 400 pictures and probes interviews, it was possible to build scenarios with Health Agents and specialists to discuss the actual situation and to think about changes. Clara is a Health Agent who took the picture in Figure 6.12. She explains:

FIGURE 6.10
Toilet without running water.

FIGURE 6.11
Space used as a bathroom and toilet

FIGURE 6.12
Family in their backyard.
On the right, Deolinda (Health Agent).

FIGURE 6.13
Detail of the front of a house.
Garbage and mud making difficult for Health Agents to have access to the house.

> "There is a 27 year-old girl with mental problems, who always demands that someone takes care of her. Despite this, the family is in a better economic situation. However, it is possible to see the child without shoes, stepping on the soil. They should have more information about how to get dressed to avoid illness." (Clara's description).

Once more, the Health Agent was underlining that the lack of hygiene is not related to economical situation, but it is related to their habits. During the interview, Health Agents told us that this family has a nutritionally balanced diet. They do not lack food, but they feed themselves with "junk food": foods that fill the stomach but have low nutritional value.

The house in Figure 6.13 is on a hill in a difficult place to reach. To reach it, Health Agents had to go through mud and garbage. When Health Agents went there to take this picture for us, they also took milk and biscuits for the family. The kids and grandmother had been a week without food. The grandmother had tuberculosis twice. She is a diabetic and has problems with alcohol. Deolinda (health agent) was describing this situation in an exaggerated way: "If we bend the grandma, we can put her into a bag! She is so skinny!" The grandmother is so weak that she has no strength to get a proper job; she does seasonal jobs. When she receives money, she buys "guaraná" (Brazilian soda) and junk food.

As we can see from the picture, chicken and pigs were allowed to come in the house. The family threw garbage to the own yard, and did not care about whether their environment was clean or not. The house has only one room; it does not have windows or proper ventilation; there is neither bathroom nor kitchen. The family sleeps huddled on some garment. Still, they are very cheerful and talkative.

This may sound like an extreme case, but the community has around 25% of their families living in conditions like these. Clearly, design solutions can alleviate their suffering.

PROJECTIVE TECHNIQUES IN FIELDWORK

Finally, we used several projective techniques in our fieldwork. Again, these are explained in more detail in A. Judice (2014), so only an outline is needed here. The reason for using projective methods was simple. Other methods we had used helped us to map Vila Rosário as it exists, but not as it will be in the future. In particular what comes to technology, we had to find ways to encourage people to dream freely so that cynicism based on current reality would not take over. The use of these methods, unscientific as they are, is encouraged for

similar reasons by many authorities in design research, most notably Sanders and Dandavate and *The Presence Project* (1999); in fact, as *the Presence Project* shows, probing as a methodology owes a lot to projective psychology. Again, for more detailed descriptions, I would encourage the reader to consult Andrea Judice (2014).

The first thing we did was to encourage Health Agents to take more photographs, but this time not though our instructions. They were able to freely photograph things and situations they thought would be interesting to us, and then tell us what is missing in these situations. When we talked to them, we built stories and scenarios together with them, and that way we encouraged their imagination. A good deal of these photos was handled through collages of various sorts. We asked them to sort and arrange the photos on the table and to talk about the reason they took the photos. They tried to build stories with the photos. Rather than only explaining them, we also encouraged them to create scenarios of how things could be improved.

Another projective technique we used came from fairy tales. We asked Health Agents to imagine a Good Fairy who would have magic powers to help them. In our discussion about their photographs, they could talk to the Fairy anytime, and tell how she could magically solve the problems they encountered in their work. It was through these stories we became convinced that to help Vila Rosário properly, we had to shift our focus on tuberculosis as a medical problem to more general concerns behind this illness, like nutrition and hygiene.

The third projective technique we used was the "Magic Thing," a technique developed by Iacucci et al. (2000). Magic Things are almost quality-free mock-ups of mobile devices that are given to people to carry with. They serve as reminders about technology; the only instruction is that when people carry Magic Things and face a difficulty of some sort, they sit down and think about how a piece of technology with magical qualities would help them out from that situation. They are much like inkblot tests; a device without meaning that evokes meaning. It was the Health Agents who carried these devices. The most important thing we learned from Magic Things is that Health Agents miss contact with the outer world. They needed a communication link in their work. This observation became a useful pointer in designing the website for the project: it came to function as the communication link to the world outside Vila Rosário.

Finally, we used several projective techniques in two workshops designed to explore the kinds of images, dreams and aspirations people have for Vila Rosário. These workshops were taped on video. In the first workshop in Vila Rosário, we asked people to imagine themselves as animals, to voice their feelings about their township. To get their imagination going, we gave people pictures of images,

put them on a table, and explain why they had chosen these images. This small design game led to interesting results. Below some quotations that ilustrate the wonderful result we had:

CUSTÓDIA:

"So I'll start: I chose a dragonfly" – There was a debate to choose who could start the "game"

AS SOON AS CUSTÓDIA STARTS MARLENE ASKED:

"What animal is this that you chose?"

CUSTÓDIA:

"A Dragonfly, also known – in Brazil - as a laundress".

MARLENE:

"Ah, I know! The washerwoman!"

EVERYBODY STARTED COMMENTING, AT THE SAME TIME, WHY THE NAME "LAUNDRESS"

CUSTÓDIA:

"I chose it, because sometimes, at our work - I do not know if the dragonfly feels this way - but we, many times, want to have wings ... wings to get into some places (difficult to access), wings to get us out of some situations we go through! Wings to see all the community's situation from the sky".

FIGURE 6.14
Screen captures from workshop "which animal would you like to be?"

Custódia explaining why she chose the Dragonfly –observe the relaxed atmosphere

Custódia explaining why she chose the Dragonfly –observe the relaxed atmosphere

As this short excerpt shows, our small design game led to quite a lot of free talk about what kind of place Vila Rosário is and how it works. It created a situation in which people could talk about their feelings indirectly through animal metaphors, and that way not feel personally committed to their choices.

Another workshop used collage as a method of talking about the community and its feelings. The materials were images pre-selected by Andrea and I, colored pencils and crayons, glue, scissors, and cardboard. Again, the workshops were taped on video. We separated the participants in two groups, and asked Dr. Costa Neto and Roberto Saturnino Braga, who was a former politician, to be the leaders of these groups, and also choose who would be in their groups. The only instructions to the groups were given by me. I told them that they could use separated words, phrases, pictures, drawings, and so on to explore their dreams for Vila Rosário. I stressed that they should follow their imagination in creating collages, and that they had to describe the collages at the end of the workshop.

Many kinds of debates happened during this workshop. During the presentations' discussions, we saw that the collages were rich in content and they triggered lots of debate. After these data analyses, the data were presented to the participants of the workshop and to a few other team members of Vila Rosário who were not involved in the workshop.

Two useful things came out of this workshop. First, one group developed a "soap opera plot" in their collage. The plot was based on the problems a Community Health Agent face in their day-to-day:

> "The Community Health Agent arrives at the Health Center and can not find a doctor. She comes back another day with the patient and the doctor is there. The doctor can go through and take the exam. He does the diagnosis ... then, everybody is hoping to get "lucky" to have remedies/medicines for the treatment."

After hearing this story line, we realized that soap opera was a good communication tool with people in Brazil. Another important point the groups highlighted was the dream of a new, transformed Brazil through education with quality, nutritious food and health for all Brazilian citizens. The content of the dream was familiar, but the extent, focusing on Brazil rather than Vila Rosário only, was new to us. The workshop format, we saw, could easily be turned into a session for exploring how people feel about their community and its future.

FIGURE 6.16
Workshop in Brasília – the beginning

FIGURE 6.17
Brazilian researchers taking part in a discussion about Vila Rosário

FIGURE 6.18
Workshop in Brasília: Affinity Walls

FIGURE 6.19
Workshop in Brasília: Affinity Walls

WORKSHOP IN BRASÍLIA

The next thing we considered was cultural bias. We knew that previous knowledge gives researchers considerable cultural biases, and decided to confront the results from the workshop in Finland with a workshop in Brazil. The problem with the Helsinki workshops was that in these workshops participants assumed many things that we could not assume in Vila Rosário. However, even though Andrea and I were from Brazil, we came from the more privileged stratum of the country. For that reason, we were unwilling to trust our interpretation of Brazil without an additional check.

As in Helsinki, this workshop lasted four hours. Its main aims were:

- To understand the communities' people, their problems, needs, lifestyle and values;
- To find design opportunities to guide an information system design (both high-tech and low-tech).

The workshop in Brasilia was also an important event that introduced us to a new way of developing solutions for Vila Rosário. Researchers came from different fields, including pediatrics and psychology. As designers, we focused on fitting our solutions to local needs, while considering local barriers that were mainly related to politics and cultural aspects of social work.

The workshops were very useful: while Finnish researchers were thinking of new and global technological solutions, Brazilian researchers were accustomed to thinking about local matters like logistics involving politics, corruption, low funding, and other problems typical to the Third World circumstances in Vila Rosário. The Brazilian researchers were able to connect their solutions with actual national solutions. (See Figures 6.16–6.19).

Material for this workshop came from our probes, including diary notes and photographs that can constitute particular useful tools for participatory workshops (for more on this, see Ziller 1990, Brown et al. 2000, Hulkko et al. 2004). We would also look at probe materials to contextualize photos and quotes from interviews. Our evocative materials made the session go smoothly in a spirit of spontaneity, so that it amplified the materials collected in the probes. In grouping ideas in the workshop, we used post-it notes and built "affinity walls" (see also Mattelmäki, 2006).

REFLECTION: WHAT WE LEARNED FROM EMPATHY PROBES

With empathy probes we were able to gather many types of data, which provided a good ground for discussion and reflection on the community. During the probe process Health Agents, health specialists and some community's members were involved, which made results more reliable and robust. The probes provided new insights and helped to create a visual map of the context, which made it possible to focus design solutions on key issues for the community, including hygiene, nutrition, environmental issues, and tropical diseases. The process that started with the probes was an important step to empathize with participants and motivate them to take part in the project. Although the researchers were initially not sure whether the final package could meet their expectations, feedback and the experiences that they had later in Vila Rosário

showed that the method did motivate people in Vila Rosário and provided rich data.

In doing probes in Vila Rosário, we saw that our training in design made a difference. It helped tremendously in creating a pleasant and reliable atmosphere around the project, especially in vulnerable communities like this. A bond of trust developed between us and Health Agents, as well as other participants in Vila Rosário. This has not gone unnoticed in previous studies. According to Mattelmäki

> "The attitude, which is necessary for design for experience, includes respecting the users, commitment to the user needs and desires, holistic understanding of the interaction, and not to forget trust on designers' personal insight and creativity." (Mattelmäki 2006:110)

Participants in Vila Rosário did share many of their experiences with us through the probes. In a relaxed and confident atmosphere created by the probes, the participants began to reveal facts, wishes, and dreams about Vila Rosário, but also about their personal lives. They even allowed researchers to take part in private events of their lives.

The probes proved to be an effective approach to reach new insights and inspiration in this invisible community. When complemented by other methods such as ethnography, storytelling (Battarbee, 2003), and the "magic thing" (Iacucci et al. 2000), probes proved to be a valuable tool to support the generation of design and design concepts in a slum. Empathy probes work not just in the high-tech literate societies of Europe, where the method originally came from.

7

Design Drivers: The Creative Step

After research, the next step in the design process was creative: going from data and analysis to design ideas. To guide design work, I created several drivers with Andrea. These drivers were used to guide design efforts, and also in making detail designs.

Our designs arose from three separate analyses of our user research. The first analysis identified themes we wanted to address. As I explain below, we selected five themes, all related to health, but as we learned in Vila Rosário, we could not solely build on medical knowledge. We had to address health holistically rather than through science, which was reflected in our design program. The second analysis concerned the best method to create actual designs. Our initial brief had told us to focus on high-tech solutions and high-end communication technologies, but the weight of data forced us to reframe our design efforts. As I explain below, we gave a lot of weight to low-tech designs, and the line between electronic high-tech and analogue low-tech came to play a significant role in our research effort. Third, we developed a series of more detailed design drivers to guide the creation of actual designs. These came from

our empathic methods and assessment of what kinds of things are needed for design in Vila Rosário.

THEMES

Before going further in the drivers, some background is necessary. First, from our user studies, we selected five themes we wanted to address. These themes are explained in more detail in A. Judice (2014), and are also in debt to Paulo Freire's *Pedagogy of the Oppressed* (Freire 2005). Freire's pedagogy starts by identifying and describing the thematic universe of people being taught. We identified five themes to address in our design program:

1. *Help in diagnosis*. Health Agents were not trained as medical professionals, and needed help in preliminary diagnoses of illnesses. Many diseases have ambiguous symptoms, which only an experienced doctor can read. Seeing that a child has diarrhea is one thing; being sure he has tuberculosis or HIV in its early stages is much more difficult. Health Agents needed help in recognizing symptoms and writing them down for doctors.
2. *How to improve communication with doctors*. As the first theme suggests, the second theme was communication with doctors. This, we thought, should happen on two levels. First, Health Agents should be able to function as the doctors' eyes, ears and hands at the more distant corners of Vila Rosário; to do this, they needed tools to work with patients and communicate their observations and actions to doctors. Second, often when the doctors were not in the ambulatory, they still needed to be contacted. For this communication, we built a website.
3. *How to help persuade patients to pay attention to the symptoms of disease and to take medication*. The third theme we decided to address was more didactic. Health Agents needed material they could use to teach the inhabitants about the symptoms of diseases like tuberculosis, and to take these symptoms seriously. When they had been diagnosed, Health Agents needed material to show that the patient needs to go through the whole treatment. In particular, this is the case with tuberculosis. Medication helps with the worst symptoms in two weeks, and many patients stop taking the drugs after this period. The full course, however, takes months, and is needed first to cure the disease and second to make sure the disease does not develop resistance to antibiotics.
4. *Hygiene*. The fourth theme went beyond medical issues to their sources. There was a need to improve the inhabitants' understanding about the importance of hygiene. Bad hygiene is the root cause of many illnesses, and Health Agents needed material that could show

how deficient hygiene breeds illnesses through things like dirty kitchen knives, dirty water, unwashed hands, and lice.

5 *Nutrition*. The final theme we addressed was nutrition. Like in many poor neighborhoods, people in Vila Rosário ate lots of high-energy foods that were barely nutritious. In short term, this affected immune systems and led to weaker resistance to many common diseases. The longer-term consequences, however, were more serious. If malnutrition continues for long enough, it leads to developmental disorders; in particular the brains of children may remain underdeveloped, which can be seen in later years in cognitive deficiencies and poverty.

When creating a suite of designs for Vila Rosário, we kept this list in mind. For us, the most important thing was to address each question through at least one design.

REFRAMING: A MIXTURE OF LOW-TECH AND HIGH-TECH DESIGNS

As Andrea Jucide explains in her PhD thesis, we also decided to reframe our design program. Initially, our brief had been information technology focused. In the course of our study, however, we saw that this would not address many needs of the community. Electricity was often stolen in Vila Rosário; people were poor; many were illiterate; and finally it was Health Agents rather than the population at large that provided the best possibility of contribution to public health. Hence, instead of focusing on technology, we started to study whether various low-tech solutions, mostly graphic designs like posters, booklets and games, would provide a more realistic design program.

The final program was a mixture of high-tech and low-tech solutions. The Web and its possibilities were useful for some tasks in Vila Rosário, but for other tasks, things like cheap-to-produce booklets were much better.

The final thing we created was a consistent identity to the Instituto Vila Rosário program. This task was separated from content-related designs.

THE SUITE OF DESIGNS

The suite of designs we created is in Table 7.1. Most of the designs came from our discussions with Health Agents and doctors in Vila Rosário. In particular, they wanted to have booklets that could be

used as educational material. Posters similarly came from them. The idea of building games around designs came from a theme we faced several times, the need to teach basic things about hygiene and nutrition to children. Workshops, on the other hand, came from both Health Agents and doctors, who wanted to use the space of the ambulatory more efficiently by creating a place where people could convene.

The Vila Rosário portal came from our discussions with Health Agents, while educational movies came from our discussion with doctors. The final design element was the visual identity to the program, which came from doctors, who wanted to make the program better known among the population of Vila Rosário.

TABLE 7.1
Design products by themes and by audiences

		DESIGNS							
		Low-tech				High-tech		Visual identity	
		Booklets	Posters	Games	Workshops	Portal	Educational movies	IVR design management program	Health Agents' kit
Themes	Diagnosis	+	+	+	+	+	+		
	Communi-cation	+	+	+	+	+	+	+	+
	Persuasion	+	+	+	+	+	+	+	+
	Hygiene	+	+	+	+	+	+		
	Nutrition	+	+	+	+	+	+		
	Health Agents	+	+	+	+	+	+	+	+
Audiences	Doctors					+	+	+	
	Other specialists					+	+	+	
	Senior citizens	+	+	+	+		+		
	Adults	+	+		+		+		
	Teenagers	+	+	+	+	+	+		
	Children	+	+	+	+	+	+		

DETAILED DESIGN DRIVERS

After having design ideas, we still had to decide how to do the actual designs. We created a set of drivers to aid this work. Ultimately, these built on what we had learned from empathic and participatory design: all aimed at creating designs that would speak the language of Vila Rosário.

Easy-to-understand and sympathetic

As argued above, our design principle was to create a joint language game by building on the same ethno methods people in Vila Rosário use to organize their understanding. All visible designs had to build on local culture and its look and feel. They had to be made familiar and desirable for children and adults alike.

To simplify the design effort and to make designs consistent, we created a story world. In the center of the world were characters created with a telenovela style, for several reasons. Everyone in Vila Rosário understands these characters. They are simultaneously stereotypical and detailed, easy to identify with, but not too close to any particular person. Furthermore, their behaviors and their impact on other people can be followed over time, which makes it easy to communicate things like how some behaviors lead to certain outcomes (like getting a TB diagnosis followed by a cure, and finally getting better) and how these behaviors affect other people (like what happens to the loved ones if one does not take care of TB properly, or stops the treatment early).

Examples of these characters are in the following two chapters.

These storytelling resources were important in recreating Vila Rosário in designs. It goes without saying that all decisions concerning design elements were based on the probes and the ethnography done earlier. Once the world had been created, designs were easy to produce quickly. Material for all designs came from probes and fieldwork. The main benefit of the story world was that it made it easy to communicate health-related information. It helped translate abstract medical information into something stories could be made of.

Visual, Little Text

One of the practical problems we faced with European and North American design practices was that few people in Vila Rosário were analphabetic, some people were illiterate, and many were semi-literate. We could not rely on text-heavy designs. Rather, we decided to invest most of our time in improving our visual designs; text was necessary, but it was kept simple, its "speech acts" were simple and picked up from advertising, and they had a secondary role.

For our visual designs, we selected elements that were familiar to people in Vila Rosário: characters (see above), buildings, streetscapes, stories and telenovela style story plots, and so forth. In coloring the designs, we used tropical colors typical to Vila Rosário rather than restrained Nordic colors typical to Helsinki.

Medically and Nutritionally Correct

Above all, our designs had to be medically and nutritionally correct. With this restriction in mind, we could narrow down our design work considerably. For instance, we could focus on that part of hygiene that is relevant in combating diseases like diarrhea and tuberculosis.

In addition to using our common sense, we took several safeguards to make sure what we said was correct. We created many designs with Health Agents and tested these designs with them. We also tested our designs with doctors who had been working in Vila Rosário, as well as with doctors with expertise in tropical medicine, contagious diseases, and HIV/AIDS. Finally, to build on the best available science, we developed and checked our nutritional booklets with a nutritionist.

Cheap to Produce, Cheap to Keep, Too Cheap to Steal

The main bulk of our designs were low-tech so that they were easy and cheap to produce locally. For example, we chose to do small posters that print well on A4 paper rather than use expensive, advertisement-style photographs as a background for our designs.

This also had implications for our high-tech designs. As I have said above, IT came to play a secondary role in the design, despite our original brief: the absence of proper infrastructure and safety. We decided to place IT into the Vila Rosário Institute, where it was safe and where people knew how to use it. The main users were Health Agents and nuns at the Vila Rosário Institute. For them, IT became a means to building a bridge between the Vila Rosário Institute and medical expertise in the metropolitan area.

