

Ethnographic approach to design knowledge

Dialogue and participation as discovery tools within complex knowledge contexts.

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Abstract: The following paper explores two main concepts: a) the ethnography as a thick and qualitative observation method, which refers to an active interpretation of the traditional ethnography by the communication design research mindset; b) the definition of design knowledge space, as extended boundaries for the physical place of design activities.

In the paper we introduce the interpretation of ethnographic plan as a tool for communication epistemology and as a relevant research tool for the understanding and interaction with high complexity knowledge contexts. Ethnography has been practiced within design organizations aiming to provide remarks and insights about knowledge management systems within knowledge intensive organizations. We describe ethnography structure, tools, data analysis and interpretation techniques.

For communication design practice, the field research is not considered merely as a techniques toolbox that have been borrowed from social sciences; design rhetoric refers to the major purpose of design thinking to act transformations in the observed contexts; ethnography is a way to face problem setting through research tools that consider observation and dialogue as the necessary design premise.

Key words: *design methodology, ethnography, dialogue, knowledge tools, knowledge sharing*

1. Introduction

In the following paper we will present the results of a doctoral program [1, 2] about knowledge production and sharing within design communities. Research explores the local and contextual environment of tools and resources that are usually considered as design knowledge and suggests a possible cross-field between the issues related to design knowledge management and the knowledge production practices that typify the cooperation within networks. This cross-field bases on the increasing presence and significance of the digital knowledge within the main context of knowledge systems. Internet is considered as a world of fresh inspiration for cooperation and sharing, that offers to contemporary practitioners technology patterns useful to the (digital) knowledge management, and also suggests the existence of a culture that has cognitive and social relevance in the topic of knowledge as public and commons undertaking. In fact the idea of network unveils a new and effective organizational, social and productive model [3-6], and reveals latent and primary questions for our society: the extension, the meaning, the rules and the features of our own digital nature, which existence is widely recognized. Indeed, we can consider that the idea of networks is concretely shaped in our knowledge

environment, through social networks, community references, shared database, user generated content activities, research by serendipity, and in this sense Internet definitely functions as material resource. The access to these contents is strictly connected with the diffusion and rooting up of the digital systems that mediate the access to knowledge space and that are present in daily life, in working time and place, as the same as within private context, etc; and the use of these interfaces impact organizations and society by the emergence of direct practice and behaviors of sharing and cooperative production of knowledge.

This broad and rank cultural perspective that is suggested by digital worlds also supplies some practical and concrete questions, that emerge from local places, related to the knowledge management issue, and ask the way and the how in which we, as human, can richly express our digital nature built around the notions of networked, shared and public. These are trans-disciplinary questions that mostly require local, specific, disciplinary answers; this is why this research has firstly considered to encompass in time and reflective thoughts about design knowledge that clearly refers to a meta-design perspective. Besides the reflective spirit, these questions also arouse a specific interest for the practitioners' discipline and in particular for communication and ICT design. The relevant question for communication designers is the quality of the interaction with digital knowledge, and the way in which the quality take shape in interfaces and artifacts. Which is the meaning of design knowledge sharing? Which is the impact of tacit knowledge in design practice? How the design toolkit is changing while designers face digital knowledge? Which is the way for designing knowledge tools for practitioners? We suggest that these kind of questions disclose a wider discourse about the impact on creativity and creative practice by the new processes of knowledge production; and that this is a more and more social relevant discourse as far as new forms of primary and grassroots creative practice emerge along with the professional and traditional ones.

Therefore the research aimed to develop an understanding of the changing knowledge environment of design organizations and team-works; in order to do this it faced the effort to find a clear balance between the need and the interest towards the applied research able to achieve prototypes, and the need and the relevance of establishing, in a systematic way, the practice of observation of knowledge contexts. This challenge has been achieved by the construction of a rigorous methodological approach, that suggests the specificity of communication design as strategic skills for understanding and acting within knowledge contexts.

In the following pages at the first step we offer a systemic and coherent overview about knowledge and its relations to space, within the framework of *design knowledge space* (par. 2); then we suggested a practice approach for observation and thick description of knowledge context, based on the power of ethnography to understand local context, and enriched by the suggestion of communication epistemology that provides dialogical, reflective and cooperative methods (par. 3). Finally we will briefly present the cases in which we performed the ethnography, and will discuss a general model of design ethnography praxis for communication epistemology (par. 4). The need to explore the ethnographic question is driven by a clear and well established cue in design culture: if there is the chance of design interventions within a users context, it should be focused on the user centered design approach and it shall to start where users actually are and act. Ethnography has been approached as a method that requires a critic exploration and the effort to personally go to look and get what happens, and that suggest that any exploration demand specific tools and techniques. The methodology comes from the adoption of ethnography interpreted by designerly mindset, and it will be discussed and presented by his rigor value (method, tools and process description) as its relevance value (why it is useful for designers to understand context that they pretend to intervene into through communication design).