As we created a Web-based communication system between Vila Rosário and doctors in local universities and clinics, technology was more dependent on content than on devices such as tablets or smart phones, that would have been easy to lose or get stolen.

8

Visual Identity

As a footnote to our research, we created a visual identity to guide our design program in Vila Rosário. The reason for creating the identity was that we needed a "glue" to keep together all the designs I described in Chapter 7 and will describe in Chapter 9. This identity consisted of a logo, several products aimed at performing this identity, and a mascot named Oscar, a somewhat impulsive but well-meaning character, whose exploits and mistakes we intended to use to communicate emotions and choices people have to make to be healthy. The aim was to give visual identity to the program, and thus make it noticeable and a focus of pride for Health Agents. It was deliberately non-serious to reflect local culture, which appreciates humor.

I also believe that the identity has to build on those language games that can be found in Vila Rosário, to be effective there. The identity used materials from our contextual study and the story world we created. Specifically, it consisted of a logo used in most materials produced for the program, but we wanted to make the identity also actionable by creating several products including an

FIGURE 8.1
First Logo designed by Dr. Costa Neto

FIGURE 8.2
First logo designed with Health Agents

uniform for the health program. The uniform consists of a coat, but we also created designs for caps and other paraphernalia.

THE LOGO AS A SYMBOL

The work did not start from an empty desk. Instituto Vila Rosário had a logo, which had been designed by Dr. Claudio Costa Neto. It consisted of two flowers that looked like they were in a walking position. These flowers, red in color, were placed upon a brown ellipse. Other elements in the logo were the red background and text on white. The logo was working, but it was difficult to reproduce on various backgrounds. We had to use the logo on several designs, and it was clear to us that it should print well on different colors, materials, and even photographs and maps. For these reasons, we decided to redo the logo. We kept the idea of building on plant life.

Since Brazil is a continent-wide country, a symbol to represent Instituto Vila Rosário had to be made so that it could be understood by people from different parts of the country. Vila Rosário is not international, but it is very Brazilian: its population comes from all parts of the vast country. Based on stakeholder interviews and document analysis, we got the idea of building the logo to represent the community that consists of people that came from several origins in Brazil. When designing the logo together with Health Agents, we came to define it in three ways:

1 The basic concept for the logo came from a clover. The logo is a stylized version of a common clover, which adapts itself to different soil types and can survive adversities that would damage most other plants. In our design, it has four leaves because a four-leaf clover is a conventional symbol of luck: it tells that the community brings wealth and good luck to its members. Superstition maybe, but this symbol is easy to understand. The symbol is associated with Health Agents and some employees of the Instituto Vila Rosário, who come to symbolize a striving for a better community. The stem of the plant represents a process that takes its nutrients from the soil itself – it represents the community that wants to be self-sustainable and makes use of the resources it has in the region and in the community to improve its situation. The idea of using an herb as a symbol pays respect to some plants that can grow anywhere, absorbing ingredients from the ground, utilizing energy from the sun, and transforming these meager resources to create food and life, and also to provide health as herbal medicine (phytotherapy).

2 The colors came from our belief that they have to represent Brazil in all of its ethnic diversity. The basic colors used for representing people from many different origins have conventions, which we wanted to avoid. Hence, we avoided obvious colors like white and deep brown, and took yellow and green from the Brazilian flag. Blue was used as a symbol of health and research, while red was selected because of its common sense meaning of strong energy and Red Cross assistance.

3 The logo also stands for a local mill. It tells about a community that creates its own products and energy, just as mills create new products using wealth and energy from the wind. It means energy that is free everywhere and all around, just as in people of Vila Rosário who, when united for the same ideal, can be stronger together. The blades of the mill have four colors to show every inhabitant of Vila Rosário is a personality of his own. However, although they all move, they also have to spin with the same force to create good results. The logo tells about searching common roots in the community. Health Agent Leila in particular had always stressed the unity of the community members.

Technically speaking, the logo should be easy to reproduce. One thing we were considering in designing the logo was that the community does not have access to resources of desktop publishing, nor do they have information technology needed to spread the symbol throughout the community. They could only print it with color printers, which vary in quality. Our way of handling this problem was to use four regular triangles, a dot, and a curved form that could be easily reproduced using simple stencil.

The regular shapes with straight edges were also used to reproduce ethnic patterns to be used as backgrounds, borders, and other kinds of ornaments for web designs, letterhead elements, and mosaic to be taught in workshops in the ambulatory (Figure 8.3).

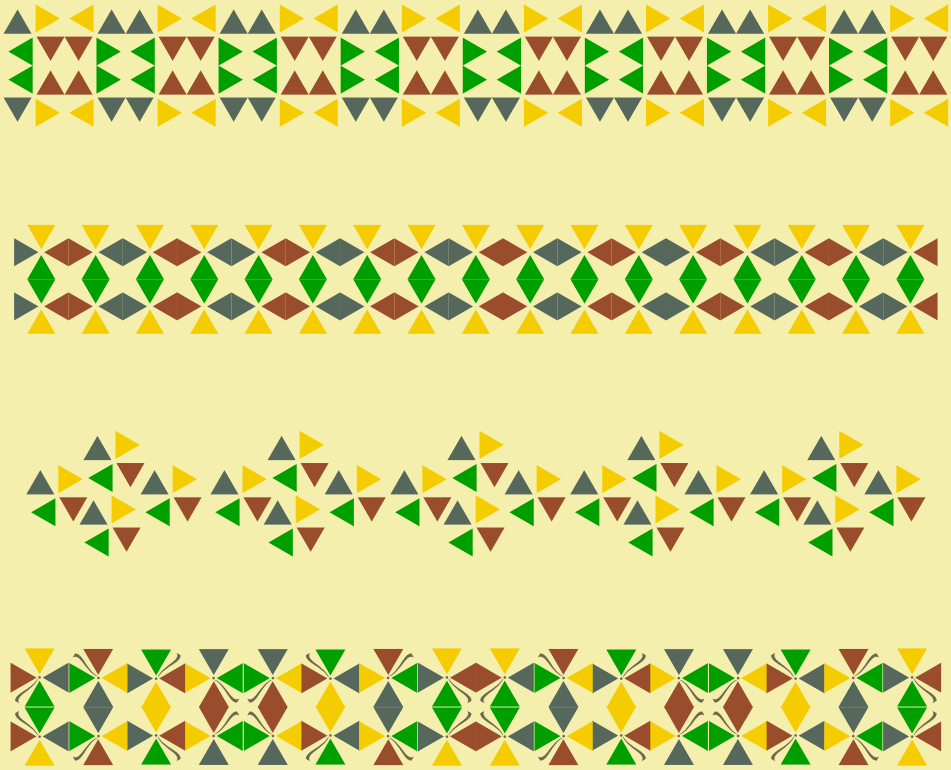


FIGURE 8.3
First triangular leaves used in a pattern, to be applied in mosaic

FIGURE 8.4
Redesign of logo with more organic forms

FIGURE 8.5
Final design of the logo

However, as soon as we tested the symbol, we faced some complications. They came from two corners. First, some Health Agents and inhabitants complained to us about the very strict and technologic form of the symbol. They commented that the logo was impersonal, and not something that belongs to them. Second, there was a pre-existing logo. Some stakeholders had designed one logo to mark handicraft products produced in Vila Rosário before we started our project, and they felt an emotional connection to the previous logo and did not accept the new alternative. This situation made the process of acceptance and authorization of the new visual identity exhausting, and delayed its implementation. Despite the fact that many arguments supported the new symbol, we had to deal with local powers, which were interfering and delaying the implementation of the new identity.

Yet, after almost a year of discussions and arguments, the renovated symbol was accepted with some new characteristics. We added traces of handwriting to it; we rounded lines and made the shape a lot more similar to a four-leave clover; we increased its stalk; and the colors were made darker to gain a pleasant and not so vibrant feeling. Figure 8.4 has sketches and 8.5 shows how the final logo was used.

FICTIONAL VILA ROSÁRIO

One problem our design program faced was that we planned to do several designs and had to find a way to make them consistent, to make it clear that they all were a part of the Instituto Vila Rosário program. Our solution to this problem was to create a fictional world filled with characters that were either based on Vila Rosário, or recognizable in it. The characters we created were turned into quite lively human beings by thinking about them as characters from telenovelas. As Andrea Judice writes in her thesis,

> Everyone in Vila Rosário understands these characters. They are simultaneously stereotypical and detailed, easy to identify with, but not too close to any particular person. Furthermore, their behaviors and their impact on other people can be followed over time, which makes it easy to communicate things like how some behaviors lead to certain outcomes... and how these behaviors affect other people. (A. Judice 2014, in manuscript).

After giving these characters lives, we started to design their outward appearance. In this work, we first rejected getting too artistic, as this would have been alien to people in Vila Rosário. We also rejected advertising style, which would, of course, have been

FIGURE 8.6
Examples of characters in the fictive Rosário

familiar. However, we felt it did not communicate well the seriousness required by our topic, which was health. We also rejected references to white colors, easy-to-clean surfaces, science and technology. These would have worked in medical contexts, but not in Vila Rosário, given its colorful tropical streetscape.

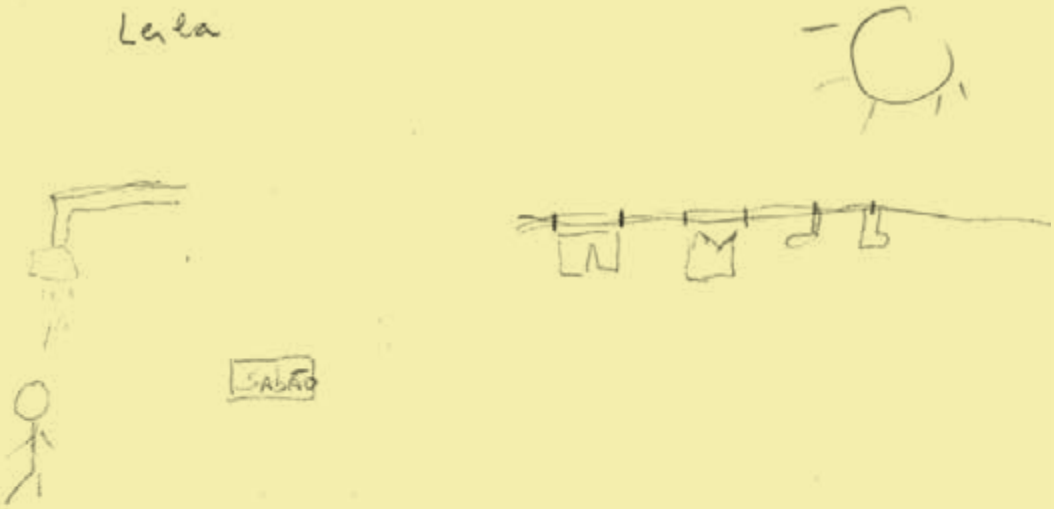
Instead, we built most of our characters on local characters. Some of these characters are in Figure 8.6. It goes without saying that, for example, the Doctor character on the left reminds people about Dr. Costa Neto, while the Health Agent character was built on one of the more senior Health Agents. Other ways in which we brought Vila Rosário into our fictional world were things like local flowers, tropical colors, houses, and landmarks. Our hypothesis was that this would make the characters easy to understand, and engaging.

USING THE IDENTITY IN DESIGN WORK

These elements were valuable when we started to do actual design work. The logo, of course, could be used anywhere in our designs. The characters and the environment we created in our fictional Vila Rosário were put to use in many ways as well. For example, we built several booklets in comic strip style. These were designed to help Health Agents in, for instance, teaching people about tuberculosis and its treatment.

Higiene

Lela



Doença

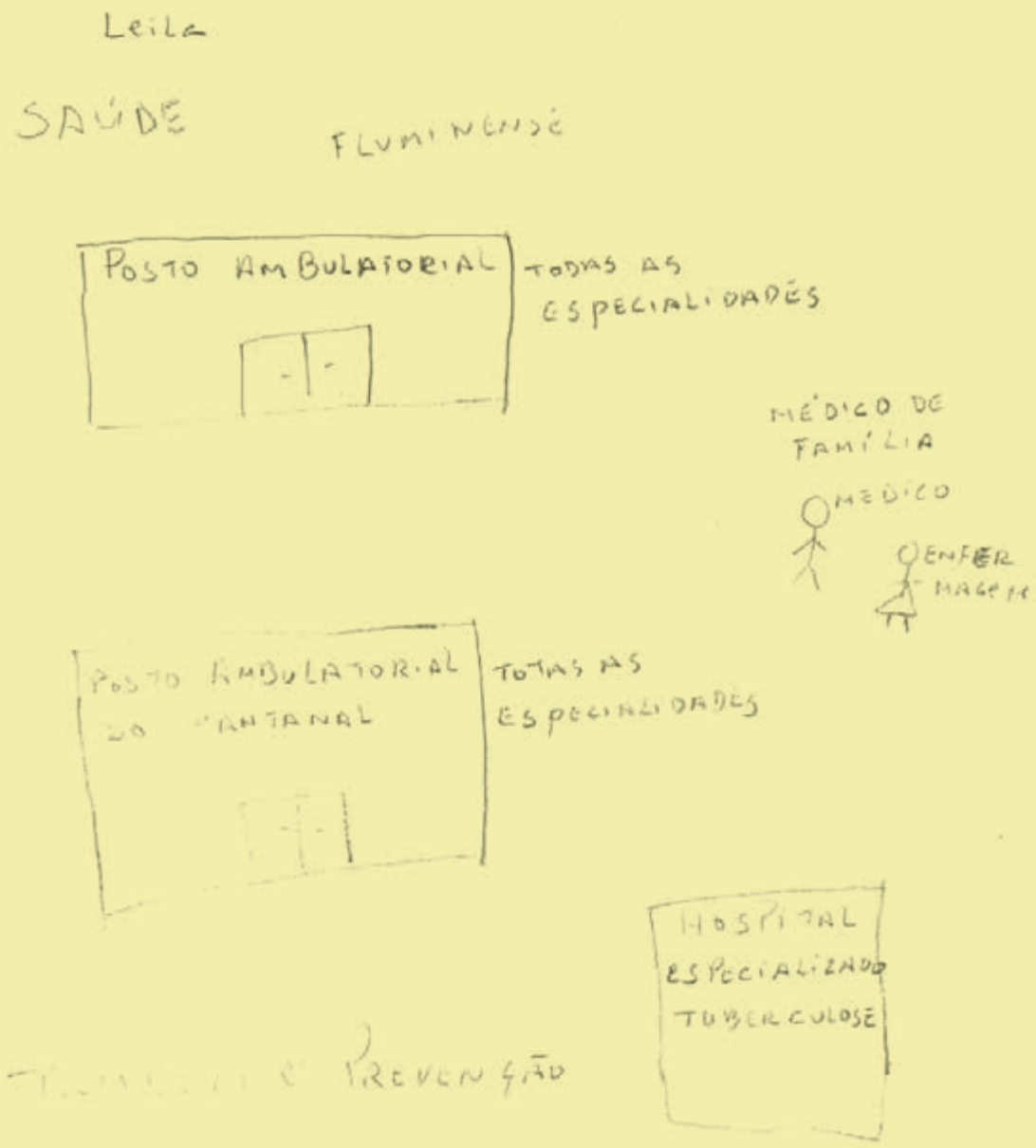
Pulmão

Tuberculose

DIABETES

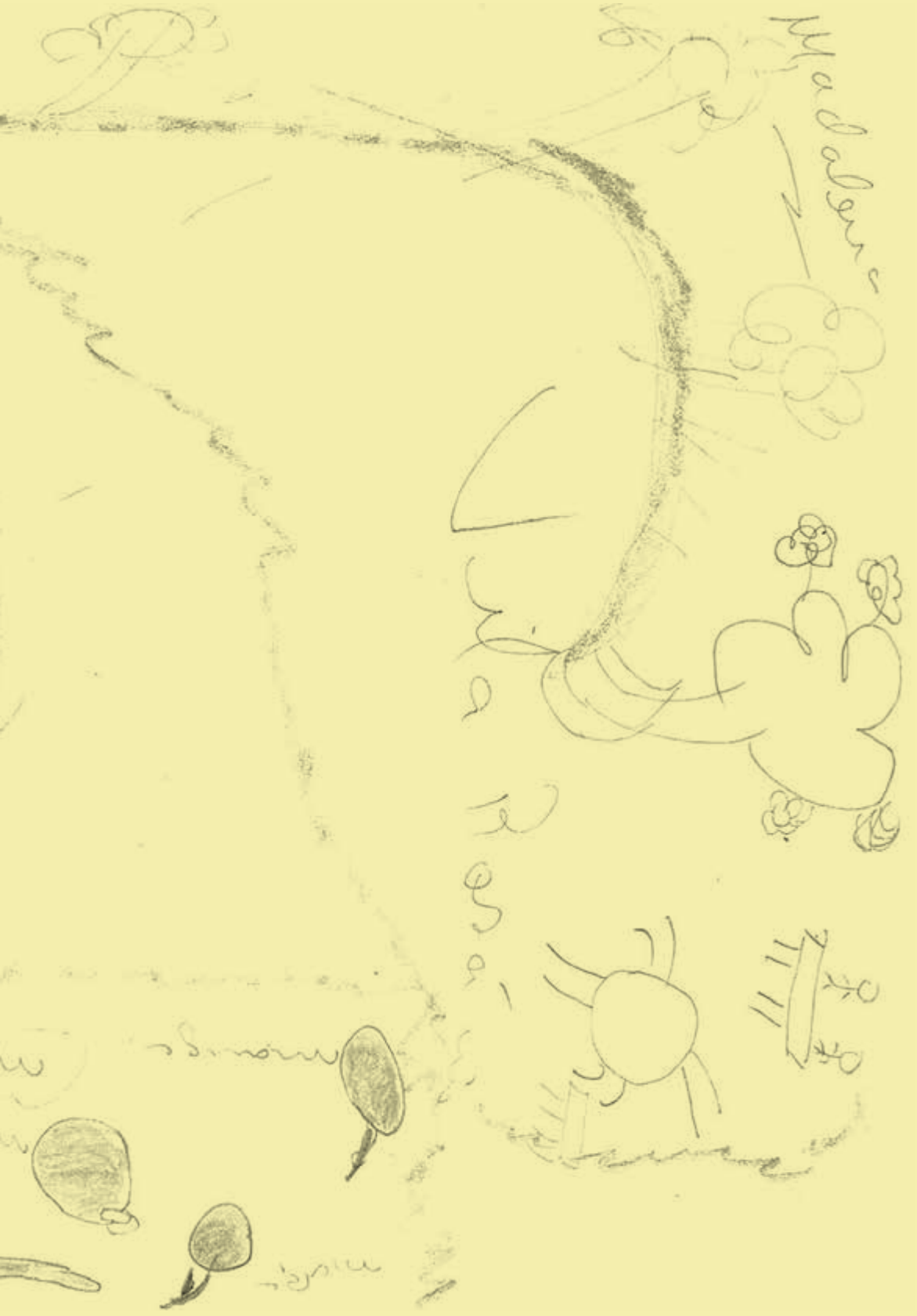
INTERNADO POR INFECÇÕES

CORAÇÃO



FIGURES 8.7–8.9.
(this and following spread) Sketching an initial storyboard for a tuberculosis booklet with Health Agents forms


AGENTE
DE SAÚDE



Identifying illness

Guiding the patient to treatment

Advising the patient's family

Following up the treatment

FIGURE 8.10
Frames for a tuberculosis comic showing the path to treatment with Health Agents

FIGURE 8.11
The final cartoon, with Instituto Vila Rosário and FAP logos

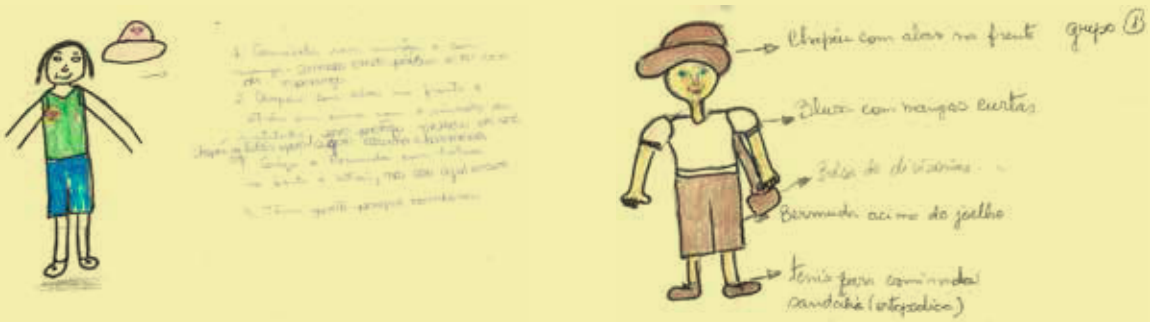


FIGURE 8.12
The uniform for Health Agents: two suggestions from the community

Figures 8.7–8.10 give an example of how we developed one of the tuberculosis booklets. We started with Health Agents, asking them to create scenarios that could be used as a starting point for stories (Figures 8.7–8.9). Then we drew the story with Neto, our artist friend, and dramatized it by using various points of view (Figure 8.10). This story shows what people should do if they believe they have some of the symptoms of tuberculosis: they should contact a Health Agent, who can point the patient to proper treatment, teach the family what to do to make the disease less dangerous, and finally assist in following the doctor's orders.

The final design is in Figure 8.11. In addition to the four frames seen above, it also has the logos of Instituto Vila Rosário and FAP, Ataulfo de Paiva Fundation. FAP was established in 1900 as the Brazilian league against tuberculosis. It is a member of the International Union Against Tuberculosis and Lung Diseases, where it represents Brazil.[11]

As this figure shows, many of our comics – and other designs – were without words. This was a conscious choice. We wanted to avoid dependence on written word, as we knew that there are lots of people who cannot read, or whose reading skills are so bad that seeing text would push them away.

UNIFORM AND THE HEALTH AGENT KIT

In addition to graphic designs, we also extended the identity to creating protective clothes for Health Agents. We called it the "uniform": the purposes of the uniform were twofold. First, we wanted to give an immediately recognizable look to Health Agents, to make them more visible in Vila Rosário. Health Agents had been recruited locally. When working, they had worn their own clothes and used their normal bags. This was not optimal to the program's visibility. Andrea and I thought that Health Agents should be recognizable even for those who did not know them personally. Second, we wanted to protect them from the elements, and above all, from tropical sun and heat.

The process of creating the uniform started again from sketches we did together with Health Agents (Figure 8.12). These drawings and associated texts gave us directions to what was needed: a hat, a t-shirt, a dress, sandals, and a shoulder bag.

The final designs consisted of a work coat, t-shirt, and a hat, which was needed in tropical sun. We also designed a folder and a bag

11 Our source here was Dr.wwv Luiz Roberto Castello Branco, the scientific director of FAP. He also told us that Health Agents who work at Instituto Vila Rosário were (and are) paid by FAP.

FIGURE 8.13
A sample of elements of the Vila Rosário uniform

FIGURE 8.14
Instituto Vila Rosário's Health Agents (2013). Health Agents are wearing one of our designs, a T-shirt with the comic seen in Figure 8.11.

to help Health Agents easily differentiate their work self from their everyday identity. Figure 8.13 shows some of the design sketches.

Figure 8.14 is the same picture I have used in Chapter 3. However, I reproduce it here to show how the elements came together in one of our designs, the t-shirt. It has the comic from Figure 8.11 and also the logo. The colors of the t-shirts also came from the logo and reasoning behind it.

OSCAR THE MASCOT

Our design program also had an element we dropped after receiving negative feedback from Health Agents, doctors and locals. We had developed the somewhat clownish character Oscar as a mascot for our empathy probes. Our plan was to use him not only as the Probe Boy, but also in our designs. Oscar was a silly and impulsive character, and his dress had a hint of being dandy. He was also a well-meaning and lovable character designed to bring the news and break the ice in communication. In particular, our plan was to use him to discuss taboo issues like some foods and sexual behavior. He was a non-realistic character, and we thought that we needed him for this reason – no one would be offended in following his impulsive and illogical ways.

Therefore, we described him doing many kinds of things. Some of these things were silly as in Figure 8.15 in which he is sunbathing even though his skin is practically white. Most things he did, however, were perfectly sensible, like in Figure 8.16 in which he washes his hands, drinks from the glass, and brushes his teeth, among other things. As Figure 8.17 shows, we gave him a very expressive face; the plan was to use this comic character as a tool to clearly communicate life's choices.

From our standpoint it was unfortunate that Oscar in fact did remind one well-known local man. When we heard about this, and Health Agents thought the character might offend him, we decided to push Oscar to the background. Oscar did enter our work occasionally, though. He starred only as a measurement instrument in the probes (see Chapter 5), and his character was used in some posters, as we will see in the next chapter.

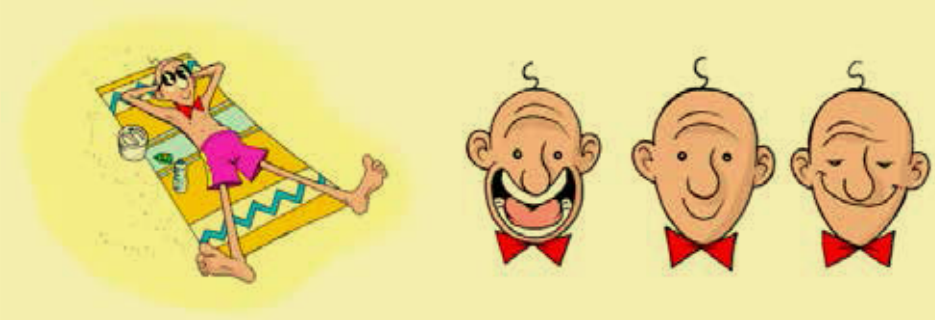


FIGURE 8.15
Oscar, a character specially designed to be a friend.

FIGURE 8.16
Oscar having healthy habits to be easily understood and followed.

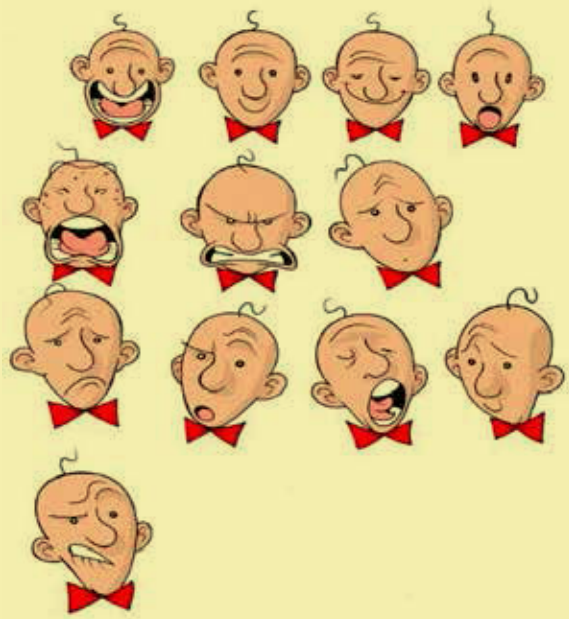


FIGURE 8.17
A sample of Oscar's emotions

9

Designing Low-Tech for Vila Rosário

Oscar was a good character for us, though not the way we had intended. Our intention in designing this clownish character was to use him not just as a character among other characters, but also in helping narration and in giving instructions. For instance, he was to be a character that appears from the margins and says where to look, what to focus on, and what to do next. As I have said in Chapters 8, people in Vila Rosário did not like Oscar, and some associated him with a local man. So, with a couple of exceptions in posters, we pushed him to the background. Oscar proved to be useful for us in another sense. He served as a useful, though unintended provocation. Probing the character provoked feedback from the community, and when we did some research about why people were not "accepting" Oscar, we could use that information to elaborate better our design products.

In the end, we built five types of designs. This chapter reports four of them: graphic designs, activity designs, designs for identity, and designs for stakeholders. The fifth, our design for Instituto Vila Rosário website, is in next chapter. Most of our designs were

meant to help Health Agents in their interaction with patients, but also and especially children, teenagers and mothers. For example, a typical use case for all of our graphic designs was something like this:

> One of the Health Agents visits a patient who has tuberculosis. During this visit, she helps the patient to take his medication, but also observes the home and tells how it could be run better from the standpoint of the disease. However, the patient also has children. At the end of her visit, the Health Agent takes a booklet and reads it to children to tell them that tuberculosis is a dangerous disease, but there is a cure that will make daddy better. After discussing the booklet, the Health Agent takes a few brochures and leaves them to the home where they function as useful reminders of the importance of hygiene (and other things) and the importance of going through the whole course recommended by the doctor.

Three types of designs were targeted at children, teens, and women: booklets in story format, posters, and games. The aim was first to create and maintain awareness of the importance of health-related issues with the poster; and second to address the importance of issues like clean water into the children's and teenagers' minds. The means for the former group were games, and for the latter group comic-like stories. These designs could also be used for women, but we also developed a series of workshops for them.

Another group we targeted with low-tech designs were Health Agents. Health Agents do home visits on a regular basis. The idea in designs targeted at them was to turn these visits into a two-way communication and also an information practice. The visits are crucial spots if Health Agents want to meet their targets with a population that has little access to information beyond entertainment in TV. Having our designs readily available improved the quality of action in another way too. Health Agents often needed to produce material quickly for their work. For example, calls to homes were typically done in emergencies, and there was little time to prepare for these calls. They needed a place to go to get materials quickly.

The final group we wanted to address with our design were stakeholders who live outside the reach of the Institute's daily activities. These include doctors and related health care experts, who live outside Vila Rosário. There were also other experts like nutritionists, who had to be informed about the Institute's activities. Finally, of course, there were the sponsors, who needed information about the Institute and what it was doing, but who also wanted to have material as a proof that they are funding right things, and as advertisement material they can use in their own communications.

GRAPHIC DESIGNS

The first and the most important group of our designs consisted of two types of graphic designs, booklets and posters. Both were to function as Health Agents working tools in the manner explained in the use case above. All through these designs, we used characters we had developed earlier (Figure 9.1 serves as a reminder).

As we have explained earlier, this was an issue of language game: these characters were so designed that they would be accepted and understood easily in Vila Rosário. Some of them were modelled after real characters. The doctor had some of the characteristics of Dr. Costa Neto, and the Health Agent had features of Deolinda, one of the Health Agents. Some characters, like the boy, were more generic so that they would not be easy to associate with real persons.

Booklets

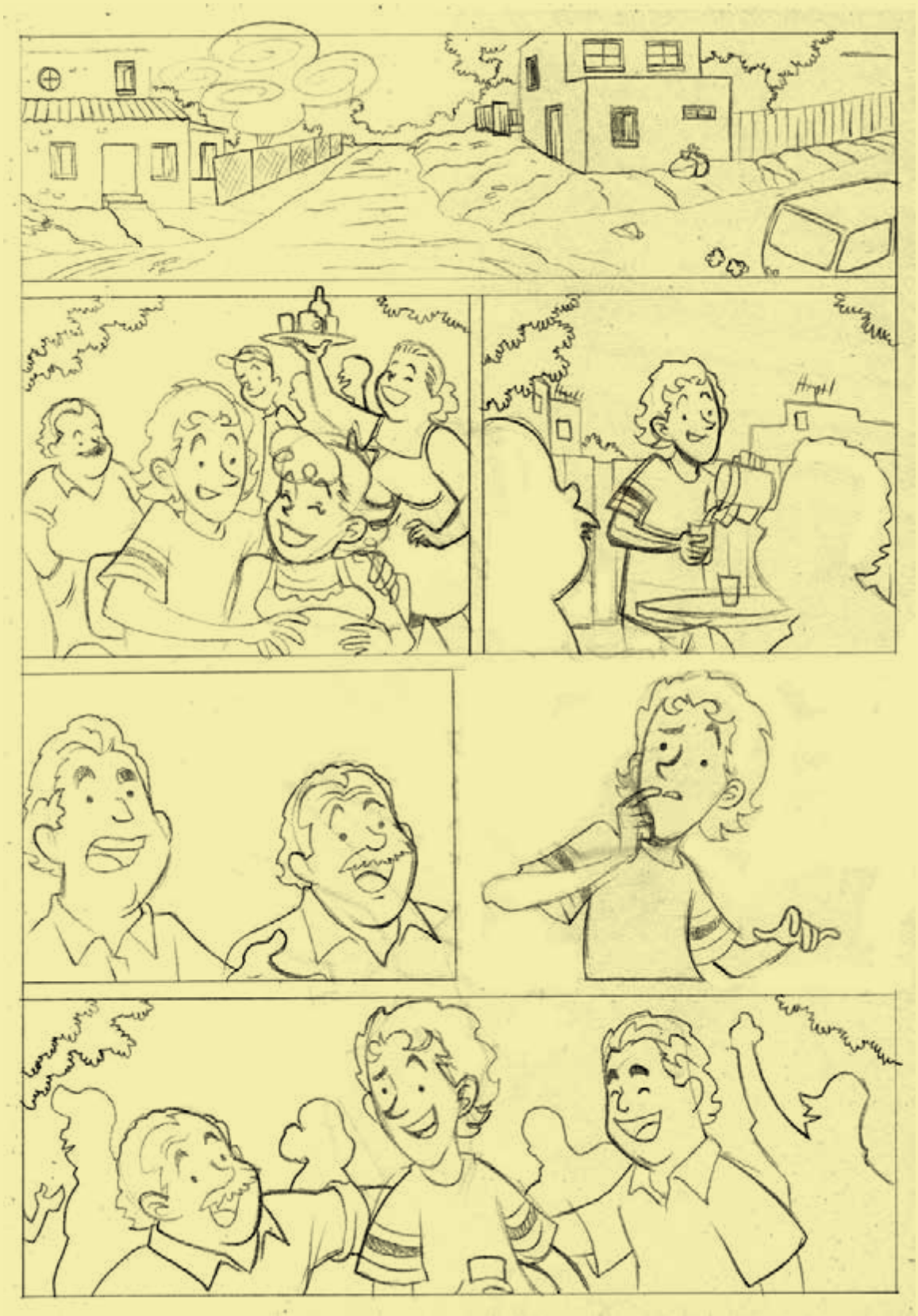
Booklets were in story format, but as we did not know exactly the best way to write these stories, we experimented with two styles. Booklets about tuberculosis were designed with teenagers in mind, and they used conventions from comics. They had a clear storyline that started from a scene of everyday life, which turned first into a struggle with the symptoms of a disease, and then into diagnosis, cure, and a happy ending. The nutritional booklets were simpler, and written with bedtime stories in mind. They were visual enough to function with small children, but the main target was to inform mothers through children.

Tuberculosis Booklet

The main booklet about diseases focused on the main enemy of the community, tuberculosis. Figure 9.2 shows how we built the storyline for the booklet. We first wrote a simple story and devised a storyboard. With Neto, our artist friend, we turned this into a hand drawn sketch, which had no colors. We gave these sketches

FIGURE 9.1
Characters: the Doctor, the patient after cure, and the Health Agent lady (see also Figure 8.6)

FIGURE 9.2
Sketch of the first page of the TB booklet



to Health Agents, asking their feedback. Also, we asked them to color the booklets. After they had finished, we adjusted the stories and also frames. After the adjustments were done, Neto colored the comics digitally to produce the final versions of the booklets. Figure 9.3 shows the page as it was produced in the final booklet.

The booklet tells the story of how one young man discovers that he has the symptoms of tuberculosis. He hears this from his friends and elders, who also tell him about how to get into treatment and about the implications of not getting diagnosis. They also calm him, helping him to manage the shock reaction.

The story goes on. Figure 9.4 shows him at home. He wakes up in the middle of the night and talks to his wife, who is pregnant. He talks to the neighbor, who tells him to contact a Health Agent to know what to do with the disease, if he has it. All three talk about his situation and the Health Agent tells him about the typical symptoms of tuberculosis and about how to get treatment. The final page of the booklet (Figure 9.5) shows him happy after being cured. The baby is born, and he is talking to his friends and elders with his wife.

The story as such is simple, but it contains a lot of information about tuberculosis and its treatment process. These bits of information are embedded in the story. For instance, the symptoms are explained on the second page, which shows the folder of the Health Agent as if it were a part of the story. Similarly, the last page gives information about Instituto Vila Rosário. In case someone reads the comic, recognizes the symptoms, and decides to look for help, they know where to go.

The story format worked well for other reasons too. The story is easy to understand. It is artistically good enough to be enticing until the very end. It is also non-threatening on purpose: tuberculosis is an illness that has a threatening reputation. If people only rely on the grapevine, they get a terrible stereotype of tuberculosis as a dangerous, stigmatizing illness that cuts the patient out of social life.

This was the stereotype we wanted to deal with the comic format, using the conventions of entertainment. Our aim was to introduce a different view. In this view, tuberculosis is dangerous, but if the patient follows doctors' recommendations, it has a cure and the patient does not need to worry too much about its social consequences. Showing tuberculosis in the context of daily activities, ordinary people, and in non-medical environment was our method of attracting people to pay attention to their symptoms and, ultimately, to a path to treatment. We wanted to stress that Instituto Vila Rosário is there to help to understand their situation and to deal with it in a better way.

FIGURE 9.3
The first page of the tuberculosis booklet

FIGURE 9.4
A page from the middle of the story

FIGURE 9.5
The final page of the tuberculosis booklet

Nutrition booklet

Initially, we thought about having all the booklets using the same style of drawing and using the same characters we had in the tuberculosis booklet. However, during the first validation process of the first sketches we decided to use a different style. Since we wanted to improve the abilities of people from the community, we thought it would be better to let them draw and produce their own content. This new drawing style, we thought, should be easy to reproduce so that anyone from the community could believe that they could do those drawings and produce new content. This became the working hypothesis for the nutrition booklet; the hypothesis was also well in line with the approach stressing the need to build designs on language games of Vila Rosário.

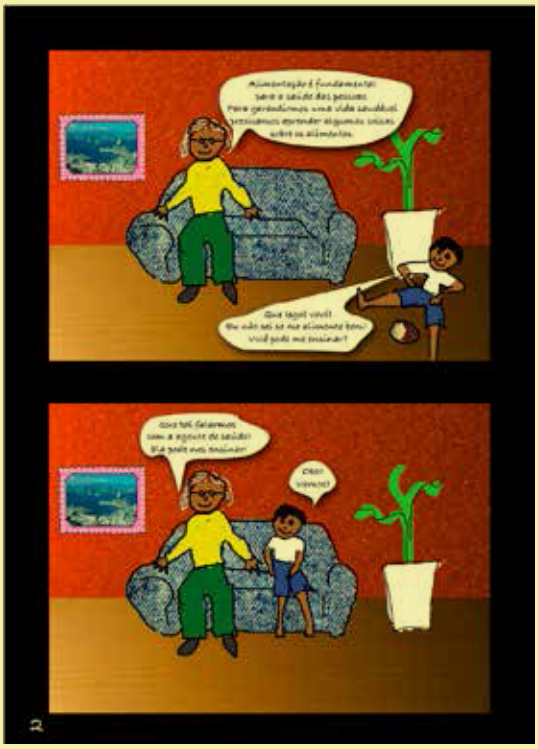
To initiate the local design process, we started by developing a new style that was much more naive than in the tuberculosis booklet. The idea was to use simple background patterns to draw space, and then add elements that could be done by hand. The final designs were collages of these two things. It was easy to teach such collaging to people without training in art or Adobe Photoshop. Basically what was needed were color pencils, paper, colored paper or fabric for backgrounds, magazines for pictures, scissors, and glue.

Figure 9.6 shows one of the designs we came up with in a workshop in Vila Rosário. It describes a discussion between the mother (or grandmother) and a child. They are sitting on a sofa, which is drawn from a picture of denim. The picture is cut from a newspaper, and the cactus was drawn with a computer. The characters were inspired on a photo taken by a Health Agent. All lines were coarse and inaccurate to show that the content matters more than skill in finish.

However, we added nutritional information to the booklet as well. Thereza Wady developed that information. She is a nutritionist who works with communities in Rio de Janeiro, including Vila Rosário. She built the content during her work with communities in Rio. During the validation process, Health Agents described that the content is easy to understand and pleasurable to read. This information stressed the need to have nutrition rich food in particular if there are children around. The information was very basic, but designed to tell people that often the best foods are cheap, seasonal fruits, vegetables and cereals rather than industrially processed foods that may be rich in energy, but poor in nutritional value.