2. Design knowledge Space: a context for the ethnography

The idea of creative place that we analyze in literature always entwines a twofold discourse about the physical and the proxemics nature of places [7, 8], and it includes a qualitative and relational description of the ambient in which creative practice happens. Kristensen systematized the spatial requirements referred to the different phases of creative process, and he build a spatial model congruent with the creativity model by Wallas that is the main reference of any studies about creativity. This spatial model comprises the physical dimension and configuration of places with the immaterial contents and activities that flows within space: in fact, starting from a terminological distinction between place and space it includes the reference to a relational level in the place, and hint the need of a more complex definition. *«Place refers to the physical extent or territoriality, whether in the home or at work. [...] Space is the 'built environment' and includes shelter, confinement and protection [...] Although the concepts of physical, perceptual and phenomenological space differ analytically, in most situations these concepts must be seen in relation.»* [7] All the theories and structures that pretend to describe the physical model of creativity [7, 8, 9], even if they differ by features, key-points and variables, restate that the word *space* includes the idea of a cognitive level: physical space is linked to cognitive space because there is a metaphorical relation, where the physical space gives form to cognition; any cognitive process goes on within a mediating cultural and physical context. Clark refers to this saying that *«cognitive processes are embodied, environmentally embedded»* [10].

Design literature refers to this cognitive component of the organizational space as the notion of *common ground*, the cultural variable that is necessary to the distinction and the cognitive identity of groups. *«The concept of common ground, found within social linguistics and other domains concerns the contributions to mutual knowledge, mutual beliefs, and mutual assumptions that inform social and collaborative activity. Common ground representation and management is seen as necessary for the management of distributed, often quite ambiguous, collaborative design processes».* [11] Cumming studied the way in which this cognitive component appears within those organizations that do not share physical ties, so delving in to the potential of digital communities to express an equivalent strength of the cognitive level that comes from practices and true activities. He writes that *«such peer-groups have the potential, unlike non-computer-mediated social groups, of being able to explicitly represent common ground as it dynamically emerges in practice.»* [11]

In this sense the cognitive dimension is more consistent with the idea of context than that of space, because it embodies its semantic, tacit and relational value. Also Fischer suggests that there is a strong relation between the common ground perspective and the design discipline, and he argues that this link between community and common ground plays a main role in creative activities: *«Within the design research context, common ground tends to be used more metaphorically and informally than in linguistics and usually refers to the common understandings that designers bring to a design process and how these understandings accumulate within collaborative design teams as designers learn to work together. [...] The stronger the common ground is in a design team, presumably, the greater is the chance that team members will understand the meaning and context of design ideas, and be able to interact successfully on a social and technical level.»* [12]

Therefore, common ground is a quality able to determine which is the specificity of a given context, and it edges the extension of its own cognitive space. If we talk about design organizations and design contexts, common ground pertains to the collaborative dynamics, and concerns the tacit contents and processes that are implied by

any kind of knowledge intensive activity. In this sense any kind of tools requirement and design intervention resides in the need of keep track of the contents of sharing activities with the same relevance than the process of sharing itself, and observing a context out of metaphor means to directly observe and get touch of the common ground itself. *«The management of common ground is an essential aspect of collaborative design processes. In order for collaborative work to proceed, and for designers to adequately coordinate their activities, designers must keep track of their shared knowledge as it incrementally develops within the design team. Designers must construct their common ground both intentionally, as they attempt to address and solve specific design problems, and more spontaneously and unplanned, as they learn to work together as a social group.»* [12] This approach seems coherent with network practices that we previously described, and it is able to call in to question the complex system of individual resources that emerge from the use of technologies, and starting from that is able to credit the existence of a wider collective and public space of knowledge. *«The basic idea of common ground is that it is a type of shared, or communal knowledge, which can be confirmed by complex signaling behaviors between interlocutors. However, this doesn't mean that common ground resides in a common place accessible to all parties, in the metaphor of a shared database. Instead, each party of a communication act must have access to this shared knowledge through their own private cognitive resources—ie, within their own head.»* [11]

Design process is strictly connected to the context of activity, express a cooperative nature and use heterogeneous resources and mixed sources and tap into experience. Design knowledge embodies structured and codified heritages, but the most part of it continuously tie together with processes and experience. Cooperative teamwork, multidisciplinary research, idea generation activities, visualization, all of that are knowledge intensive activities that belong to the design practice and ground the design knowledge. This externalization process needs to be supported by a adequate technology, and the practice of design ICT artifacts for knowledge is just at beginning, as well as it is more and more necessary because technology is almost the one medium support to creation, preservation and use of knowledge in the framework of digital and immaterial. The field of Creativity Support Tools and Computer Supported Cooperative Work clearly explored the idea of physical space and cognitive space as a whole, and they provided and documented dozens of cases and experiments on cooperation, creation and the use of technology by groups. [8, 9, 12- 16]