The fate of this experiment was not the best possible at the beginning of our tests. The idea of designing solutions that are easy to reproduce is extremely useful. It is also possible to teach collaging skills in art workshops. Also, the basic idea of giving the community skills to produce their own versions of educational booklets is valid. The idea was much more difficult, as people were shy in using their newly-won skills in art and preferred the artistically more elaborate

To demonstrate to people that they could use their photos to create stories, we used a photo by a Health Agent as an inspiration to create the booklet designs.



FIGURES 9.6–9.8
A scene from the nutrition booklet, and a photo that inspired it

FIGURE 9.9
Nutritional booklet. Presenting fruits and vegetables and their benefits

FIGURE 9.10
Basic layout of the posters, building on a grid of two columns and the main body.

style we had in the tuberculosis booklet. Nowadays they are feeling more confortable to design and teach people on how to use their own skills to create communication pieces.

Posters

Poster was one of the most efficient ways to spread information in this community, which did not use the Web heavily at the time of our research. Although people in Vila Rosário today are increasingly setting up social media sites, in 2005-2007, social media was new, and the threshold of going online was not a realistic option. What we did instead was to build posters, and use this traditional media format to introduce small bits of information forcefully into places where they mattered.

Some posters had to have visual appeal to communicate easy and fast useful concepts. Others aimed at bringing the community to the Institute to learn useful skills. How the posters were done depended on what kind of message we wanted to communicate in some place at some time. The main goal of the latter kind of posters was to promote Instituto Vila Rosário to the community and to invite its members to go there by making them aware of what kind of services are developed there, and how they can be accessed.

In all, we designed 12 posters. Each poster was based on a grid that gave the series consistency (Figure 9.10). With one exception, the Instituto Vila Rosário logo was in the lower right corned of each poster, and the name of the institute was in the column on the right. The main body of the poster was reserved for a picture that caught the attention, and also communicated the content. The font came from our logo design. The main body of the poster was to remain white to make the posters easier to print. If text was needed, it was placed either in bubble speech, or in the bottom column of the design, where it was also color coded:

- Yellow – disease
- Blue – hygiene
- Green – nutrition (nutritional balance can be reached based on food gathering from the nature...)
- Grey/silver – new-tech

Through this common design, we tried to make the posters immediately recognizable and the common elements acted as pointers to Instituto Vila Rosário. This design also gave us restrictions we needed in our design work. Thus, for each poster, we needed to select a picture and a method of adding text, while other elements were fixed. The posters were also made printable so that Health Agents could easily print them on A4 paper to take them with in home visits.

We aimed at simplicity. We wanted to catch the attention of the community, make them think about issues relevant to health, and tell them where to go if they are interested in knowing more about these issues. The posters were invitations to community members to go to the Instituto Vila Rosário.

Each poster built on information we had learned in the community during our research. The message of the posters was designed to reach different groups of people. For instance, the hygiene series was designed to inform about how to change hygiene habits and, consequently, health.

When designing the content, we put priority to the abilities of the intended audience, and used mainly visual elements to communicate contextual information like emotions. Thus, for instance, we kept the texts in the foreground factual, and showed emotional states through facial expressions of the characters. This kept communication simple and gave it structure. Another thing we kept in mind in designing the content was that we knew that the messages should reach different groups of people. Health Agents are from the community, but they had also received training about health issues. They could explain some elements in posters to inhabitants who had not received training. Posters were to encourage conversation between Health Agents and inhabitants by not being too detailed in terms of content. Finally, for each poster, we sketched a group of alternative designs by varying the unity of elements, colors and shapes before we settled at a particular design.

TB. The most important poster focused on tuberculosis. Its aim was to tell people that tuberculosis is a danger that can be cured by contacting doctors through Instituto Vila Rosário. The poster shows a grey town and our doctor character in the front saying encouraging words to patients and people who think they might be sick. Other elements came from our basic design: the name of the institute in the right column, color-coding in the bottom column and the picture in the main body (Figure 9.11).

In designing the poster, we were thinking about the feeling of invisibility, which was common among the population in Vila Rosário. The poster was a response to this deeply-ingrained feeling. Thus, we started to work assuming that when people get sick, they get stigmatized and are marginalized by friends and neighbors – and even worse, sometimes they are stigmatized by their families. In addition to this, we thought about the high esteem the community gives to doctors, and decided to use the doctor as the character responsible for spreading the message.

The reason for turning the background grey was to make sure the poster could be used everywhere, independent of locale and its characteristics; the reason for using the doctor as the messenger

FIGURE 9.11
The tuberculosis poster

FIGURE 9.12
Oscar in a nutrition poster inviting people to Instituto Vila Rosário

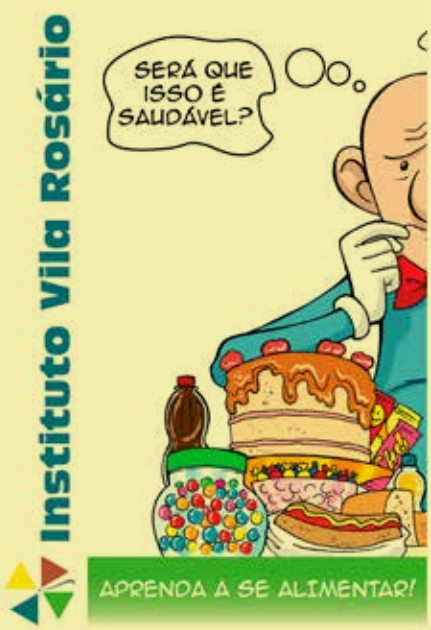


FIGURE 9.13–9.14
Oscar in a double poster about nutrition

was to attract people's attention, as seen from afar, the background is not easily visible. The doctor in the front brought contrast and rhythm to the design.

NUTRITION. We designed three posters for nutrition. Keeping the idea of inviting people to learn about nutrition at the Vila Rosário Institute, we decided to use Oscar the Mascot as the character because he is a funny guy who with his slender figure and beer belly looks like he does not know how to eat well. One of the main issues about nutrition in Vila Rosário was the fact that when people receive money, they chose candies and junk food instead of investing it on nutritionally superior alternatives that are also often much cheaper.

The first poster is in Figure 9.12. It asks people if they know how to have a nutritions diet and then invites the reader to the Institute using the phrase "Learn with Us!" At the same time, Oscar is having a confused face that shows that he has doubts about what to eat. In the context of the texts, his face shows bafflement. Most things in front of him are delicacies like cakes and candies; on one hand, he wants to eat them; on the other hand, something stops him.

In addition, we designed a double poster that can be fixed together side by side, or they can be used individually (Figure 9.13). The idea was to show that it is normal to have doubts about what we should or should not eat. If used separately, Oscar seems to have learned his lesson: his expression is worried when he looks at the sugary sweeties, while his mouth is dripping water when he sees the roots and the fruits.

COMPUTER TRAINING. The next thing we designed posters for was computer training, which was one of the things Instituto Vila Rosário wanted to do to reach out to the community.[12] Posters to invite people to computer training workshops should be easy to understand and fast to read, direct to the point. With these drivers in mind, we developed concepts showing that the community is welcomed at the Institute, and that it can be fun to learn about computers. Characters in the posters were from all age brackets and ethnic groups you could encounter in Vila Rosário, showing that computers are for all age ranges and ethnic groups (Figures 9.15–9.16).

HYGIENE. The final group of posters dealt with hygiene, which both doctors and Health Agents had said is one of the most important things to teach in Vila Rosário. In this poor neighborhood with hot climate, people lacked some elementary information about hygiene, how poor hygiene is related to a variety of diseases, and what kinds

12 However, they did not reach this goal because they had to move from the Ambulatory's building – ASPAS – to a new building.

FIGURE 9.15
The tuberculosis poster

FIGURE 9.16
Oscar in a nutrition poster inviting people to Instituto Vila Rosário

FIGURES 9.17–9.18
Two posters showing how to take care of hygiene through a panorama of activities

of precautions you can take to protect yourself from germs and viruses. Most problems were related to poor personal hygiene. Related to hygiene we also need to stress the lack of sanitation and clean water. For example, there were dental problems in Vila Rosário; lice were rampant; children were playing barefooted with domestic animals of various sorts and then carrying their feces indoors where they contaminated food stuffs; poor hygiene in kitchen led to diarrhea; and so on.

We built two types of hygiene posters. The first consisted of two posters, one meant for children and their parents, another meant for adults (Figures 9.17–9.18).

The first poster showed three boys of different ages and from diverse ethnic backgrounds having imaginary dialogues with ordinary household goods. These goods were telling the boys how to take care of three things in their personal hygiene. In one picture, a toothbrush tells boy about dental hygiene; below, the sink tells another boy to wash his hands after being in the toilet; in the third, another boy learns about the importance of taking a shower after a football game.

One of the interesting aspects related to the cartoon language was the possibility to work with imaginary ideas, as here, where we were using products as actors. For instance, this concept was useful in the poster in which the first boy was eating an apple. The toothbrush and toothpaste both reminded him about the importance of washing his teeth after finishing the apple.

Another poster in this series reminded people about personal hygiene habits. The basic idea in the poster was to show - without using text - Oscar the mascot taking a shower, brushing his teeth, brushing his (only) hair, using the toilet, and washing his hands.

Other posters teaching about hygiene were more specific. Instead of showing everyday situations, they were about the importance of hand hygiene. The poster in Figure 9.20 tells graphically about the importance of hand hygiene. It shows which parts of the hand typically get dirty and transmit disease agents into our bodies. At the bottom of the poster, the banner equates hygiene with health and ultimately, life. Figure 9.21 shows another poster, which focuses on fingertips and nails specifically. This poster also equates hygiene to health and life, but it also has one of our friendly Health Agent characters telling about how to take care of these parts of the hands.

In both posters, we used hands and pictures taken by the members of the community. Thus, the pictures were lively and real. We also reasoned that they could help people to identify with the posters. In designing the posters as a collage of photos and drawings, we also wanted to stimulate their creativity by showing how a variety of different kinds of elements can work together in designing useful things.

These posters were inspired by Health Agents' stories, or by sites and sights they had pointed to us in our fieldwork. For example, one inhabitant had organized garbage management on his street, where garbage trucks do not have access because it is a dirt road with hundreds of potholes. He set up a place where inhabitants can dump their garbage. In this place, a sign tells the schedule of the garbage truck. He also organized other inhabitants from the street to do the work of garbage collecting in turns (Figure 9.22).

This poster was inspired by the photo in Figure 9.23. When we were chatting with Health Agents, they told they took a photo that they see as a good example of how community members should behave. They told us not to follow the grid used on the previous posters: they thought it was important to have some words and phrases flying through the wind.

DESIGNING ACTIVITIES

When we were doing the designs for Vila Rosário, our colleagues in Helsinki were increasingly drifting away from products to designing services and various kinds of activities. For example, Kurvinen (2007) finished his work on mobile multimedia, Vaajakallio (2012) was studying design games that could be used to simulate organizations, and after her probe studies, Mattelmäki went to study services. We joined the trend, but our agenda came from Vila Rosário. Our idea was to build some designs that could support activities that helped people to learn about health, nutrition, hygiene and even computers.

Our activity designs were of two types. First, we designed games. These were not classic design games that are primarily used as design methods, but actual games in which the game and learning induced by it were to be the end product. Second, we designed workshops that were meant to assist in turning Instituto Vila Rosário into a local learning center. These designs were meant for several audiences. Games were mostly targeted at children, though adults were typically needed to keep the game going. Workshops were targeted at grown-ups. All activities aimed at teaching skills that improved health in Vila Rosário.

Games

For children, we created games that could be played in the ambulatory while parents were in workshops, but also at home. These games were for small children, and they were designed as educational activities. They were not competitive. They were kept deliberately simple enough to be reproduced locally, and as we could not rely on people having information technology at home, we did not use

FIGURE 9.20–9.21
Posters about hand hygiene

FIGURES 9.22
Throw Trash in the Trash. When its raining the waste clogs the drains and causes floods. Do your part: remember your neighbors about it!

FIGURES 9.23
A locally organized garbage collection site that inspired the poster in Figure 9.22

technology. We designed games that children could play with their friends, including adults; and games that could be played by adults and children with Health Agents as facilitators. These games were to be simple enough to be taken home, where children could play them and learn about issues relevant to their health.

LAZY MAN. This game was an adaptation of the "Old Maid" cards game, and its aim was to make children understand and discuss the value and rule of some of the professions that serve the community.

Lazy Man was a card game meant to be played from three up to six players. The dealer deals all of the cards to the players. Some players may have more cards than others, this is acceptable. Players look at their cards and discard any pairs they have, face up. At the moment of discarding pairs, the player should describe the profession and why is it good for the community. If the player fails to describe the profession, he/she will receive the Lazy Man card.

Beginning with the dealer, each player takes turns offering his hand facedown to the person on his left. That person selects a card and adds it to his or her hand. This player then sees if the selected card makes a pair with their original cards. If so, the pair is discarded face up as well. The player who just took a card then offers his or her hand to the person to their left and so on. A player is allowed to shuffle his hand before offering it to the player on his left. In some variants, all players discard after the dealer has drawn.

The object of the game is to continue to take cards, discarding pairs, until one is left with no cards. The player left with the Lazy Man (that has no matching card) is stuck with the "Lazy Man" and loses.

The categories of professions came from all walks of life, but all of them were familiar to people in Vila Rosário (Table 9.1). With this game, children could learn about what they do, and why what they do is valuable.

TABLE 9.1.
Occupations in Lazy Man game

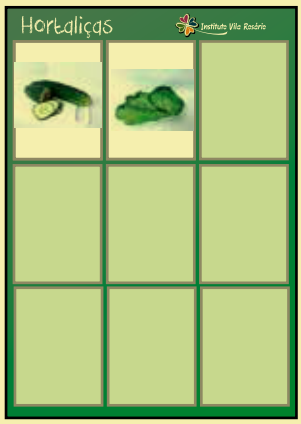
Açogueiro	Butcher
Gari	Dustman
Agente de Saúde	Health Agent
Médico	Doctor (Physician)
Artesão	Artisan
Pedreiro	Bricklayer
Bombeiro	Firefighter
Policial	Police Officer
Carteiro	Milkman
Professora	Teacher
Enfermeira	Nurse
Verdureiro	Greengrocer

TB EXPOSED. *TB Exposed* was a game for adults and children alike. It is based on Battleship, an old guessing game to be played by two persons. Battleship is a game in which one player wants to destroy the opponent before the opponent destroys him. When playing *TB exposed,* the player's role is to find ill people in the neighborhood faster than the opponent. Instead of having different ships, every shape will be related to the number of infected residents per home.

LEARNING ABOUT GREENS: STORY CARDS. The third game taught about foods. It was a board game about healthy green foods, and its aim was to teach children how to recognize these foods. As children typically cannot read, the game was based on pictures of the foods. As children turned the cards, they had to say the names of the greens and place them to the board according to some rule. For instance, sometimes they were asked to place the healthiest foods in groups, sometimes just to organize them based on their value as foods.

The game taught about foodstuffs. It was a card game about food in general, not about healthy foods. Its aim was to encourage creativity and give the players communication skills to talk about food. Another aim was to teach children about the importance of eating food that is nutritionally rich, and about the consequences of eating junk food. The idea was to have cards with images and words that served as the beginning of stories (Figure 9.24).

In this game, we used images and words as introductions to stories, all printed on the cards to inspire collaboration and to encourage exchanging information. The cards helped to turn the game into a storytelling session. We had experimented with this format in the Once Upon a Time probe, in which the storytelling section had worked very well in eliciting contextual information. Our new game could also be used in teaching adults. With it, Health Agents could initiate conversation about a specific issue related to food. Health Agents could develop and print new cards when they were needed.



FIGURES 9.24
Board game with some cards to teach how to recognize green

Workshops

While posters, cartoons and games were meant to support Health Agents' work in the field, we also wanted to lower the barrier of coming into the Instituto Vila Rosário - IVR. The aim was to make the IVR a hub of activity in the community, which would also help to deal with stigmatization associated with going to a clinic known for treating tuberculosis. The guiding idea was to create a series of community events designed to attract people into the clinic to learn about diseases and their treatments, but also about issues related to hygiene and nutrition.

The main problem these workshops addressed was nutritional awareness in Vila Rosário. The main aim was to inform inhabitants about the importance of nutrition by sharing knowledge, attitudes and practices about proper nutrition. The target groups were women, but especially young girls and teenagers, who are going to have children one day.

We designed three workshops. Each workshop was to be led by Health Agents, and they were to take place at the Institute, which had rooms and other facilities needed for workshops (Table 9.2).

TABLE 9.2.
Workshops designed for Instituto Vila Rosário

HOW TO BUY PRODUCTS AND READ LABELS.
This workshop was based on the following observation that came from the doctors, nutritionist and Health Agents alike. When locals get extra money, women tend to buy pleasurable food stuffs high in calories but low in nutrition. To combat this habit, this workshop taught them to read labels in packages, and took them to groceries to learn to shop better. It also taught domestic budgeting and accounting.
HOW TO HAVE YOUR OWN GARDEN
Another observation was that as anywhere, Brazilian food culture had become industrial over the last three decades, and few people knew how to grow their own greens even though some parts of Vila Rosário are fertile and with warm climate. Since the household budgets tend to be inadequate, this workshop instructed mothers to grow fruits, vegetables, and herbs (both medicinal, aromatic and culinary). They did not need to have a huge space for the kitchen garden, as they could have vertical gardens made of recycled plastic bottles, that can be used to make beautiful vertical vegetable and herbs gardens. These gardens could be placed indoors where they serve as decorative elements.
HOW TO ORGANIZE THE KITCHEN
Most families do not have the necessary utensils for preparing and eating meals, which was above all a hygiene risk. One workshop taught how to develop these out of recycled materials. For instance, the workshop taught them to make separate cutting boards for meats, poultry and vegetables.

FIGURES 9.25-9.27
Some workshop spaces of the Instituto Vila Rosário

The IVR provided good facilities for the workshops. Figures 9.25–9.27 show some of the spaces we could use. There was a lecture room with new furniture, a tiled kitchen space, and also outdoor spaces that could be used for the workshops.

It was mostly women we wanted to get to the workshops. It is women mostly who take care of the home and the family. Most participants were women with more than one child and little support from a partner. Many men tend to use money from their salaries for alcohol; it was women who have the financial responsibility of the house, we were told by Health Agents.

DESIGN FOR IDENTITY: HEALTH AGENT'S KIT

Our low-tech design program did not stop here. As I have explained in Chapter 8, we also designed an identity for Instituto Vila Rosário and Health Agents. The aim, simply, was to give the IVR and Health Agents a consistent look. We wanted to make them immediately recognizable. The IVR had a presence in the neighborhood, but Health Agents had been wearing their own clothes and using their own accessories, which meant a loss of visibility in Vila Rosário, we thought. The link between Health Agents and the IVR was another thing we wanted to make visible. For these reasons, we initiated another line of design work, aimed at changing the situation.

This program grew in two steps. In the first step, we put effort to identity. This step was a simple design exercise in which we created a common outlook to Health Agents and the ambulatory. Our work on the clinic was described in Chapter 8; here I focus on work that extended beyond the clinic to the neighborhood. In the

second step, the effort went to designing tools to make the program more efficient and reliable. One of the aims the Instituto Vila Rosário program from the very beginning had been research: the program was to collect data from the neighborhood, and these data were to be used in the neighborhood and also in medical research.

MAKING HEALTH AGENTS VISIBLE: FOLDER, HAT AND JACKET. The first part of this design line, then, tried to make Health Agents better known in the community. As always, we started our design work with Health Agents to learn about how they would like to see themselves in this form of life. With them, we first defined the tools they needed. These tools consisted of protective clothing, a bag and a folder they could use to keep their work and private selves better separate. Our job, then, was to create designs and find ways of producing them cost-efficiently. In creating these designs, we relied on our design drivers that helped to define the colors, logos, and the style we wanted.

The first step of the process took place with Health Agents. We had a design workshop in which we defined the elements of the kit by exploring the main steps of their work. This we did by discussing with Health Agents, but we also started to sketch some designs with them, create initial patterns for clothes, and draw scenarios of their work. Figure 9.28 shows a sketch Health Agent Joseane drew to use in explaining her work flow. As the skecth shows, her work essentially consists of contacting people, talking to them, and directing them to the ambulatory. Importantly, the sketch also shows tropical sun and practically no shadows, which told us that

FIGURES 9.28
Joseane's sketch explaining the Community Health Agents' main steps of work.

FIGURES 9.29–9.30
Andrea's mother preparing the bag's paper model

Health Agents need protection from the elements. The sketch has no bags, folders, or other tools, but their importance became evident in conversation around this and other sketches.

After defining the elements of the kit, we went on designing the details of the products. They were to be robust enough, but also easy to fix locally. The patterns for the designs were created by Andrea's mother, who knew more about patterns and pattern cutting then us. Figure 9.29-9.30 shows her cutting patterns for the bag form paper.

In the next step, we simply turned these patterns into computer drawings, added elements like the logo and colors, and finally did presentation drawings of the designs. Figure 9.31 is a collage of some of the drawings we did at this stage of our design work. It shows the cap and the jacket that were the main elements of the Health Agent uniform, as we called the kit. The colors we chose came from the logo. When designing the logo, we had selected a set of colors that were symbolically fit to Vila Rosário; when we finalized these design drawings, however, we had to make one change. We could not use the red color in the jacket, in the fear of retaliation from Red Command, a local gang that uses red as its group color.

Figures 9.32–9.34 show our designs for t-shirts, the hat, and water bottles. We dropped the cap idea and designed a canvas hat with a broad brim. This hat, in part inspired by a sun hat sold at Jardim Botanico in Rio de Janeiro, provided better protection to the ears and the neck of Health Agents who had to stay outdoors for several hours a day in their work.

After producing the kit, we talked again to Health Agents to collect their impressions about the uniform. Figures 9.35 to 9.37, the Community Health Agents are wearing t-shirts from a governmental program. The bags used are from a chemistry seminar. We used this opportunity to understand what could be more confortable and useful for them.

FIGURE 9.31
Two elements of the Health Agent uniform: the cap and the jacket

FIGURES 9.32–9.34
More designs: t-shirts, the final hat, and a water bottle

FIGURES 9.35 - 9.36
Health Agents inspecting the final designs

FIGURE 9.37
A group photo of Health Agents wearing an old uniform

NUTRITIONAL QUESTIONNAIRE. The second facet of our design work for Health Agents took us to the scientific side of their mission. As I mentioned above, one of the aims of the clinic was to collect data that would be used in medical research. The most important thing to be collected was epidemiological data, but doctors were also interested in some of the causes and consequences of illnesses, like poverty, nutrition, and hygiene. Cases of tuberculosis and other diseases were fairly easy to collect into a database as soon as there was a diagnosis. One thing that was more difficult to understand was nutrition, which became the focus of our efforts: we wanted to create designs that could improve the validity of nutrition data collection, and activate community knowledge in this effort.

The first part of our effort was a visual questionnaire that was meant to function as a data collection instrument in house calls of Health Agents. They printed the questionnaire, took it with them, and when visiting a patient – or a potential patient – they filled this questionnaire with them. An example of the questionnaire is Figure 9.38. The questionnaire worked as an excuse to initiate and organize conversations about nutrition and hygiene. Still, its main purpose was to help Institute Vila Rosário compile detailed statistics from homes in the neighborhood.

This questionnaire was linked to the website we created: data from the questionnaire was coded into the database designed by

Dr. Costa Neto. With instruments like these, Health Agents became a part of a local health monitor.

Map. Another aspect of the clinic's scientific mission was helping in data analysis. Detailed analyses of disease data, of course, were beyond our abilities. However, what we could do to assist in making a data monitor to Vila Rosário was based on Dr. Costa Neto's plan of tracking Health Agents. The whole group pointed out the need for such monitor, and suggested us the main guidelines for building a new way of tracking the spread and the evolution of illnesses in the community, as well as the main problems that contribute for an unhealthy community. The hope was that doctors could get access to information that would help them to track diseases in the community, and relate these data to things like the presence of government offices, sewage plans, informal trash deposit schemes, and so forth. The dream was to be able to track outbreaks of tuberculosis, cholera and other diseases, and quickly link them to their possible causes.

The best way to achieve these aims, we thought, was to place data on an interactive map that could be browsed over the Web. We also suggested building a tool that could be used to visualize diseases in the community at various levels of accuracy. The maps needed a zoom function.

As Figure 9.39 shows, our design effort again started with Health Agents, who sketched the neighborhood to us, and pointed out hot spots of disease in it. We collected the wishes of Health Agents through these maps, and then went on to design a Web-based map based on Google Earth, which would incorporate these wishes (Figure 9.31). In our design, the map would have had a simple data entry function, a way to visualize these data, and a way to zoom into some possible environmental causes of the disease.

However, due to lacking resources, this plan remained but a sketch.

DESIGNS FOR STAKEHOLDERS: JOURNAL OF VILA ROSÁRIO INSTITUTE

The final audience we designed for took us in part outside Vila Rosário. We saw that Instituto Vila Rosário is not known well enough in the community. We had to find a way of somehow publicizing its activities. At the same time, we wanted to find a way to narrate useful information about health and nutrition for the whole community. Another audience that needed attention was outside the community. This audience consisted of stakeholders like doctors living in Rio de Janeiro and bodies that funded the Institute. The former needed information about the institute and the community around it; the


Instituto Vila Rosário
Questionário Nutricional

Marque um X nas comidas que você gosta de comer entre as refeições:

Sanduíche · Banana · Biscoitos · Balas e chocolates
Outras frutas · Batatas fritas · Iogurte · Maçã · Cenoura

Marque um X nas comidas e bebidas que você prefere comer:

Leite · Biscoitos · Sanduíche de queijo · Bolo de fubá · Banana
Sorvete · Sanduíche · Batatas fritas · Pizza · Refrigerante
Sardinhas · Cachorro-quente · Cenoura · Maçã · Angu de milho

Quantas porções de fruta você come por dia? Quais frutas você come mais?

Quantas porções de legumes e hortaliças você come por dia? Quais tipos?

Quantos copos de água você bebe por dia?

FIGURES 9.38
Example of Health Agent questionnaire

FIGURES 9.39 - 9.40
Map and a visualization tool of data

latter needed information proving that it achieved its results, and was developing.

From these two problems, we developed the idea of designing a journal for the institute. To reach the local audience, the journal should use cartoon and posters. Also, it should be distributed in places in which people move and in which they should think about issues like tuberculosis, hygiene, nutrition, and the Institute. The visual language of the journal, naturally, came from design approach. By making the journal visually interesting and by giving it a personal touch, we thought it would also be interesting enough to attract the attention of the stakeholders, who needed convincing but also flashy material for their own purposes.

The basic design is in Figures 9.42–9.43. It used the colors we had defined earlier in ways consistent with our design efforts. There was information about the Institute, photographs of Health Agents, and information about the activities of the Institute. The logo had a prominent place in the design. Its news section used the local idiom of bulleting board, and the whole design had hand-drawn elements as well. Key content, of course, was related to tuberculosis, the causes and symptoms of this disease, and its treatment. In this section, we used the characters we had developed to help our design work. The journal also introduced Health Agents, described their work process, and showed how it leads to improved health in the community. This information was relevant in Vila Rosário and in the outside world as well.

The journal was successful and it is still running in 2014. From what we have gathered, it is useful also among stakeholders with a base outside Vila Rosário. They are always searching for and finding some new partners to help improve the quality of life in Vila Rosário. Graphic products like the journal are useful in maintaining these contacts. Many bodies also fund products like these. The first versions of the journal were made possible by assistance from the Management Sciences for Health, a global health nonprofit organization that uses proven approaches developed over 40 years to help leaders, health managers, and communities in developing nations to improve health systems.

This colorful publication helped to make the institute better known. Several stakeholders involved in the Institute kept producing content, as did some Health Agents. I developed the design with Andrea and our colleague Nestabolo drew the cartoons building on guidelines from Health Agents. The journal became a good channel to promote the Institute, to spread information about tuberculosis, and to promote Health Agents.

Finally, we also designed a few more items to serve as gifts. These gifts were invitation cards and leaflets, a pencil and a mug (Figures 9.44–9.47).

Isso vale! É Verdade!

- ✓Tuberculose tem cura.
- ✓O tratamento é gratuito.
- ✓A transmissão da tuberculose é feita pelo ar.
- ✓Casa bem ventilada e iluminada pelo sol é bom para a saúde. Os raios solares matam os bacilos que estão no ar.
- ✓Lugares com aglomeração de pessoas, sem ventilação e com pouca luz do sol favorecem a transmissão dos causadores da doença.
- ✓Não se deve ter medo, nem isolar a pessoa doente. As pessoas que convivem com o doente já foram expostas ao risco de se infectarem e de adoecerem. A pessoa que tem tuberculose precisa de atenção e carinho.
- ✓Toda a família do doente e as pessoas próximas devem ser examinadas também, porque quando se descobre a doença, essas pessoas já foram expostas ao risco de se infectar e adoecer.
- ✓O paciente e sua família podem procurar apoio no Instituto Vila Rosário. A conversa pode ajudar nas horas mais difíceis.

Isso não vale! É falso!

- A gente pega tuberculose por causa de resfriado, gripe ou pneumonia mal curados.
- É preciso separar copos, talheres e pratos e outros utensílios da pessoa doente.
- Quem ficou assim porque tomou friagem, ficou no vento; abriu a janela do carro sem camisa; tomou gelado.
- O ventilador ajuda a evitar a doença.
- Uma pessoa que tem tuberculose deve ficar isolada.
- A tuberculose é uma doença que só atinge pessoas pobres.

Se alguém te falar alguma das frases acima, diga para a pessoa procurar o Instituto Vila Rosário e assim ela aprenderá conosco como se prevenir contra a tuberculose.

Instituto Vila Rosário

Você quer ser um colaborador voluntário do Instituto Vila Rosário?

Você pode colaborar com as atividades que já estão acontecendo ou propor outras: recreação, artesanato, costura, dança, capoeira, coral, música etc.

Participe! Traga a sua idéia!

***Importante!* No Instituto Vila Rosário, você pode**

PARTICIPAR do Chá Saúde Grupo de Apoio à família e a pacientes em tratamento para discutir as preocupações, os problemas, tirar dúvidas e contar os sucessos. Todas às 6as. feiras, de 15:00h às 16:30h.

CONVERSAR com as Agentes Comunitárias diariamente. De 2ª. a 6ª. feira, das 9h às 17h.

PARTICIPAR das aulas de culinária da Oficina do Alimento e da Saúde para aprender a preparar alimentos saborosos e nutritivos para a sua saúde e a da família. Na última quinta feira de cada mês, de 14:30h às 16h.

Visite o Instituto Vila Rosário e veja a nossa programação!
Rua General Taumaturgo nº 18, Quadra 4
Vila Rosário, Duque de Caxias, RJ.
Tel: (021) 3135 5406

Informativo Instituto Vila Rosário

Edição: Segundo Semestre 2011

Estamos chegando a você mais uma vez, E queremos chegar cada vez mais.

Roberto Saturnino Braga
Presidente do Instituto Vila Rosário

O Instituto Vila Rosário há mais de dez anos se dedica ao combate contra a tuberculose nesse bairro de Duque de Caxias. Tem conseguido resultados importantes na redução dessa doença perversa, e tem compreendido que melhores resultados só virão com a consolidação da condição de dignidade e cidadania plena dos moradores do bairro e do município. E essa condição de cidadania depende do interesse, da motivação e da participação de você e de todos os moradores. Este jornalzinho tem o propósito de lhe chamar a este interesse e a esta participação.

A tuberculose é uma doença típica da pobreza, ela ataca cruelmente as pessoas mal alimentadas e enfraquecidas, especialmente as pessoas que dinheiro. Lutar para eliminar esta pobreza é, sim, uma responsabilidade do Governo, mas é também uma tarefa do cidadão, melhorando o seu próprio nível de informação e de cultura e acreditando na solidariedade humana, ajudando seus amigos e vizinhos a saber mais sobre as coisas que, além do amor, são as mais importantes da vida: a saúde, a educação e a cultura.

Dentro das suas limitações, o Instituto Vila Rosário procura ajudá-lo nesta tarefa, através de suas agentes, que permanentemente percorrem o bairro e visitam as casas, e dos professores e coordenadores que estão toda semana na sua sede, com a sua biblioteca, aguardando sua visita e promovendo encontros entre os moradores para o desenvolvimento dessa consciência.

Saúde; ânimo; boa sorte.

As colaboradoras, Clara, Custódia, Carla, Leila e Joseane, em frente à sede do Instituto Vila Rosário.

A atuação do Instituto Vila Rosário com vistas à eliminação da tuberculose tem por base o Programa QTROP-FAP, cujas ações são orientadas pela doutrina da Cadeia da Miséria. Essa doutrina estabelece uma cadeia com cinco elos: a **doença** existe porque há desnutrição ou até mesmo fome. Há **fome** porque não há renda para comprar o alimento. Não há **renda** porque seus habitantes não têm educação para conseguir o trabalho que lhe dê a renda necessária, e não há **educação** porque a sociedade vive imersa na **cultura** do não-saber e do não-trabalho. A tuberculose (assim como outras doenças) será eliminada se for eliminada a miséria, a verdadeira causa da disseminação da doença. E para isso será necessária um ação holística sobre todos os elos da Cadeia da Miséria.

Claudio Costa Neto

O endereço do Instituto Vila Rosário é Rua General Taumaturgo nº 18, Quadra 4 - Vila Rosário, Duque de Caxias, RJ.

O site do IVR está bem legal, vá até lá: **www.institutovilarosario.org**

Perguntas? Envie um e-mail para secretaria@institutovilarosario.org

Venha nos visitar!

Tuberculose, ou *TB*, é uma doença infecciosa causada pela bactéria *Mycobacterium tuberculosis*, que afeta mais comumente os pulmões. É transmitida de pessoa para pessoa pelo ar com gotículas expelidas através da tosse, vinda de pulmões de pessoas com a doença pulmonar ativa.

Receba as Agentes Comunitárias do Instituto Vila Rosário em sua casa.
As agentes fazem um trabalho importante nas comunidades da grande Vila Rosário para combater a tuberculose, o que contribui para a diminuição do número de pessoas infectadas e o controle da doença.

O que fazem as nossas Agentes Comunitárias?
No trabalho diário, as agentes visitam os moradores, informam sobre a tuberculose, encaminham o sintomático respiratório ao posto de saúde e acompanham as pessoas – do diagnóstico à cura da doença.

Por onde elas andam?

Madalena Garibaldi, Pantanal, Parque Comercial, Parque do Carmo, Parque Fluminense, Parque Suécia, Vila Rosário, São Bento

Leila Pantanal, Vila ABC, Vila São José

Carla Trabalha na sede do Instituto.

Joseane Vila Rosário

Clara São Bento: Parque Esperança, Parque Muisa, Vila Alzira, Parque Boa

Dulcineia Bairro do Divino, Garibaldi, Parque Fluminense

Marluce Parque Fluminense, Panorama, Paraíso, Parque Muisa

Custódia Pantanal

Buscando a saúde.
Além de trabalharem sendo agentes comunitárias, elas pensam soluções para melhoria da qualidade de vida da comunidade. A imagem acima ilustra este trabalho com partes de desenhos feitos a partir do dia-a-dia local, desenvolvidas em *Oficinas Participativas (co-design)*, conduzidas por Andrea e Marcelo Júdice.

Sintomas de tuberculose do pulmão

Qual é o posto de saúde mais perto de você?
Observe o nome do posto, o endereço e os dias e horários de atendimento

Posto Antonia Granja - Parque Fluminense
Rua Guanabara s/n
Atendimento para tuberculose
2ª. e 5ª. feira
Horário: a partir das 14h

Posto do Pilar
Rua Castro Alves s/n
Atendimento para tuberculose de 2ª. feira a sábado
Horário: durante todo o dia

Centro Municipal de Saúde de Duque de Caxias
Rua General Gurjão s/n
Atendimento para tuberculose de 2ª. a 6ª. feira
Horário: durante todo o dia

Informativo Instituto Vila Rosário
Edição: Segundo Semestre de 2011

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Presidente do Instituto Vila Rosário
Claudio Costa Neto
Conselheiro
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Coordenadora do Projeto Instituto Vila Rosário/MSH

Instituto Vila Rosário
Patrocínio
Projeto MSH
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Gerente de Projetos MSH
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Projeto MSH
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Ilustração - Sintomas Tuberculose
Colaboradores desta edição
Ary Bernstein,
Clarissa Rollin Pinheiro Bastos,
Rubens Turci,
Silvana Barreto Rubano Turci.

FIGURE 9.42
Inviting people to take part in the IVR and also explaining truths and myths about tuberculosis

FIGURE 9.43
Introducing some IVR Community Health Agents and also Carla who works at IVR. Showing the TB's symptoms using cartoon language

FIGURES 9.44–9.47
Invitations and gifts for IVR

10

Designing the Website

One of the main requests from the stakeholders was a website to publicize important information for the community and other people related to the project. They also needed ways to store information about disease cases, to process this information statistically, and to track disease patterns to design the best approach for treating the community. Health Agents also wanted to have a website to support their work. Unlike doctors and other specialists, they knew Vila Rosário intimately, but they had other problems. One part of their work was diagnosis and assisting doctors in it. They had to recognize symptoms, but often symptoms like cough and fever serve as indicators of several diseases. To make sense of these, Health Agents had to have a contact with doctors, who did not live in the community. They also wanted to get access to many types of medical sources on the Web to support their work, including the Ministry of Health and FAP.

Although we had discarded the idea of building high-tech designs only, we kept one part of our original vision alive and designed a webpage for Vila Rosário by building it in part on a database Dr.

FIGURE 10.1
Dr. Costa Neto training
the Community Health Agents

FIGURE 10.2
Print Screen of the database
developed by Dr. Costa Neto

Costa Neto had used in the Instituto Vila Rosário project. The main aim of this dynamic database was to function as an information repository, but it was also aimed at improving communication. It was Dr. Costa Neto's tool to store and browse data collected during the IVR project. For instance, he had categorized the contents data by variables such as patient, address, street, age, profession, and illness to enable searches based on a variety of needs.

We decided to keep technology simple, and independent of any devices, to avoid the complications inherent in creating and testing content on a variety of high-tech devices. Therefore, we decided to drop specialized mobile and tablet applications, and focus on the Web instead. This chapter mostly focuses on the basics of information architecture of the website, the category system we created to ease navigation, and the way in which the site supported several audiences at Instituto Vila Rosário. Our design work used drivers and design principles explained in Chapter 7, and our design process followed our empathic and participatory design agenda. It was always aiming at creating language games that came from the world of people in Vila Rosário, as well as language games that came from Health Agents and doctors. Table 10.1 collects together all studies we did for the website.

TABLE 10.1
Web development: the process

RESEARCH	Skype interviews from Helsinki, validated though probes and ethnography. Benchmarking of health care websites and Dr. Costa Neto's database. Mindmaps, brainstorms, personas and scenarios in Helsinki. Usability tests and thinking aloud protocol analyses of some benchmarked websites. Workshops in Helsinki. Feedback from Namibia used as feedback in Vila Rosário. Key sources: (Carroll 1999), (Jordan and Henderson, 1995), (Bastien & Scapin 1993), (Dias, 2001), (Heemann, 1997), (Dumas & Redish, 1999), (Hackos & Redish, 1998), (Osborn, 1975), (Cooper, 1995).
STRATEGY AND REQUIREMENTS TO INFORMATION ARCHITECTURE	Decisions on technical requirements, functional specifications, content, and access. Information architecture. Content mapped to the pages. Key source: (Garret, 2003).
STRATEGY AND REQUIREMENTS FOR VISUAL DESIGN	Creating wireframes and validating them with Dr. Castello Branco. Creating layouts in Photoshop. Paper prototyping with Health Agents, Dreamweaver mock-ups.
IMPLEMENTATION STRATEGY AND REQUIREMENTS FOR THE WEBSITE	Buying a domain name, choosing a host, developing final templates, designing interactions between pages, decisions about Web technologies (HTML, Flash, content management system, blog features, Joomla).
OTHER IMPORTANT POINTS CONSIDERED	How to promote the website, how to keep it fresh, who will be responsible for updating, frequency of updates, who can change the site.

ACCESS: PUBLIC AND RESTRICTED AREAS

While designs that went out to the field were typically graphic in nature, and low-tech in realization, we took another tack at the Vila Rosrio Institute. In our field studies and workshops, it became clear that there was an urgent need for reliable information on health-related issues among Health Agents. Whatever technology was to be taken to Vila Rosário, it had to be easy to understand, use, and it also had to build on resources that communicate well with the locals.