On the other hand this framework currently doesn't have a specific focus on the Internet and its connective structure as technological domain that grounds creative tools, and the potential of digital technology to be an effective tools for inspiration and composition of knowledge still shall to be completely explored. This research expresses a focused interest to digital knowledge tools, by considering this kind of technology as essential instruments of the cognitive and intellectual work; then it probes a design methodology that is able to observe and keep in the tacit aspects and the behaviors of a place, in order to use as premises and inspiration of design intervention. The main goal of designing this kind of technology should be the ability to preserve and improve this relational values. *«ICT may help locate the various elements relevant to the process of knowledge sharing. In this sense, ICT does not address the knowledge to be shared itself, but meta-knowledge, i.e. knowledge about the knowledge to be shared. Meta-knowledge in one form, refers to the location and accessibility of relevant information bases.»* [17]

In this direction, useful inspirations for effective sharing technologies come from the design approach that starts questioning the reason and the motivation to sharing practice, not to shared content [7, 12,17]. The main question about knowledge and technology is not if we can use ICT to support sharing practice, that it is almost obvious,

but if we can drive ICT to influence the motivation to sharing practice, so intervening both on information than behaviors. «*Because of its fluid nature, tacit, loose and emergent character, managing knowledge sharing by managing communities requires a different approach to management than what we are used to. This implies that the role of managers will be pushed to the periphery in which their main contribution lies in the acknowledgement and facilitation of emergent grass-root community behavior.* » [7]. Therefore, the design knowledge space is the place where the field research is able to include knowledge and cognition as significant objects of observation and insights. This definition aims to ground the potentiality of a designerly approach to ethnography: design spaces where knowledge processes occur and, in a wider notion of communication systems, they represent a strategic playground for design interventions.

3. Designerly observation of the knowledge space

General inspirations to the methodology directly refer to the constructivist perspective that permanently inspires design practice [18-20, 30] and within this epistemological framework two aspects are worth being underlined. The first is the idea of *social epistemology*, in which the knowledge processes are strongly tied with contexts, groups and aggregations. Knowledge is a plural process, and the first structured approach to these concepts is referred to a special edition of *Synthese* journal, dedicated to the topic of “Social Epistemology” [21], in which is referred the concept of knowledge as a collective exploit. Internet is the practical example that is based on social epistemology, and the current technological context go back over to the *knowledge space* of Pierre Levy, that is the anthropological space for contemporary humanity and society in which knowledge has a key role, and the social ties piece together by knowledge and cooperative dynamics. The more powerful intuition in Levy’s utopia and in the framework of social epistemology is that knowledge space is not universal and convergent for the whole humanities, but it is fragmented and manifold, and necessarily local and contextual. Secondly, we considered the *subjective aspects* of constructive epistemology, that means that knowledge process are mediated by an explicit and reciprocal interference between the knower and the known; therefore techniques based on dialogue and hermeneutic analysis are needed, and the field research methods that often are connected to constructivist approach make explicit a question about the role of researcher and its placement within observation process. Constructivist epistemology widely dispute the idea of research as a neutral identity, for at least two reasons: first because intentions and purposes, value and expectations affect the representation that he is able to provide from the observed context; second, the physical presence of researcher within context, and the footprints of this presence, are sufficient to orientate and divert the observation itself. These characteristics are not problems and obstacles to understanding, but as Barry (1986) says «*it should be considered the opposite, as a means of knowledge and perhaps the only means.*»

In this perspective observation techniques have epistemological relevance because allow the 1:1 scale outlook, and are sensitive to the local spirit of each knowledge spaces. We choose ethnography to understand the local context and the multiple cuttings of creative and knowledge processes while designing. Observation aim to point out qualities of observed (context, people and relations), the way in which cooperation shapes in daily design practice, and we considered it as a creative techniques in the way it provides the premises for further interventions within the context. The specificity of the ethnographic practice by design mindset grounds on these two aspects of reflexivity and relational/dialogue, and it is theoretically supported by the Virtual Ethnography research practice [22] and the framework of communication epistemology [24], that we are going to briefly present.

3.1 Observation by reflexivity

The framework of *virtual ethnography* recently developed within social science in order to provide specific approach for the digital and further social contexts. It is a research field that emerges from the growing interest about technology and networks, the power of its social impact, the changing in behavior and relationships. Even the ethnographic research that we conduct is far from being remote (it's instead fully localized and contextual), it has been inspired by one of the premise of virtual ethnography: when Internet and ICT are the focus of our studies, it is imperative to consider it not just as a mean of communication, but as a complex communication artifact that is on the hands of individuals, and that offers to individuals the environment for organizing in communities. Virtual ethnographers aim to understand the use of Internet in the different contexts, and the personal involvement by observer is considered a helpful insight. The main interesting aspects of reflexivity in virtual ethnography are the ability of researcher to describe and include as a special kind of data also his own experience with technology, and the flexibility that is required to adapt observation practice and tools to each context, even if the different contexts are framed and singled out within a whole digital domain.

So the ethnographic journey has developed in the way of “designers observatory”, as a methodological framework with a double core: an external observation *in situ* (interested towards the different contexts and the instrumental and cognitive specificities) and a endogenous observation, that aim to reflect about the own design knowledge tools and practice. While observing and researching we, as designers, are both the subject than the object of our research hypothesis; in this sense we integrate the ethnography, as a social science method, with the basics of practice based research in which the direct and personal use of tools suggest the idea of self-test the antidotes (design research outcomes). This twofold approach to observation that is referred in social science to the concept of reflexivity, within the practitioners literature it has grounded by Schon theories, that disclose and detail the reflexive component within any kind of design activity, and stress the need to convert and use it in design practice [23, 28].