The aims of the site were twofold from the very beginning. On one hand, it was meant to function as a bulletin board for the inhabitants of Vila Rosário and for others who were interested in the project. This information had to reliable, easy to read, and of course public.

On the other hand, the site was meant to support Health Agents' work and research, which meant that it had to deal with confidential information about individuals' health. To reflect this major division line, the site was divided in two areas, a public and a restricted, where one needed to log in.

The restricted area was meant for Health Agents and doctors. This side had three in-built roles:

- Visitors were guided to workshop information, news, and bulletin board (read/write);
- Health Agents had access to information they needed in their work, including information about workshops, diaries, calendars, projects, and training;
- Coordinators had access to most of the information in the system: workshops, news, messages (read and write), diary, calendar, project (with history), forum, and system training files.

Coordinators were the only people who could access the Vila Rosário system. They could also get detailed information about residents for consultations, statistics, reports, area maps (with medical information), Health Agent kit, and Health Agent training files.

STRUCTURE: FROM SKETCHES TO ARCHITECTURE

Once we had settled the structure of access to the website, we could go on to design the details of the system. From the perspective of Health Agents, the main purpose of the site was to connect them and doctors when the latter were not accessible in person. They needed support for activities like diagnosis, for example. Doctors, on the other hand, needed tools for getting an overview of the disease situation in Vila Rosário and also of the Health Agents' work.

One of our sketches of the basic division line is in Figure 10.3.

Table 10.2 describes the design for the public access area. Here, we placed information about the Instituto Vila Rosário project, about people who worked in the project, information about health and the Institute's projects. It was also to have contact information, newsfeeds, newsletter, FAQ, discussion forum, and information for possible partners.

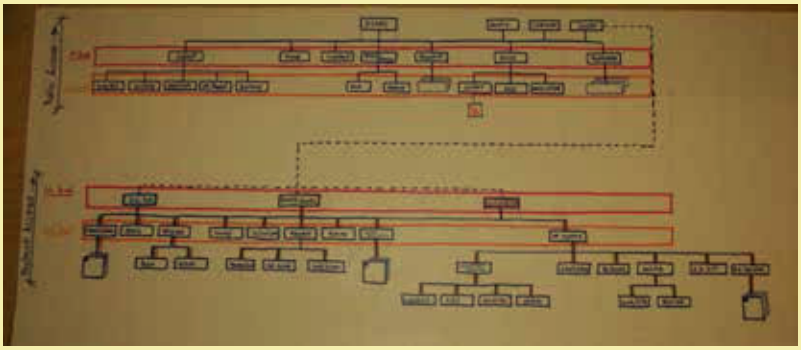


FIGURE 10.3
An early sketch of the structure
of the website

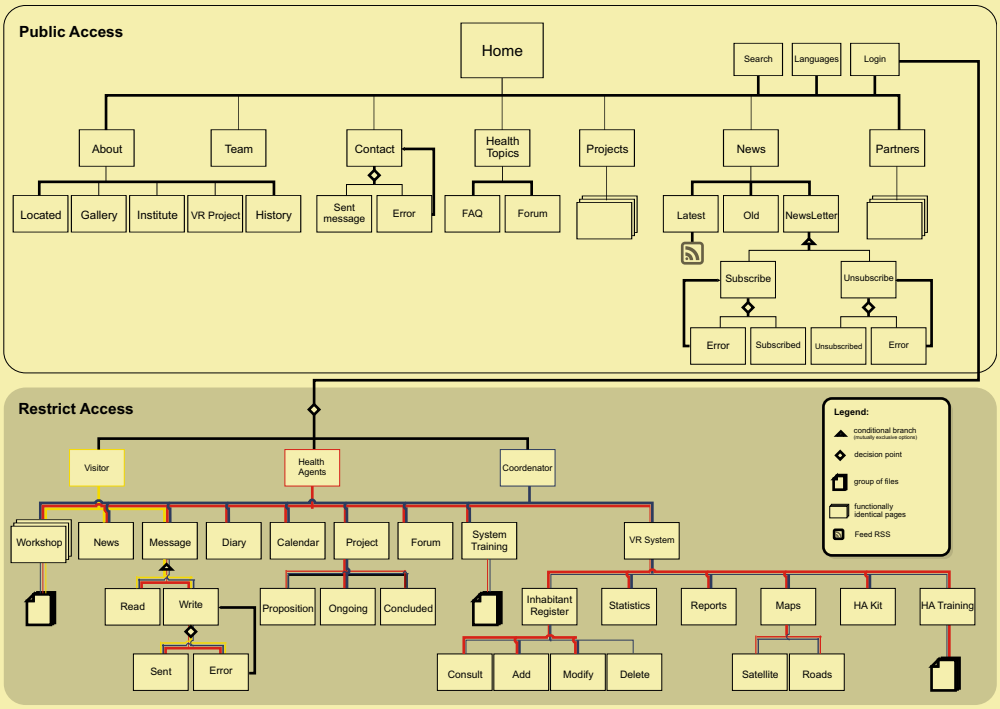


FIGURE 10.4
The final proposed architecture
for the website

FIGURE 10.5
Instituto Vila Rosário website: early sketch

Table 10.2
Information structure for public access area of the website.
There was search function and language choice.

1ST LEVEL	2ND LEVEL
About	Location, gallery, institute, Vila Rosário project, and history of the Vila Rosário Institute
Team	Business chart, Resume (link to specific projects)
Contact	Email form
Health topics	FAQ, Forum
Projects	Ongoing projects, Past projects (with summary and results), Future projects
News	Latest (RSS feed), Old, Newsletter
Partners	Direct donation, Sponsorship, Volunteer

The restricted area built on database and it could be accessed via login. It was to function as a working space for Health Agents and doctors. As I explained above, it had mostly practical and research-relevant information. It also had things like the Health Agents' kit we had designed. Importantly, in this section, Health Agents could log

in data they had collected in their work, and a messaging function that gave them access to doctors. The formal structure of the site is in Figure 10.4.

This structure satisfied the needs of the two main audiences of the project. The open area helped the Instituto Vila Rosário project to communicate about illnesses, about its activities, and also about its results. The restricted area supported communication between Health Agents and doctors, and the medical world beyond those doctors who were involved with the project. The idea was to help doctors in research, serving as a database for collecting, storing, searching and filtering data.

USER INTERFACE: HOMEPAGE AND ICONS

The audience analysis of the site had a degree of complexity because the site had several audiences with different needs. The next design task was to create a skin and user interface for the site. This task was simpler than audience analysis because design drivers helped in it. We started from the very beginning from the conviction that our design had to use constructs that build upon the language games we had experienced in Vila Rosário. As the aim was to create a window from Vila Rosário to larger society, it had to translate that world using symbols and structures people used in Vila Rosário.

A sketch for the home page is in Figure 10.5. It uses symbols we had created in workshops with Health Agents and doctors. It had the logo of the Institute, languages, the logos of sponsors, and a search function. The skeleton of the portal came from the structure created earlier, which also gave a structure to the interface. The main page contains Level 1 elements of the public access area of the page. The content was represented by icons that were familiar from everyday life, and drawn in a playful fashion.

Also, the homepage had the login page that provided access to the restricted area. The skeleton of the portal came from the structure created earlier, which also gave a structure to the interface. Hence, the main page contains level 1 elements of the public access area of the page.

Our icon design was casual and interpreted standard icon items in local terms to reflect local sources, colors, and interests as we had seen them during the fieldwork. Some icons were based on iconography familiar from computers and the Web, like the manila folder representing project information. Some others came from global cultural understanding, like the Red Cross style hat that represented Health Agents. Yet others were more local, like the icons for Instituto Vila Rosário and contact information, which was styled after a typical local mailbox (Figure 10.6).

FIGURE 10.6
Icons

FIGURE 10.7
Clara writing her vision about
sections and icons' website

Some symbols were relatively easy to find, but Search and FAQ caused problems, as both are ambiguous and imprecise. When we talked to Health Agents about these concepts, which were not familiar from local form of life, most people thought about concrete issues like "looking for someone or something" for Search. They also suggested using a gesture they illustrated by touching their forehead with their hands and by looking into the horizon. For doctors and other specialists, better familiar with the language of the Web, suggested using binoculars, lenses, and magnifiers instead.

DESIGNING NAVIGATION

Our design drivers also gave us direction for designing navigation. We thought that any interaction design had to be simple because the main audience was not Web-savvy. We had to find ways to communicate the linkages between icons in tabs and content as clearly as possible. We also had to build redundancy into the site to give people more handles for understanding these linkages.

Part of the answer came from our benchmarking study reported in Chapter 4. It told us that using columns is the Brazilian way of doing websites. There were usually either two or three columns. We though this was a good solution, because it made it possible for us to maintain as much navigation context visible as possible. The basic layout we created consisted of a global navigation bar, supplementary navigation bar, and the content area, which was the largest part of the site. Also, the logo was in the upper left corner all the time, providing a link to the home page (Figure 10.8).

We built redundancy into the site with color coding. Our aim was to give users as much contextual information about where they are, regardless of their position on the site. Our solution was coloring the background of the icons, and changing the supplementary navigation bar accordingly. This was redundant, but helped in making the site clearer. Figure 10.9 shows that basic logic of this color mapping (Figure 10.8).

Our final sketch for the website is in Figure 10.9, which shows how the website was supposed to look in the eyes of the user. As soon as he pressed an icon in the global navigation bar, the text in the icon grew in size and the supplementary navigation bar changed color so that it became the same as in the icon.

With this design, we could make a website that was consistent with our low-tech designs. It was also easy to make sense of in Vila Rosário. It had several built-in techniques to ease understanding how the site is structured and how it functions. The site also tried to maintain as much navigation context visible as possible, to inhibit situations in which people get lost in the site.

FIGURE 10.8
Basic layout

FIGURE 10.9
Example of navigation in practice

11

Studying the Designs

Once we had finished the designs, our design approach told us the next step. Our approach was empathic and participatory, and stressed the idea that designs must be built around local form of life and language games in Vila Rosário. Some of our designs had been designed together with Health Agents, and when we were unable to do co-design, we always gathered feedback during the design process. However, even though we were confident that our designs would work in practice, our approach told us to be wary of assuming too much. In the spirit of our empathic and participatory approach, we decided to ask people to whom we were designing for what they think about the designs so that we could alter them and make them better. Our next step, then, was researching our designs in Vila Rosário to make sure our designs were meaningful in terms of local language games (Ehn 1988a,b).

Our first plan was to test the designs in two steps. We planned first to test the designs in Brazil among various groups that participated in the Vila Rosário project. The second test was planned to take place in Helsinki, where we were based then. In this test, one

of the expert stakeholders of the project was to be a participant. However, our expert suggested many changes to our designs; with him, we often slipped from testing to brainstorming. For this reason, we added a third step to our research process: we retested the designs in Vila Rosário.

At the end of the process, we had not only co-designed with people from Vila Rosário, but also checked our designs three times with them. For this reason, we thought, the designs would work well in practice. I have to stress, though, that the tests were mostly about the contents of the designs, not about how they were done. All this testing left us a lot of design space on issues like the choice of paper, formats, and fonts, but on issues like production methods as well. I also want to stress out that tests are described in more detail in A. Judice (2014).

INITIAL TESTS IN VILA ROSÁRIO

We designed the tests in Finland, but then sent the tests to Brazil for printing. The tests were sent to Clara, a volunteer, who was responsible for applying the tests and for sending them back to us. She organized and conducted the tests. Most tests were done in Vila Rosário, but one test administered to doctors took place in Rio de Janeiro.

To help Clara, we sent two brochures to Brazil, which described what we wanted to test. In these brochures, we explained how to do the tests, how important to improve our work their collaboration (participation) is, and we highlight that we were testing the products, not Health Agents or doctors as persons, nor their work. We asked them to keep in mind Vila Rosário as a context when doing the tests. We also added a cover page in which we explained our aims, but also added personal information like our stylized faces, to give the tests a feeling of familiarity.

In the first brochure we organized the tests of characters, posters, the tuberculosis booklet, nutritional questionnaire, Health Agents' uniform. It also had a test for the Vila Rosário Institute logo. In the second brochure we validated the health food booklet.

We opened both brochures with a greetings message. At the end of the brochures, we expressed our gratitude to the participants for their collaboration, and we also left a blank space for them to write down whatever they wanted to add. (Figure 11.1 shows the opening page).

We focused in particular on how our designs fit Vila Rosário, because this, after all, was the community we were designing for. The tests were done with two groups. First, we focused on Health Agents and other people doing the health care footwork in Vila

Olá pessoal,

Chegou a hora de testarmos os produtos que estamos desenvolvendo e para isso precisamos da ajuda de vocês!

Gostaríamos que vocês validassem os produtos conosco. Lembrem-se os testes são para verificar a qualidade dos produtos e não para avaliar vocês ou o trabalho de vocês.

Os produtos estão sendo desenvolvidos para ajudar vocês a efetuarem seu trabalho. Por isso, sejam bem sinceros nas suas respostas. Pensem bem em como os produtos podem ajudar vocês e se eles realmente estão atendendo as expectativas de vocês! Depois nos contem tudo, a opinião de vocês é fundamental para nós! Por meio das respostas de vocês poderemos adequar os produtos a realidade de vocês aí em Vila Rosário.

Para facilitar o envio dos testes, colocamos os testes em 2 cadernos. Dentro do caderno 1 estão os seguintes testes:

1) Personagens utilizados nos produtos;

2) Cartazes;

3) Cartilha Tuberculose;

4) Questionário Nutricional;

5) Uniforme para as agentes de saúde;

6) Marca do Instituto Vila Rosário;

O caderno 2 contem o teste da Cartilha Alimentação Saudável.

Estes testes estão relacionados aos produtos iniciais que estamos desenvolvendo, por isso se vocês quiserem sugerir novos produtos sintam-se a vontade! Vamos adorar receber sugestões!

Os testes podem ser feitos individualmente ou em grupos.

Mais uma vez obrigado pela ajuda de vocês!

Abraços e até breve!

Andrea e Marcelo

FIGURES 11.1
Message explaining the tests and how these are important to be validated by community's members.

Rosário. These others consisted of two volunteers of the project, two nuns, two specialists from the health area from Vila Rosário, two members from the community that are not taking part in the project. Second, we focused on other stakeholders. The tests for doctors and other urban specialists who did not live in Vila Rosário were developed in the same way, with the same content and using the same language as with the first group.

As these tests are explained in more detail by Andrea Judice (2014), I will give three examples of the tests only: characters, tuberculosis booklets, and posters.

CHARACTERS

The main things we wanted to know about the characters we had designed for Vila Rosário was to know what kinds of emotions the characters communicate, and whether they look like they could have come from the community. Our reasoning was that if they do not have the gestures, clothes, or ways of being of someone from the community, they could think the characters had not been done for them. With this in mind, we showed the characters to our participants and asked them to tell what they though about the drawings, and to give some suggestions about how to improve the character.

In this part of the test, we made questions like: "Do you think that this man/woman lives in Vila Rosário? Why?", and "Could you trust this man? Why?" We also wanted people to suggest names for the character, and tell something about their feelings towards the character. The testing protocol is in Figure 11.2.

After the questions, people got some time to write down what they thought about the characters. An example of what we learned in the test is in Figure 11.3, in which we explored the Doctor character, who had been modelled to be in respectable age, having a relaxed posture, a friendly face, and clothes that told about his medical profession. The character was modelled more or less around Dr. Costa Neto.

In tests, Health Agents attributed several emotions to the character. For them, the character was trustful, reliable, and expert. For example, Health Agent Deolinda wrote:

> "His appearance is very similar to Dr Claudio Costa Neto. He transmits desire to transform Vila Rosário. He wants to develop our community and make it better. He transfers lots of energy to all of us."

Health Agents also suggested a few changes. For example, they wanted to make the character more similar to someone that they know. They even suggested building the character directly around

FIGURE 11.2
Validation of characters

Names suggested:
Dr. Herzen; Dr Cláudio; Dr João
Excerpts from interview:
Question: "Does he look trustful? Why?"
Answer: "Yes, because he reminds them of a physician that they know and trust."

FIGURE 11.3
Excerpt from an evaluation interview focusing on the character of Dr. Claudio

a doctor that works in the community. As a result, we gave the character more of these features. Several other characters also went through changes after the tests. For example, the young man in Figure 11.2 was seen as an outsider. He was too neatly and fashionably dressed, and his shoes were too good for Vila Rosário. In our final designs, the character was redone to reflect better the realities of the township.

Posters

When testing each poster, we invited the participants to look very carefully at it before reading and answering our questions. Once more, we asked Carla to ask participants to think about Vila Rosário when answering. When testing the posters with Health Agents and doctors, we asked them to concentrate on their work at Vila Rosário Institute. We also asked them to keep in mind the four main themes we were interested in: nutrition, tropical diseases, hygiene and training in new technologies. As these posters were meant to be used with patients and children, we wanted to know whether they were simple enough to communicate their message, and whether this message was understandable, given the life-world of Vila Rosário.

In our test we wrote an introduction paragraph in which we asked the participants to analyze each poster calmly and give their opinion about them. We told people that they should feel free to write more

about the posters. At the end of the introduction, we told people that their opinion is important for us, and we promised to take it into account in our work. To facilitate the test, we also wrote some questions that are listed in Table 11.1. We asked the same questions for all posters.

TABLE 11.1.
Our questions about posters

Which message this poster transmits (conveys)?
The message of the poster is clear for you? ( ) Yes ( ) No
Would you change something in the poster? If so, what changes would you do: letter type, drawings, and colors? Tell us why you would do those changes.
Looking at the poster and reading the message conveyed through it, do you feel yourself motivated to look to the Vila Rosário Institute, or the Health Agents for more information? Why?
Do you find this poster important for the development of your community? Why? Do you think the poster is important for your work? Why?

After answering these questions that focused on the messages of the posters and images, we next asked the participants to answere more general questions. Through these questions, we wanted to know where people would like to place these posters and why so. Another thing we probed was which posters the participants favored and which they liked less. We also inquired whether the participants had ideas for new posters, and we also asked people to sketch these ideas for us.

Figure 11.4 shows how we asked these questions. We showed a poster to participants, and placed the questions next to the posters. Message: hygiene lessons and motivation to do. In this case, we learned that most people told us that the poster was important to Health Agents' work because at Vila Rosário people have poor hygiene habits. Having objects acting as persons, the participants thought, will stimulate children to understand how hygiene is related to their daily activities. Having children as the main target for the information was intentional, because we wanted to reach families with children. This aim can be seen in several features of the poster: it is not necessary to be able to read to get the message, as the images already express the message. One doctor, however, told that he thinks that the poster is not important for Vila Rosário because the people who need to understand this information cannot read it or will have difficulties in understanding the meaning of the message.

We learned several things about the posters through these tests. We learned about fonts and characters, but also and more importantly, about content and the audience. The main issue we

9

Cartaz 1

1) Qual a mensagem que o cartaz transmite?

2) A mensagem do cartaz está clara pra vocês? ( ) Sim ( ) Não

3) Vocês mudaria alguma coisa no cartaz? Mudariam cores, figuras, tipo de letra, desenhos? Nos digam o que vocês mudariam e nos digam o porquê mudariam.

4) Olhando para o cartaz e lendo a mensagem vocês se sentem motivados(as) a procurar o Instituto Vila Rosário, ou as agentes de saúde para mais informações? Por quê?

5) Vocês acham esse cartaz importante para a comunidade de Vila Rosário? Por quê? Vocês acham esse cartaz importante para o trabalho de vocês? Por quê?

Cartilha Alimentação Saudável

Nós desenvolvemos esta cartilha com a ajuda de uma nutricionista. Ela escreveu o texto e pediu que ilustrássemos! Ela quer muito saber se o texto dela está simples, fácil de entender e se esclarece a maioria das dúvidas que vocês têm em relação a alimentação saudável. Nós ilustramos a cartilha com desenhos bem simples e colagens. Veja se vocês gostam.

8

FIGURE 11.4
Poster about personal hygiene

FIGURE 11.5
Validation of the Health Food booklet

learned, however, was that there were no issues. The posters were accepted. As feedback focused on small things only, we saw that the main ideas behind our designs were valid.

Booklets

As I explained in Chapter 9, we designed a series of booklets in comic strip format for Health Agents, who could use them to teach families and children about issues like tuberculosis and nutrition. Among these booklets, the tuberculosis booklet was drawn like a graphic novel, which was situated in Vila Rosário. When we were designing booklets to teach nutrition, we chose another tactic. We thought a lot about which kinds of representation could be used best to communicate and trust the contents. However, we also wanted to invite Health Agents to design their own booklets because we thought there was a qualitative difference between tuberculosis and nutrition. Tuberculosis is a disease with dramatic consequences, but science knows what causes it, and has a cure. Nutrition is less clear: there are many ways to eat right and wrong, and seasons vary even in the southern edge of the Tropic of Capricorn.

The results of these thoughts became evident in our designs in several ways. We developed a nutrition booklet using a naive drawing style, like in children's sketches, to show that the quality of content does not correlate with the quality of drawing. As this was a deviation from the artistically elaborate tuberculosis booklet, we wanted to know if they could understand the written language and accept the naive drawing style before producing the booklets. We knew that our choice could create a lot of questions, and therefore, we thought it would be good to get feedback about the new aesthetics before acting on it.

One of the pages of the booklet is in Figure 11.5. Next to it, we had an open page that worked as a questionnaire in which we told that the booklet is designed to facilitate understanding the patient's dietary habits. We also said that the booklet should be simple and visually engaging, and asked feedback about whether Health Agents thought our drawings were successful in this regard. We finally asked about the content of the booklet, and then asked people to write down their suggestions.

We learned several things in the test. For example, five inhabitants thought the letters were too small. Later, Health Agents said that they were not happy with the quality of drawings, and told us that any drawings had to be done by a proper artist to be engaging and effective. A few Health Agents also wanted to draw by themselves, but when we tried this, they were too shy to try.

EXPERT WORKSHOP IN HELSINKI

After analyzing data Clara had sent to us, we went to the next phase of the tests. These tests were done in Helsinki with an expert in tropical diseases. The aim of these tests was to get feedback about the content, which had to be medically sound, but also about the products as such, as our expert had extensive knowledge about Vila Rosário. The expert was Dr Luiz Roberto Castello Branco, who had been working in Vila Rosário since 1999. He was a member of the board of QTROP Society (at present, Instituto Vila Rosário), and he also was the Scientific Director of Fundação Ataulpho de Paiva FAP, which is the main Brazilian medical body focusing on tuberculosis.

Dr. Castello Branco came to Helsinki and spent one week with us. During this week, we went through all our designs. We had a two-day workshop with him, which we recorded. The first day started at 10 a.m. and went on until 4 p.m. Its focus was on our low-tech designs. The second day focused on the Web. It started at 4 p.m. and it went on until 8 p.m.

The questions we addressed during these workshops focused first on information systems, specifically what kinds of information systems would be useful and enjoyable in Vila Rosário, and how should we create information systems suitable for Vila Rosário, given its specific character. We also wanted to know what would be the best way to distribute the key designs elements in Vila Rosário, and what he thought was the best way to make the information we designed effective through action research and participatory design. We videotaped and photographed the workshop (Figure 11.6).

After the workshop, we were confident that the information in our designs was correct, or at least not controversial. We also had lots of feedback from local characteristics of Vila Rosário, which he knew well, unlike us. The workshops also drifted into brainstorming sessions after a few hours, and gave us ideas for things like new characters.

During the workshop, Dr. Castello Branco also wrote down notes on his personal computer. After the workshops we reviewed these data together with him. One of the main results of the workshop was that we decided to retest our designs in Vila Rosário with Health Agents and doctors, Dr. Castello Branco wanted to be in charge of this retesting phase, so we made a copy of the material we used in the workshop. He went on to rerun the Helsinki workshop in Brazil.

RETESTING DESIGNS IN VILA ROSÁRIO

Dr. Castello Branco went back to Brazil during Christmas week in 2007. He was able to redo the workshop in Brazil in January 2008. He validated the products with Dr. Costa Neto. Other stakeholders

FIGURES 11.6
Dr. Castello Branco with Andrea at the workshop in Helsinki

were on vacation, and after he had contact with them, he sent the results to us in the third week of January.

The first thing that came up was scale. Dr. Castello Branco asked us to keep in mind that Vila Rosário has thousands of inhabitants. How much of the population can we realistically take care of? Back then, the Institute did not have resources to expand the project as to all the population of Vila Rosário. The IVR program has six Health Agents and one voluntary teacher of mosaic only, he explained.

Another general comment validated our key distinction between high-tech and low-tech designs. These stakeholders told us that low-cost solutions (like posters and booklets) are really important once there is a lack of access to more advanced information technology at the community. They also emphasized the importance of games, especially during the workshops, when children are taken care of by Health Agents, nurses or other volunteers. These moments can be used to teach children about health and food. They also said that the website can be an important democratic space, in which doctors and Health Agents can exchange information without spatial or temporal constraints.

In all, we interviewed eleven stakeholders, not just doctors. For us, the most important information came from interviews with Health Agents, who told us that posters in particular were important in their work.

> Posters related to hygiene and illnesses are very important to us. These can do a good improvement in our work. Please develop more posters related to tuberculosis, and nutrition, we are really in need.

Dr. Castello Branco summarized the feedback from his tests in January. He told us to make the characters funny to make them more engaging, and he also wanted to add a football player into the character list. The player was born in Vila Rosário, and after becoming famous, acquires tuberculosis. After a successful cure,

he comes back to the pitch to make a match winner, wearing a Vila Rosário logo. Another thing that he brought back to us was the importance of teaching people that a nutritionally rich diet is particularly important during the first years of a child's life, when their brain is developing rapidly. A poor diet during these years leads to cognitive dysfunctions and slows learning even among adult population.

Health Agents, in their part, had some doubts regarding a few topics in the booklets and posters, but found them very useful. For instance, they told us that the booklets had actually taught them a few things. One Health Agent told us:

> "Some topics you discuss in the booklet, I had no doubt about these because I had no idea about that issue. I never thought about these, so it is impossible to have doubt about something you even have no idea about".

Similarly we got lots of tips about what kinds of workshops we should develop for the Institute. This led to some design initiatives, for example, setting up an herb garden with Dr. Costa Neto, whichcould be used to teach inhabitants about how to grow and use aromatic and culinary, but also some medicinal herbs. Most other issues were smaller, but again dependent on the specifics of Vila Rosário. For example, through feedback, we learned to avoid expressions like "a glass" of water because drinking vessels are much less standardized in Vila Rosário than in the market economy in the city.

In all, we took extra care in evaluation because we were designing for a context we did not know from experience. As this chapter has shown, at every step we evaluated our designs before committing ourselves to some final design. These evaluations were done at three levels to guarantee that our designs were good, based on reliable knowledge, and that the approach works in places other than Vila Rosário.

12

The *Potentials* Workshop in Namibia

One of the standard doubts about fieldwork-based approaches to design is that they can generate solutions that are tailor-made to the setting. By implication, they cannot be used in other contexts. To study this claim, we conducted an evaluation study in Namibia, treating it as a possible negative case that could prove our approach wrong. The opportunity came to us through Satu Miettinen, a Finnish designer who at that time was working on her PhD in Namibia (Miettinen, 2007). She was running a series of workshops called *potentials* in that country, as a part of her research on tourism and crafts as a source of wealth.

Namibia was a suitable case for us because of its likeness to Vila Rosário. It is on the same latitude with Vila Rosário. It has a fairly similar subtropical climate, and it faces health problems that are not massively different either. People suffer from tuberculosis, parasites, diarrhoea, and hygienic conditions are also fairly similar to Vila Rosário. In both places, illiteracy rate was high. The main difference on the disease map is that the prevalence of HIV/AIDS is much higher in Namibia than in the state of Rio de Janeiro, but in

other terms the picture is not massively different. In both places, people felt themselves marginal as well. One witness in Namibia used the term "marginalized community" to describe its situation:

> As we are from a marginalized community sometimes we feel that we are excluded from the right of decision about our city, or even worse about the development of our own community. So, at least when I am at home I know I can make decisions.

Namibia was also suitably different from Vila Rosário. Obviously, we had to face a different language, history, culture, as well as different habits. Perhaps most importantly for us, visual culture was different in many ways. With the exception of modern buildings, which are fairly similar in both places, houses were different; the streetscape was different; ads and TV shows were different; and although people in Vila Rosário are typical Brazilians, a melange of many races, there were few very dark-skinned Rosarienses of African origin. Not only material reality, but also people looked different in these two places. This also goes for social organization; based on our study in Vila Rosário, we could not predict which institutions people trust in Namibia.

The opportunity to do a short study in Namibia came to us accidentally from the standpoint of our research, but it was a lucky accident. Namibia was a comparable case: it gave us a good mixture of similarities and differences to be meaningful. Further, the differences were clear in the area of visual culture, which also gave us a focus. Instead of replicating our whole study, we could focus on differences in visual world and visual perception. Testing our design approach in Finland would have been meaningless because the societies are so massively different that we should have redesigned our whole study; testing it in Namibia made much more sense.

In this Chapter, I will describe the workshops, but then focus on the results rather than the methodology. For a detailed description of the methods, see A. Judice (2014).

THE *POTENTIALS* WORKSHOPS WITH PAMBILI

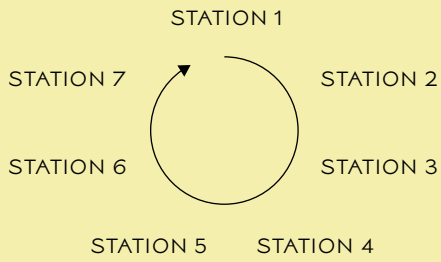
The workshop in Namibia was done with the world design group from UIAH and the group of Pambili. The second potentials interactive workshop was held in Windhoek between 9-11 July in 2007. The workshop named *Design Your Action* was built around seven "action stations." Our main aims were to study if the methods we applied in Vila Rosário work in another context, and to understand the implications of it. We also wanted to understand if the symbols and

color we had chosen to apply at Vila Rosário's webpage have the same comprehension (understanding) in another culture.

The workshop process is described in Table 12.1. It began with preparations in Helsinki. At this stage, we built on our studies in Vila Rosário, collected information of Namibia, and designed icons to have a preliminary hypothesis when we arrived in Windhoek. We also designed the actual workshop process in detail in Helsinki. After these preparations, we went on to contact people on ground to make the plan real. When we touched ground in Windhoek, we ran the workshops, organized an exhibition with World Design group in Windhoek, and came back home to Helsinki, where we analyzed our insights, and organized another exhibition with the same group. At the end of the process, we applied some of the learnings to our designs in Vila Rosário.

Table 12.1.
Positions: the workshop process in Namibia

- Preparing the workshop using data from IVR
    - Preliminary mapping (Rio de Janeiro)
        - Community Health Agents - CHA, and Community Member - CM's photos
        - Interviewing Specialists, CM and CHA
        - Benchmark (Helsinki)
    - Designing Icons (Helsinki)
        - Systematizing data
        - Transforming in Black & White symbols
        - Identifying Patterns
        - Icons in Colors
    - Pre-selection test (Helsinki)
        - Choosing categories and symbols
- Developing Panel for our Action Station: Design Intervention in Vila Rosário (Helsinki)
- Namibian Workshop (Namibia)
    - First Contact
        - Introducing tutors
        - Forming groups
        - Introducing groups
            - Knowing participants expectations (What they think/ feel about our research)
    - Production Method
        - Presenting the concepts to the participants;
        - Some groups thinking aloud;
        - Asking them to draw ideas about the concepts;
            - (We didn't show the icons from IVR)
- Comprehension Test for Vila Rosário symbols and colors



FIGURES 12.1
The opening of the potentials workshop

FIGURES 12.2
The organization of the workshop space in studio *77*

FIGURES 12.4
Running the workshop and a part of its layout

FIGURES 12.5
Participants immersed in drawing

- Hierarchical organization of symbols and colors
- Inviting participants to develop the IVR webpage (just symbols and colors)
- Namibia Exhibition (Design *Y*our Action)
- Analysing data from the Workshop (Helsinki)
- Systematization of the data
- Results to be applied in IVR's webpage
- Helsinki Exhibition - Fashion Fair 2007

In Windhoek, the workshops were organized in *Studio 77*, a local creative center built into an old brewery complex that houses several studios. The workshops started with a short speech by Melaine, our *pambili* coordinator and one of the tutors. As it was a beautiful sunny winter day, we sat outside enjoying the sun (Figure 12.1).

When we started working, we moved indoors and organized the participants into our seven action stations. We asked the participants to walk around the space to get familiar with the organization of the space, and to read the panels from each action station. The aim here was to give them a better understanding about the stations. Each work group rotated and took part in all seven actions (Figure 12.2). Andrea and I started with group 6.

QUESTIONS

In terms of content, the workshop considered two elements mainly. First, we focused on colors. We wanted to understand what kind of visual code color was in Namibia, and whether this understanding differed from Vila Rosário. Specifically, we wanted to learn about the perception of colors in various situations people encounter in Namibia. The aim was to get directions for using this understanding as a formatting element in patterns designed to give people clues about their location on a webpage, and also how color could be used as a directional element in navigation.

The second thing we wanted to know better were the graphical symbols, which we thought should be in part different in Namibia and Vila Rosário. We were interested in familiarity, i.e. the participants' knowledge and perception about some symbol, and how its meaning ought to be communicated. Again, our interest was in understanding how to support the user's ability to understand symbols with words. Our more specific interests were the legibility of symbols, their simplicity and consistency.

THE METHOD OF THE ACTION STATION

In running the workshop, we followed Formiga's method which builds on Kramper (Formiga, 2002; Kramper, 1969), and starts with a warming-up phase followed by the actual workshop.

However, our interpretation of the method was visual. The main method of the workshop was drawing. When a new group arrived at our action station, we first described our work in Vila Rosário and then showed people our designs in Brazil. After that, we asked people to draw icons for the website. (Our hypothesis was that these could be used in graphic designs as well.)

The procedure

We asked the participants to draw symbols in six categories, to explain their drawings, and finally to rank their understanding of each drawing (Figure 12.5). The categories were:

- Home
- Health Agents
- Map
- Search
- Contact (information)
- FAQ: Frequently Asked Questions

This method produced over 300 drawings for analysis and inspiration. We also video and audio recorded conversations in groups, to learn about the intentions behind drawings.

Second, the participants were given symbols designed at Vila Rosário. We asked them to divide the symbols into categories, and to explain their choices. This exercise was done to understand participants' ability to identify the meaning of the symbols (Figure 12.6).

The third exercise was targeted at understanding the hierarchical organization of symbols and colors. We asked the participants to cluster symbols drawn in Vila Rosário into groups to the best of their ability. They arranged the symbols (and colors) from the easiest to understand to the hardest to understand. Our objective was to get our hands on how Namibians saw complexity in symbols and colors.

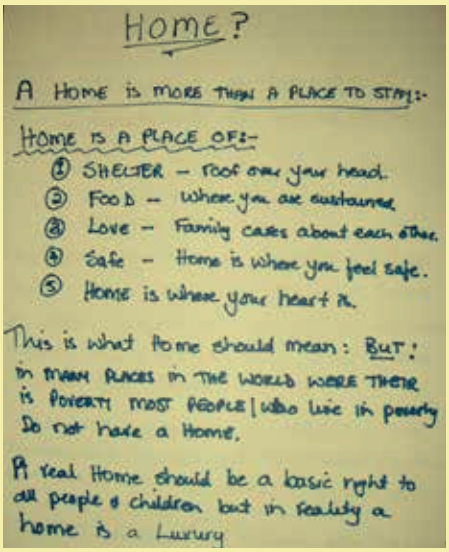
The final task we gave to the participants was a design task. We asked them to build the final face of the webpage.

Collages as Analysis

An example of how we analyzed the drawings is in Figure 12.8, which compiles a selection of drawings for "home." Our purpose in this part of the workshop was to develop icons for Home that could be use on a website. What the collage shows is that the word has a very concrete meaning in Windhoek. It means a building in which people live.

FIGURES 12.6
Participants organizing symbols from Vila Rosário

FIGURE 12.7
Participants discussing strenuousness of symbols and colors



FIGURES 12.8
Symbols for home

In terms of their style, the drawings can be grouped in two broad categories: huts and houses. However, as the collage shows, some participants chose not to draw and preferred text. Also, one participant drew a village rather than a single hut or house. For us, this showed that if we need an icon for home, we can build on the Web standard familiar from browsers like Firefox, which uses a simple house as its icon for home. Although this is a U.S. connotation, it is not far off the mark in Windhoek. Yet, we need to keep in mind that the meaning of home in Namibia may not be the same as it is in North America, which we had to keep in mind while designing links from Home to other pages.

Our method of analysis was mostly visual and based on collages, as in so many other pieces of work in empathic design (see Mattelmäki 2006; Koskinen et al. 2011). We did not need numeric data to get the pattern. It was more or less evident from our collages. However, we also asked each group in our action station to rank the designs to see whether a consensus arises among the groups. I will explain these rankings later.

A SAMPLE OF THE RESULTS

The results of the workshop are described in detail by Andrea Judice (2014), but I want to point out the main findings here. In broad terms, the results were encouraging. The design approach developed in Rio de Janeiro did work in Namibia. However, the look and feel of the designs needs reworking as the context changes. It is in particular the design management program that needs to be localized to create ownership and pride.

HOME. The home proved to present some difficulties for understanding. For some participants, home was a concrete and emotional place, and as such, they could not grasp how it could be used on the Web as a navigational tool. The home was for these people a place of comfort, protection and love, not a place only a click away. Said one participant:

> Where is my home? Sometimes you can find this feeling in people from marginalized communities. They can find more support in other places than in their houses, and they feel themselves confused. Sometimes they go to other places to find comfort and safeness. They just escape from their reality.

HEALTH AGENT. The second category we studied was Health Agent. The concept of a Health Agent was not difficult at all. In Windhoek, it became a nurse, for instance, but they also got religions meanings, as in the following quote:

> "Who is she? A nurse, doctor,... I don't know. Who shall I call her. She better be called an Angel, busy caring and showing love, treating others with love. But she may feel helpless too, who helps her?"

The symbols used to mark the status as a Health Agent were different in Namibia and Vila Rosário, though. In the former, Health Agents were associated with Red Cross, stethoscope, and medical briefcases. This told us that for the Windhoek participants, Health Agents were perceived as a part of the institution of Medicine rather than the local, voluntary helpers they were in Vila Rosário.

MAP. Much like in Vila Rosário, maps in Namibia were sometimes very concrete, showing places in the home neighborhood of the artist, or their home villages. A few people thought the map in global terms typical to the Web, which has had a global ideology from the beginning. These people drew the map of the world. A few participants associated maps to giving directions, drawing people who were telling others where to go with gestures. More cosmopolitan participants drew symbols like zooming functions, as well as compasses, though.

SEARCH. Just as in Vila Rosário, search proved to be abstract and difficult to understand at the level of abstraction the Web works on. Some participants drew gestures in which people were looking into the horizon with a determined, intentional look. Some others drew people in conversation, apparently asking for directions or advice. For yet others, search came to be represented by books and libraries, where you go to search for information. This suggested that the metaphor of a book might be a good basis for a search symbol, which was all too abstract to talk properly to people in *potentials*.

CONTACTS. This category proved to present some difficulties as well. Mainly, the participants stressed human connections over technology. Contacts in the industrialized nations may these days mean a contact list on the phone or in e-mail, but in Namibia in 2007, a contact had a face and a body: he was someone to talk to. However, things like ox-carts and tin can telephones were suggested too.

FAQ: FREQUENTLY ASKED QUESTIONS. Perhaps the most difficult category was FAQ, which has no obvious counterpart in everyday life for most people. Those people who by profession, for example,

were used to answering questions, it was based on content. Thus, one participant explained us questions about tuberculosis and HIV/AIDS, and said that it is important to have an efficient process of communication to reach people who need information about these decisions. With one exception, though, there was only one recurrent pattern in responses to this category: the question mark. For us, this suggested that instead of denoting "help," the question mark might also work as an icon for FAQ.