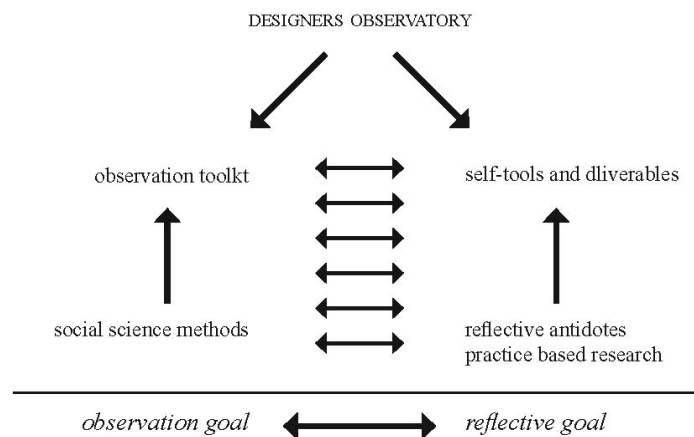


Figure.1 Structure and aim of “designers observatory” [1]

3.2 Observation by dialogue

The second inspiration comes from the theory of Mariella Sclavi, since twenty years a professor anthropologist at architecture faculty at Politecnico di Milano. She provides a theoretical outlook on ethnography and observation that is specific for practitioners mindset, considering knowledge process as a special kind of communication process. What Sclavi calls communication process extends its boundaries outside the limit of

verbal language, and it is framed and defined by a high scale of complexity. Culture is an extended communication process, as cultural behaviors are communication systems within the different social groups, aggregations and organizations. If we think to communication by the inspiration of complexity, as Sclavi says, we think over the direct interaction through language, and necessarily we contribute to more articulated perspective. This extended definition of communication rose the interest of semiotic discipline, and it developed the proxemics theories as a useful key to interpretation of physical and cognitive spatiality as a thick mean of communication [25- 27].

Basically, Sclavi suggests a perspective on ethnography as a useful tool for understanding complex communication systems, and the effectiveness of this perspective based on the main focus about relational capabilities of individuals and groups involved in to communication (the theory refers to concepts of “ascolto attivo” active listening, “autoconsapevolezza emozionale” emotional self-awareness and “gestione creativa dei conflitti” creative engagement); *«I landed on this kind of studies through a critical approach to ethnography: on the one hand I have being always convinced that if we want to understand the dynamics of a good communication, we must take a successful intercultural communication as a point of departure.»* [24] Sclavi gave a theoretical framework about dialogue as the effective strategy for understanding within complex communication contexts; it's useful to shortly describe it and point out the way this framework grounded the designerly ethnographic praxis.

Each communication system has local nature and its own specific configuration; the richness and complexity of communication come from this variety and diversity. In this framework, the acceptance and interaction with diversity are main cognitive tools, and the ethnographer has the role to build knowledge and communication bridges between individuals and within groups. This is a suggestive approach for reflection and discourse about digital knowledge spaces, that are manifold, partial and strictly local. Internet is the space for diversity, a complex context in which local and distributed knowledge heritage emerge, and cognition comes from dialogue. The hospitality to diversity is semiotic pointer of openness, of cooperative interactions, of cultural humility facing the possible collective intelligence of which each of us is actor. Also the methodology given by Sclavi to understand communication contexts is based on the crucial concept of reflexivity of observer and the listening dynamics as the key of interpretative activity (ascolto attivo/active listening); it bases on two conceptual tools, the “complex communication triangle” and the concept of “cognitive frame”.

The triangle explains the structure of ethnography of communication context: observation and interpretation are dynamic, recursive and flexible because the actors involved continuously influence and remodel communication itself. So it is a structure schema that emphasize communication as a process of relationships more than contents.

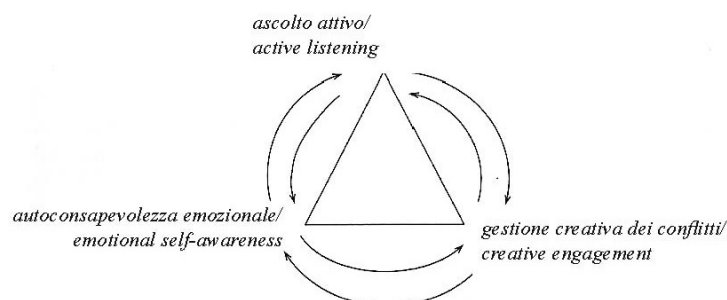


Figure. 2 The triangle model of communication epistemology [24]

Instead, the cognitive framework is the concept that describe the cultural and cognitive forewords of individuals within a communication process that directly influence the way in which we build meaning and cognitive relevant references. The cognitive frames are the key points of an efficient interpretation within a local system; they are the space where we are able to practice deeper and richer interpretative capabilities, they represent the starting point of our own interpretation process, as its limit points, the boundaries where continuously redefine the dialogue between observer and observed.

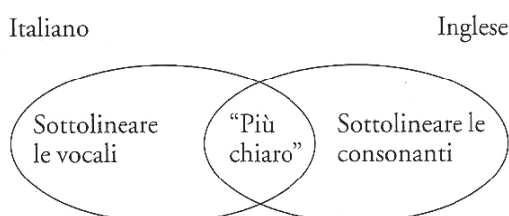


Figure. 3 The binocular schema of cognitive frames [24]

In the framework of research these theories have been relevant methodological resources for an interpretation of ethnography by communication interest. In the perspective of communication and complexity, dialogue allows the perception of tacit knowledge and the interaction with common ground. The aim of communication ethnography is just partially connected to the interest in collected data; more it is related to the interest in reflecting about daily processes of communication and new knowledge paradigm related to digital experience.

The shape of Selavi's triangle is the schema of a non-reductionist communication ability, grounded on the awareness of cognitive frames that dynamically build significance and sense within a context; it is a model useful to anthropologists to face intercultural dynamics. We gave a new shape to the triangle, as a schema of non-reductionist knowing activity and ability, in which ethnography and observation are related both to reflective than creative processes, that is useful to designers to face teamwork and cooperative dynamics.

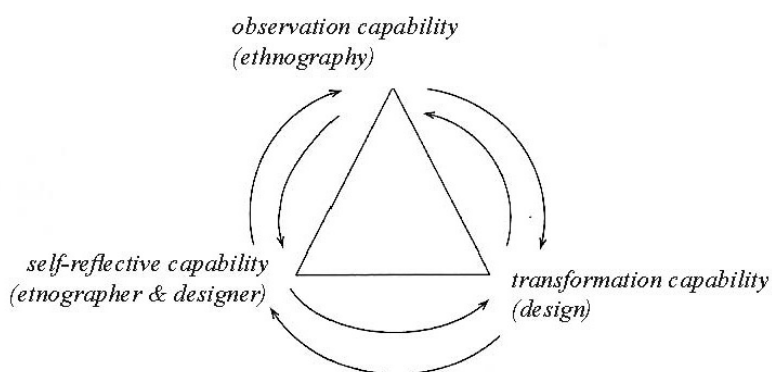


Figure. 4 The triangle of communication epistemology interpreted by design [1]

In the next paragraph we will shift from the theoretical schema of communication ethnography based on *reflective listening* (interaction phase) and the *frames drop* (interpretative phase), to the description of an ethnographic praxis that aims to empower the observation results into design interventions regarding knowledge activities.

4. Designerly intervention in the knowledge space

The metaphor and the key value of dialogue within observation and interpretation practice is necessary to shift from understanding to intervening. Context is some kind of complex entity that we can understand, as it is a

system that we can interact with and contribute to orientate by design interventions. By the designers perspective, ethnography is more than a techniques toolbox that we borrow from other research field.; in the practitioner mindset, in which transformation and innovation come both from theoretical and practical interventions, ethnography is a problem-setting skill, a way to frame the problem, and this is why “*observing and understanding*” firstly mean to be able to build a own and rigorous method. Ethnographer is a part itself of observation when he choose its research method; for designers, this mean to choose, and more often to design and build, the communication toolkit: constructing participant observation is a communication design project (of artifacts and process), that shall to consider the need of a reflective and strictly analytic activity, and the importance of a thick approach to the description of context, by the use of plural and mixed research artifacts (as visual, probes, experiments, etc). In this section we will schematically present the structure and the aim of the ethnographic framework within design organizations that supported this research; the contents are partial and for a full reference of the ethnographic material we refer to discussed thesis [1], but they are presented here as an inspiration of the *dialogical observation* performed through ethnography, and as a sample of the design ethnography tools that we are putting to test.

4.1 From theory to praxis: structure and strategy of the communication ethnography

The following table summarize the cases, the tools used while performing ethnography and their relation with the research phases.

STRUCTURE OF THE ETHNOGRAPHY				
A - INDEX OF INVOLVED ORGANIZATION:		TYPE OF ORGANIZATION:		
LS graphic design, Milan, Italy - www.lsgraphicdesign.it/		visual and graphics small studio		
Left Loft, Milan, Italy - www.leftloft.com/		visual and graphics		
Total Tool, Milan, Italy - www.totaltool.it		strategic design consultant		
Vis-up, Milan, Italy - www.visup.it/		information visualization and architecture		
Design Continuum, Milan, Italy - www.dcontinuum.com		product and strategic design industry		
CBI, Shanghai, China - www.shcbi.com/		design research and consultant		
B - ETHNOGRAPHY TOOLKIT				
	A <i>Interview</i>	B <i>Media record</i>	C <i>Ethno-diary</i>	E <i>Personal ethno-blog</i>
TARGET	understanding of the local designers' community	rich description and personal awareness about the context	backstage of the ethnography and logbook of the experience	insights and results discussion
C - ETHNOGRAPHY PHASES				
Dialogue Direct interactions	x		x	
Description Not-direct observation & private transcript		x	x	
Reflection Data analysis & discussion				x

Figure.5 The structure of ethnography [1]

The following table summarize the ethnographic strategy, that compares the theory of dialogue and communication ethnography with the specificity of toolkit by communication design intervention. This has to be considered as a short description of the research process, that aim to clarify how we interpreted the theory about *dialogical observation* in order to provide a praxis for *dialogical interventions*.