When we look at the responses across the board, we see a trend. In Namibia, just like in Vila Rosário, most concepts used on the Web at a very high level of abstraction to show functionalities are concrete. They anchor into local realities, people, and ordinary practices. In the industrialized countries, where people had used the Web for over a decade, icons like search had already then been diverged from ordinary forms of life. This was not the case in Windhoek in 2007. The main implication for design was clear for us: we had to use more local iconography on the Web than the dominant, U.S. based language could offer.

SORTING THE SYMBOLS

In the final stage of the action station, we asked each group to organize symbols according to how difficult they were to comprehend. The results of this task from five groups are in Figure 12.9. We have only five cases in this diagram, and if there are correlations in the figure, they are weak. However, the symbol for "home" is in two from four cases, and in the fifth case, it was not difficult to understand either. Importantly too, it was always drawn in more or less as a stereotypical house.

More abstract concepts like search and FAQ showed variation in terms of how they were drawn, they were more difficult to understand, and there was a lot of variation from one group to another.

At the end of this action station, we asked the groups to design a website. They were free to use the symbols we gave to them or they could draw new ones. However, they had to justify their "design process" – from the first thoughts to the results. The result for one of the groups is in Figure 12.10, which shows the face of the webpage of Group 5. In the left column, we see icons for search, contact, and FAQ. The upper part of the main column of the page is for a map, while the lower part is split between a home and a Health Agent. It is obvious that the participants in this group are not familiar with Web design conventions, and they probably thought about their home place more than the function of the site – supporting Health Agents' work – but at least we saw that some functions were consistently grouped into smaller columns, while others got more estate on the page.

FIGURES 12.9
Rankings of the difficulty of symbols in five groups

FIGURES 12.10
"Webpage design" by Group 5

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Conclusions and Reflections

This book has reported a study I did with my wife Andrea Judice in the neighborhood of Vila Rosário in Duque de Caxias, in the Brazilian state of Rio de Janeiro. Vila Rosário is an impoverished neighborhood of about 60,000 inhabitants, located about 20 km north of downtown Rio de Janeiro. The aim of the thesis was to create designs to combat tuberculosis and other diseases in the community. The original aim was to develop information systems for Vila Rosário. Over the course of the study, this aim changed considerably, and most designs we created were low-tech in character. The academic aim of the study was to build an empathic and participatory approach that could be useful in design work in impoverished areas like Vila Rosário (see Koskinen et al. 2003; Ehn 1988a). We worked with a local clinic and its Health Agents, who were neighborhood women who had been recruited from the community to identify people with tuberculosis and to assist in their treatment where it matters most: in the community.

Andrea and I learned several things during the research process. Maybe the most important thing came from Pelle Ehn, a Swedish

computer scientist and interaction designer, who had been working with graphic workers in the seventies and the eighties (Ehn 1988a,b). His approach was participatory, but it was also grounded in Ludwig Wittgenstein's late philosophy (Wittgenstein 2009/1953), which took it way beyond typical cookbook approach to methods typical in much of interaction design. What I learned in particular was that we have to seriously take the form of life that provides the background to any statement, opinion, design effort, or any other "language game" in the community (the notion of language game is from Wittgenstein 2009/1953 and Ehn 1988a). Without paying attention to this background, design efforts are built on sand, we learned from Ehn.

When we pay attention to this background, our design approach changes in significant ways. It changes firstly the way in which we understand design as an activity. Design becomes an effort that has to be grounded on a solid understanding of the context it is designed for. Designers have to gain an insiders' view of the context to be able to do good design. It changes secondly the way in which we understand the design process and its methods. As designers, we have to devote lots of time in gaining a solid understanding of the context using contemporary methods of contextual design. It changes third the way in which we understand the outcomes of our design work. They have to be grounded on language games in the community. Finally it changes the way the designers define their relationship to the people studied.

REFLECTIONS ABOUT THE APPROACH, PROCESS AND OUTCOMES

The most important thing we learned from Ehn was that to design properly, we need to understand a form of life in Wittgenstein's language (Wittgenstein 2009/1953: #7: Ehn 1988a,b). Things like designs get their meaning from social and linguistic practices of a community. Any form of life consists of innumerable language games, as Wittgenstein would have called designs had he been interested in design (see Wittgenstein 2009/1953: #23). For us, Ehn's suggestion to build design on Wittgenstein's philosophy meant that we had to find ways of making sense of a form of life and its language games in three ways.

Approach

The answer was not far away from the design practice in Helsinki, where this study saw its early days. Contextual design methods have been familiar to anyone in design after about 1995 (see Beyer and Hotzblatt, 1998), and social designers in Brazil had been advocating

a contextual methodology since the early 1980s. Participatory designers like Ehn had made the same discovery in the late seventies and the early eighties too (see Ehn 1988a). Our studies of empathic design in Helsinki (Koskinen et al. 2003) added emotion to the picture. We not only had to think about ourselves as interpreters of forms of life, but we also needed to connect to Vila Rosário emotionally rather than only pay attention to what people said to us.

With this approach, we discarded the idea that we were experts who knew better. Our design work had to be done locally only after we knew Vila Rosário well enough to understand its way of life and inhabitants' emotional connection to it. Only when we knew that all the persons involved in our study trusted us and were committed to us and our designs, we thought, we'd know Vila Rosário well enough to be confident in our designs. Even then, we had to listen to people repeatedly. There was no way around the community and its culture. We were not worried about changing the community, as we were designers whose aim is to make the world better. As we heard in many cases, people did learn from us: in small but significant ways, we made people from the community rethink their own life and environment.

Process and methods

One implication of the approach we adopted from our Scandinavian teachers was that our process became strictly contextual. Instead of working in our studio, we went to Vila Rosário repeatedly and lived with people to hear their stories, to see their homes, and to get familiar with the streetscape. We were not anthropologists, but empathic designers: the important point was not careful description of Vila Rosário, but getting the feeling that we understand the place, and seeing that locals accept what we tell them about their lives through our designs. Our dive into Vila Rosário taught us that our initial hypothesis saying that health care in Brazil needs better information systems was deficient, if not plainly wrong. It was much more important to do low-tech designs that built on local language games.

How we did this was by taking our methods out of the studio to Vila Rosário. We worked with a host of empathic and participatory methods, and to feed people's imagination, we also used projective design techniques. Our work was "co-design" in context: the line between us as designers and them as inhabitants remained clear, but we worked together in creating and critiquing our designs. We also took feedback seriously and dropped several plans. A good example is the Oscar the Mascot character, who got a much smaller role in our work than we had planned. The reason was negative feedback from Health Agents and some locals.

Our suite of methods was built on several sources:

- From ethnography, we learned the importance of observing situated events of communication;
- From empathic designers, we learned to trust our emotional connection to people;
- From participatory designers and empathic designers, we learned the importance of using "design-by-doing" methods like prototypes, mock-ups and scenarios;
- Empathic design taught us to use collages in going deeper in the "immaterial" and the subjective;
- From Bill Gaver and Tuuli Mattelmäki (2006), we learned about the probes;
- From design methodologists like Liz Sanders we learned to pay attention not only to what people say, but also what they do and make;
- Liz Sanders and Bill Gaver also taught us the importance of developing projective techniques to get into dreams and unspoken-of wishes.

However, we decided not to trust our own opinion about the place. Instead of relying only on fieldwork in doing the designs, we also encouraged Health Agents to create data for us by taking photographs and by drawing things to us in workshops. Also, we always validated our understandings to make sure Health Agents and doctors agreed with us. From Paulo Freire (2005), we also learned the importance of bringing outside expertise into our project to make sure our facts were correct. Most of this development and validation work took place in workshops that brought together different people (Figures 13.1–13.3).

Validating our designs with many stakeholders involved in our design process and with people from the community gave us confidence in our work. In these workshops, we did many kinds of things, like watched videos together with Healh Agents and stakeholders, who pointed out problems and misunderstandings in our interpretations. These methods and processes also made people rethink Vila Rosário in a positive way. They helped us to go deeper into the distinctive language games we could find in the day-by-day life of the community. They also helped us to understand small differences between how people in Vila Rosário saw themselves, their community, and the surrounding society, and how people in the mainstream society saw these same issues.

As we have seen earlier in this book, we used several design methods. The probes were our main inspiration in the user study phase, but we also used many other design methods, including several projective techniques, usability techniques, and user experience techniques. However, we did not try to follow a rigid process. Our work process built on empathic design, which tells us to improvise methods as we learn about the research task, and to use suitable methods when they are needed. Here our approach was very

FIGURES 13.1
During the workshop: mapping Vila Rosário, the Health Agent Dulcineia did this sketch mapping the route from her house to IVR. It was an important moment to identify important spots and to see how comfortable the Health Agents were to draw.

FIGURES 13.2
In a Workshop in Helsinki, an expert in using video and internet designing a network for IVR webpage.

FIGURES 13.3
A view from a workshop with a group of psychologists, designers and doctors in Brasilia

different from areas like social design (Kimball and Julier 2012), that try to systematize design methods to a process that always takes certain steps. In contrast, our design process needed to be flexible and feasible. We tried to give priority to the diversity of people involved in this project and characteristics of the community, not fit them into a theoretically specified research process.

Designs

As a graphic designer, one of my responsibilities in this research project was to implement and to make the ideas tangible. My most challenging task was to make the ideas understandable to the different audiences who would use our designs. It was up to me to translate ideas into visual elements and graphics, and to make sense of different people from walks of life. Despite the focus being the inhabitants of Vila Rosário, we also had doctors, nutritionists, and institutions like foundations we had to think about. My job was to create designs that worked for these different audiences. These designs should give meaning to this community, but they also had to be adaptable to other places and perspectives.

Here the approach was a good help. The guiding idea was to make design that built on local language games. Thus, I created characters with Andrea and our friend Neto, who is an artist. These characters were built on local people with the obvious example of characters who were ill with diseases like tuberculosis. We could use these characters in all of our designs. For example, they appeared in almost every poster I designed. Also, when we were designing the booklets, the characters were there. As they were developed largely together with Health Agents, they were meaningful in Vila Rosário. Another example were the stories in the booklets: they relied on another kind of language game, soap operas followed by the people in Vila Rosário.

As these short reflections show, having an approach gave me lots of guidance in design work. It did not make actual design work simpler, but gave useful restrictions in moments of doubt, about what to do and how to do design. It also gave many protocols for design – for instance, the conviction that we need to do designs together with locals as much as we can, and still test our designs with them.

ALTERNATIVES

The most important point in this thesis is to see our designs serving as social transformers. The ideology behind Health Agents' work was visually translated for them. Our designs participated in their work aimed at transforming this community to the better.

In some ways, our approach diverges considerably from few existing alternatives for design for development, as Reijonen (2010) had called design that applies techniques from advanced societies in Europe and North America to other parts of the world. For example, our approach differs radically from what the best practicing designers do. For example, the influential exhibition *Design for the Other 90%* (2007) is basically just a collection of design cases, but barely goes beyond listing some Western efforts to create designs for the Third World, or describing locally based design solutions. This is also true with much of Brazilian design efforts (Frascare 2000; Braga 2011).

The approach developed in this thesis is much closer to the work of the World Design group in Helsinki and social design in PUC-Rio. Design researchers in the World Design group always went to specific communities to do co-design with them. They linked their design work with local stakeholders to create a business model that would support the design effort after the design researchers go back home. For example, Miettinen (2007) connected her work in Namibia with tourism authorities and Sorainen (2006) her work in Kalpourkan, Iran, with museums and local markets. Brazilian social design shares many of the same beliefs, stressing the need to focus on human rights instead of working only with the values of market economy. Its work has also been multidisciplinary in contrast to the World Design group. Both groups, however, stress the importance of co-design, designing with people and getting committed to people.

The novelty my thesis brings to these research programs is a philosophy that makes my design effort conceptually more challenging, but in fact simplifies the design effort considerably. By building on the notion of form of life and by constructing by design approach, design process, methods, and designs on language games, I have found my design effort has been easier to keep in direction.

13 Peopleware can refer to anything that has to do with the role of people in the development or use of computer software and hardware systems, including such issues as developer productivity, teamwork, group dynamics, the psychology of programming, project management, organizational factors, human interface design, and human-machine-interaction. (Larry Constantine, Constantine on Peopleware Prentice Hall, 1995, p. xxi. ISBN 0-13-331976-8)

14 http://en.wikipedia.org/wiki/Joomla

Not all our designs were successful, for a variety of reasons. In particular, the website we created faced several implementation problems. Vila Rosário is a community with modest resources. For example, issues such as Internet band speeds, hardware and peopleware[13] make it difficult to update the website data. We opted for using Joomla[14], which is a free and open-source content management framework (CMS) for helping to publish Web content. Once the whole interface design was set, we thought it would be easier for people with limited computer skills to update texts, images, videos and so forth. However, this turned out to be romanticism. Using an open-source CMS means that it is necessary to have programmers and Web designers around. Partly for this reason, only a few aspects of our design were implemented. The layout is different from our proposal and content has a different structure. The site has our graphic designs, but otherwise, the current website is compromise between many interests (Figure 13.4).

FIGURES 13.4
Screen capture from December 2011, from institutovilaRosário.org

Having said this, it is important to turn to the bright side. One thing we barely anticipated when we began was how our approach changed our relationship with the people we designed for. We became their friends, and although we live these days in Brasilia,

FIGURES 13.5
Keeping in touch through social media in 2014

which is 1600 miles away from Vila Rosário, we still keep in touch with them almost on a daily basis through social media (Figure 13.5). However, our relationship with Instituto Vila Rosário goes beyond keeping in touch and being sympathetic ears. We act as mirrors to ideas, and we also act as advisors to Health Agents in their design problems.

The importance of long-term commitment has been acknowledged in design literature for quite a while. Authors like Bruce Hanington (2003) have stressed the importance of not just designing, but also of following the community studies over a long period of time. In particular, it is important to keep the stakeholder involved, as we did in designing the journal to Instituto Vila Rosário. Writes Hanington:

> "I advocate that, in the life of longer-term projects, a roster of stakeholders be built with agreement for participation at various stages throughout product development. This partnership results in an on-going relationship, whereby relevant people may be called upon

> to assist in both the generation and evaluation of concepts and solutions, while concurrently becoming invested in the project".[15]

Good design, from this perspective, builds on a long-term partnership. It is only in the long run that designers are able to see how their designs work, and adjust them accordingly. This is all the more important when we are designing for diseases like tuberculosis, that require long-term treatments and a community-based approach to be eradicated. As Gui Bonsiepe, one of the German grandfathers of Brazilian social design, has noted,

> "Design problems will only be resolved in the local context, and not by outsiders coming in for a stopover visit. This typifies one of the great disadvantages of short-term consultancy jobs, with people flying in from the central countries with very little knowledge about the local context, and believing that issues can be resolved by remote control".[16]

Our designs were done to survive even after we went back to our normal life first in Barra de Tijuca and then in Brasilia. For example, they were easy and cheap to reproduce; Health Agents were trained to design them; we kept in contact to mentor things like graphic designs; and our designs built on characters designed to go viral in the community. As our Facebook contact with Vila Rosário tells us, the program is still alive and doing well. Andrea Judice titled her thesis "Design for Hope" for a reason; I believe our designs built on hope have managed to bring some hope to Vila Rosário.

Or in the words of a Health Agent, now our friend, who once told us what she thought was truly important in our work. She said that through what we did, we said to her: "You are important!"

15 Hanington (2003) in Design Issues: Volume 19, Number 4 Autumn 2003.

16 This is a quote from James Fathers (2003) Peripheral Vision: An Interview with Gui Bonsiepe Charting a Lifetime of Commitment to Design Empowerment. Design Issues: Volume 19, Number 4 Autumn 2003.

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Coda: Vila Mimosa: Ambulatório da Providência

When we were working in Vila Rosário, two people behind our project, Dr Luiz Roberto and our tutor Dr Ilpo Koskinen had said a few times that what we did was really good, but to prove the value of our approach, we'd have to streamline it and to show it works outside Vila Rosário. Only if we do these things, the method can be taught to design students in Brazil and globally. What we needed to show was that at least these things work:

- Research process;
- Methods and techniques (with appropriate adaptations to the new contexts);
- The validation process;
- The implementation of the outcomes;
- The evaluation of impact.

Chapter 12 described how we tested a part of the approach in Namibia through an opportunity that came to us through Dr. Satu Miettinen. However, slightly over a year after we had finished our

FIGURE 14.1
Vila Mimosa: streetscape; an outpost for medical care; brothel;
a community space for prostitutes; research at the clinic

FIGURE 14.2
Scenes from Ambulatório da Providência:

1: Dom Augusto, Dr. Maria Inez and Dr. Luiz Roberto, celebrating the Ambulatório da Providência's 20th Anniversary in 2009
2: The characters of Drs Luiz Roberto and Maria Inez, created by Nestablo Ramos Neto
3: The old signage of Ambulatório da Providência was almost impossible to see
4: Testing new signs in the ambulatory

fieldwork in Vila Rosário, we were offered yet another opportunity to test our approach closer to home. This opportunity came through Dr. Luiz Roberto and Dr. Inez.

They had been working in Ambulatório da Providência, which was innaugured on 1 December 1989 in Vila Mimosa, which was the main red light district in Rio de Janeiro. Doctors had been working there since 1982, when HIV/AIDS first became a problem. Although the community was moved to a new place by the city, it is still the main center of sex trade in the metropolitan area. In this community, the main diseases doctors work with are sexually transmitted diseases (STDs) and HIV/AIDS rather than tuberculosis, as in Vila Rosário (Figure 14.1).

In Vila Mimosa, we went through the same design process, but did it in a few weeks with local clinic to see whether it works. We went to the district to do interviews, to take photographs, and to talk to the local community, which mainly consisted of prostitutes, their union, pimps, doctors and other health care workers, and local inhabitants who had nothing do to with prostitution. The population in sex trade mostly consists of prostitutes (including homosexual prostitution and transvestites), drug addicts, homeless people, ex-cons, and street children. In addition to STDs, this population suffers from tuberculosis, toxoplamosis, and pneumonia.

Dr Luiz Roberto and Dr. Maria Inez from the Ambulatory of Providence had already followed our work at Institute Vila Rosário and invited us to test our approach in the Ambulatory in 2010. In Vila Mimosa, our intervention was done in around 2 months, with results good enough to be produced. Within these two months, we did our fieldwork, created designs for the community and otherthings like signage to the clinic, and validated our designs. Figure 14.2 shows snapshots of our design process. Figure 14.3 shows first the inspirations for the logo we designed for the clinic, and then two uses of the logo.

We do not know the long-term impact of our designs, but we will. Drs Luiz Roberto and Inez invited us to develop our research at the Clinic in 2014-2015, when the Clinic will be relocated, everything will be rebuilt, and new designs will be needed.

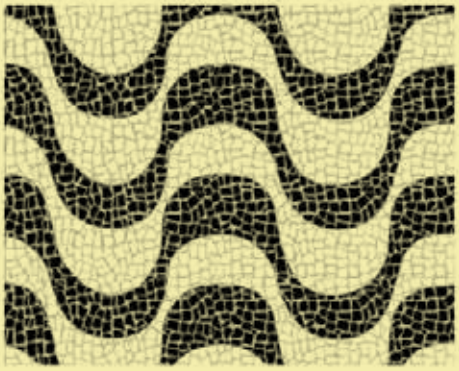

FIGURE 14.3
The logo designed for the clinic and its inspirations

1: The reception desk of the Ambulatory. The Cross as a symbol of religion
2: Christ the Reedemer, one of the icons of Rio de Janeiro city
3: The façade of the ambulatory
4: The Copacabana sidewalk pattern, another icon of Rio de Janeiro
5: Ambulatory folder, used to celebrate the 20th anniversary
6: The colors and textures were based on the old elements, like the paint used on the Ambulatory's wall

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Rio de Janeiro is one of the iconic cities of the world. Close to its famous landmarks, there is a neighborhood, which gives its name to the *Vila Rosário Institute*.

Vila Rosário was the main scene in which a group of researchers – including the author – was trying to find ways of improving public health. Using several design techniques to access many aspects of life in Vila Rosário, he tried to understand the language games of local health care workers and their patients, in order to improve their relationships.

In this book, the author helps you to dive in an old but invisible universe, where many strong people search for ways to make Vila Rosário a better place to be. The members of the community wanted to improve their lives and make their dreams come true. Researchers wanted to help them achieve their aims.

Join this journey! See how everyone, with participatory and a collaborative design perspectives, can build a better world. Find out how design researchers learned to rethink life.

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