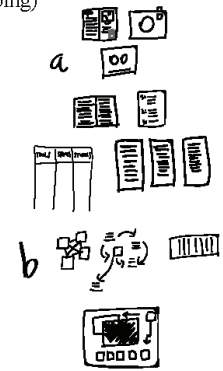
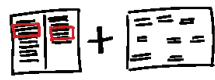

STRATEGY OF ETHNOGRAPHY				
	COMMUNICATION EPISTEMOLOGY (SCLAVI) THEORY	COMMUNICATION ETHNOGRAPHY PRAXIS	TOOLS AND TECHNIQUES	ELEMENTS
INTERACTION PHASE	The triangle model of active listening (not-reductionist communication ability schema)	Designery observation: dialogical data (not-reductionist knowing ability schema)	Context thick description; Data (text, audio, images, notebook, archives): collection, coding, manipulation, integration, discussion, backtalk, visual representation, structuring, mapping	A - Data collection (media, notebook, interviews) and B - analysis (coding, narration, structuring and mapping) 
INTERPRETATION PHASE	Cognitive frames	Designery interpretation: from dialogue to conversation	Domain broad description; Keys of interpretation (tools, spaces, stories): reflection, comparison, visual coding, fallback, systematic elicitation, analysis, synthesis, abstraction	Interpretation tools (keys of interpretation, keyword, synthesis) 
	-	Narration praxis: from observation to intervention	Ethnography practice doesn't limit to data, it need the exteriorization of results for validating ethnographic data and reciprocating results to the observed contexts.	Conversation outcomes (generalization, specification) 

Figure.6 An overview of the ethnographic strategy [1]

4.2 From praxis to model : a practical model for the communication ethnography

In the final step of the design ethnography we are discussing, we shift from techniques and methods to a more conceptual outcome. The ethnographic strategy (observation, interpretation, distribution, within the framework of dialogue) has been synthesized and schematically presented in a practical model of design ethnography for observing and acting within knowledge context. The model progressively developed on three different levels: the first to describe in details contents, procedures and options of the full process of communication ethnography; the second to abstract from details and show key-points and milestones activities of the process; the third, which is an outlined and conceptual synthesis of the observation in ethnography practiced and entwined by dialogue

and reflective practice. The need to structure and formalize the methodological insights is a necessary step at the end of an experimental process that starts from theory and recombine in to practice, and it is useful for an evaluation of the rigor of the experiment, and its relevance to be pilot. The model is here presented as a strategic and premise tool for situating design actions in the domain of cooperative tools and process related to knowledge activities; it has been used through the doctoral thesis as the groundwork of the applied research and the practical results, with the aim to approach the design of technology strictly starting from the thick description of spaces; under the circumstances of the paper is presented to be discussed, evaluated and potentially reshaped by other initiatives within communication contexts .

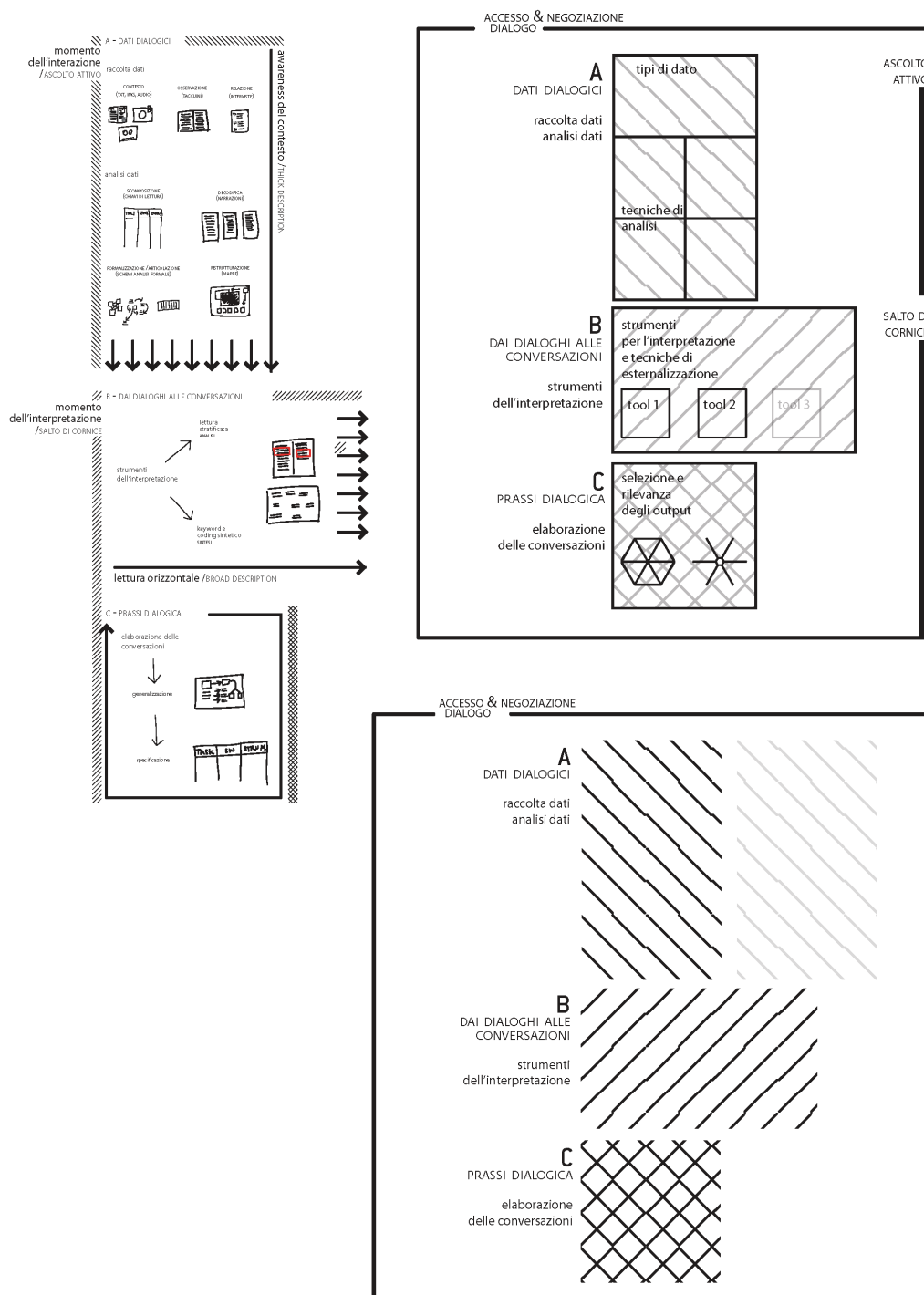
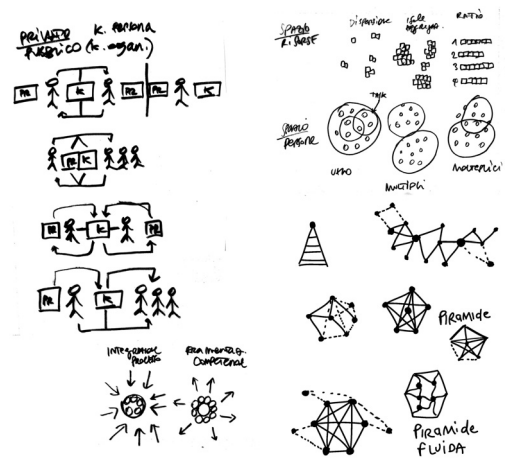
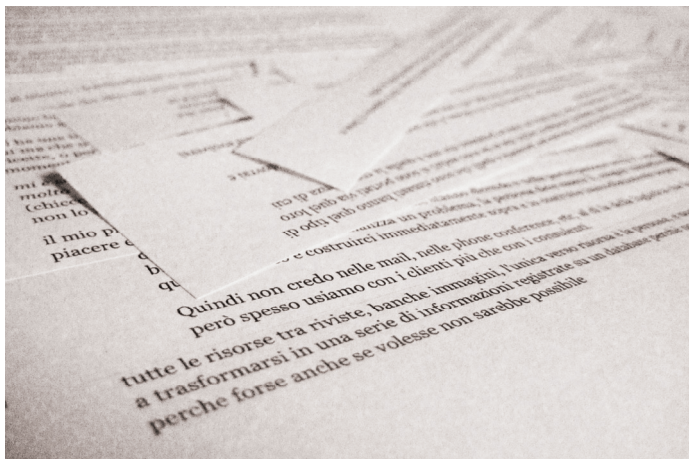
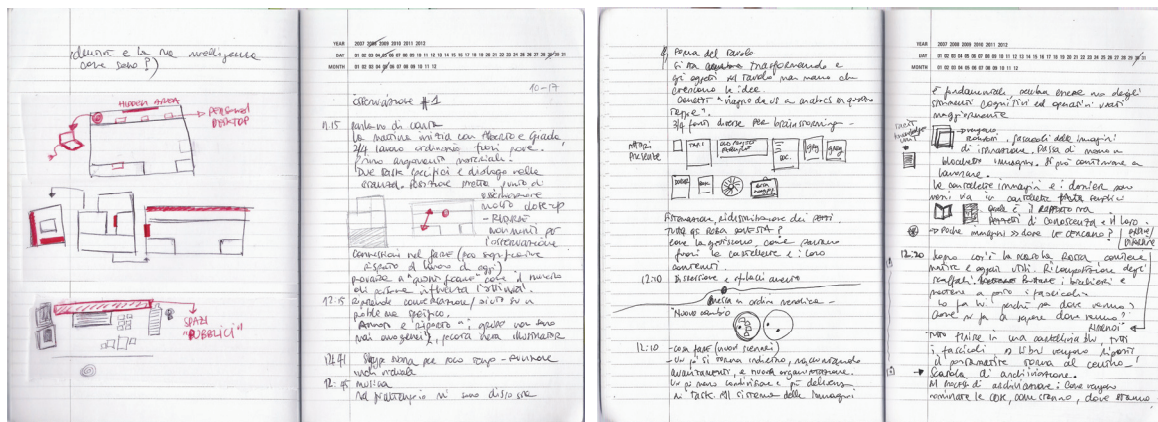


Figure. 7 a,b,c Ethnographic model, from detail description to conceptual outline [1]

4.3 From modelling to sharing: the opensource code of communication ethnography

The ethnography that here we describe tried to answer the question about qualitative and cognitive issues within the observed organizations, and the process of ethnography (observation, interaction and narration) allow us to practically come to the understanding of the space by reaching and going over the physical dimension; the theories about dialogue and communication ethnography inspired the research process and clarify its role within a wider interest for communication and knowledge systems. Ethnography practically has get to be a framework of techniques and tools for observation and interpretation of knowledge context by the practitioners mindset, and it is presented to designers as a practical approach for the design of knowledge tools.

Even if not possible to extend here the description and the contents of the whole strategy, it's necessary at the end to show samples of the materials collected and provided during the research. Here follows an almost random selection made with the basic aim to give a mark of the materials. Most of all, together with the model which is a "final artifacts" of the research, we claim to share also the ongoing contents of research, in some way the *source code* of the ethnography. Besides the procedures and methodological rules, that are some kind of "conceptual software" that we can use to do design ethnography: we suggest that insights, processes, rough thoughts are effective methodological inspirations, and in the same way than procedures and solutions, are worth openly discussing and sharing. The wider premise of this approach is the repositioning of the idea of *use value* [4,5], by the inspiration of open culture and peer production, according to the Internet education that knowledge grows and enhance by use, manipulation and sharing.



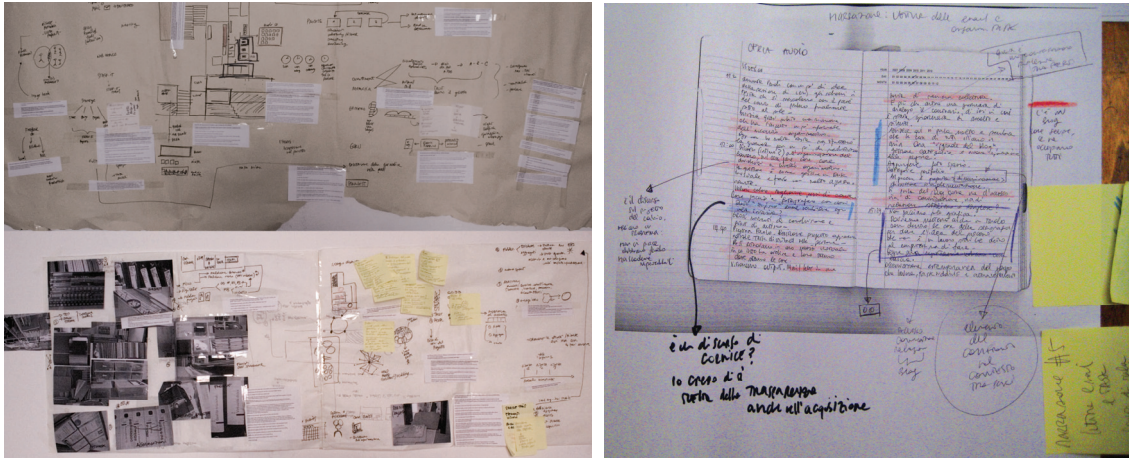


Figure. 8-13 Samples and cases of contents of ethnography and its source code (notebook, visual coding, text coding, keys of interpretations, maps, structure diagrams)

5. Conclusion

In the paper we interpret the ethnographic plan as a design research tool for the understanding and interaction with high complexity knowledge contexts. For communication design practice, the ethnography is not considered merely as a techniques toolbox that have been borrowed from social sciences, and put forward by slightly raw hands of design researchers. Design rhetoric refers to the ability and the purpose of design thinking and culture to act transformations; ethnography is a way to face problem setting through research tools that consider observation and dialogue as the necessary design premise.

The model of communication ethnography based on dialogue and supported by communication artifacts allow designers to practice qualitative observatories of collaborative knowledge contexts and to exercise a rigorous and specific approach to observation and discovery (method, tools and process) as premise for design interventions within the technological and instrumental environment. The communication design artifacts and strategies have been called into question about the ability to provide thick and aware perspective in the space and places where creative and knowledge activities occur, and the relevance of particular methods by design discipline relies on the agreement between the process of building methodology and the reflective practice.

What we call design knowledge is definitely far from being a predictable output of closed process of creation. Through this, without the interest towards a thick understanding of the context, the ground and the complexity of its creation, we might run the danger of wasting all the meaning that entwines knowledge to creativity.

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Without the open participation and the willingness to dialogue by the involved design organizations, any kind of ethnography could not have been possible.

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