

Deep Trust in the Future of Community Informatics

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1. INTRODUCTION

When conducting research or design projects, the need to answer our research questions or to get "publishable" research results can lead researchers and designers to pay insufficient attention to the social sites in which the research is grounded. Richard Heeks (2008) for example, attributes the failure of many ICT4D projects to their failure to surmount contextual challenges with a strong partnership with those in the application site, let alone reorient their work towards the needs perceived by those in the site. Other examples include technology intervention projects that take their technologies away when they leave, despite the dependencies on the technology developed by those in the site. Or design projects that fail to account for contextual factors, rendering their results of less use by those in the development situation. Research agendas should not simply use people and communities for their interest and give little back.

How can we engage in community-based technology projects in a way that is both enriching for people from the community and for researchers? That is a challenge for research in Community Informatics (CI), to avoid dealing with people as merely our "research subjects" and consider them to be people with whom to share a common path, despite coming from different histories and going ultimately in different directions.

The reflections on this challenge we present in this paper are based on our experience in two research projects. In both cases, the CI researchers faced particular problems in gaining trust from the community members with whom they wished to interact. Trust is a common problem in CI research projects, and what we focus on in this paper is the need to move from a generic notion of trust-which might accept the researcher as an acceptable nuisance-to what we define as *deep trust*, something that transforms the relations between the researcher and the community into a more longstanding *relationship*, through which the researcher effectively becomes part of the community.

The social science research tradition of Community Studies has since its inception focused on roles of social relations (pattern of interactions) and social relationships (shared world views and common projects) in communities, especially how the former change into the latter. Trust plays a major role in this transformation. In our view, it also plays a key role in the building of a *relationship* between the researcher and the community, as she moves from a sincere, empathic desire to do some good with her work (necessarily based on her own values) to having goals shared with those in the community.

These ideas emerged from reflecting on our roles in two CI projects. In one, Parra engaged with community members in a participatory development process, while in the other, Nemer played a key role in listening to and engaging with the community members. These activities opened up the possibility for a bottom up process, creating deep trust through researcher activities with the

community members. These relationships of deep trust continue even after the end of our work in the research fields.

By examining how scholars studying communities, CI researchers can gain significant insights into the mediating roles of both social structures and technologies within the communities with which they work. Examining the role of human relationship in CI research, we focus here on how we moved from just interacting with community member to having relationships with them that can reach beyond the initial CI intervention.

In Section 2, we describe the theoretical grounding of our research, framing our understanding of communities, informatics and the role of trust, drawing heavily on Community Studies (CS). In Section 3, we present the field sites of our research and design projects, located in Brazil and Italy. In Section 4, we discuss how the key to the success on both field sites was the creation of deep trust between us-CI researchers-and community members. In Section 5, we conclude by summarizing our ideas regarding the challenges and alternatives, returning to how CS dealt with trust to help to face the challenges that CI will face in the future.

In a nutshell, we have learned how important it is to ask ourselves the following question at every step of the research process: How might a proposed activity be reshaped so that it contributes more to building and reinforcing the community (i.e., to making it more dense)? In following this approach, the main contribution of this article is the nuanced accounts of trust building (e.g., the importance of gatekeepers, the role of empathy, etc.), or the turning of *relations* between researchers and community into *relationships*.

2. COMMUNITY, INFORMATICS AND TRUST

As is often the case in interdisciplinary fields where research and practice are intermingled, there are many views about what CI encompasses. As "a way of talking or thinking about ... Information and Communications Technology (ICT) ... that are [sic] available for use in and by local communities" (Gurstein, 2007), CI is often "concerned with electronically *enabling* communities" by "structuring collaborations between researchers and practitioners" (Community Informatics Research Network [CIRN], 2010). Thus, CI has a dual focus that includes conducting research on one side (e.g., to gain understanding about the relationship between ICT's and communities) and implementing ICT projects in communities on the other (Stillman & Linger, 2009). In this latter case, they can take, for instance, the form of a community network that "facilitate[s] the development and management of information and activity in a proximate community" (Carroll, 2014).

A similar concern on bridging the gap between theory and practice is addressed by Engaged Scholarship (Van de Ven, 2007). Van de Ven proposes a form of participative research aimed at creating deeper and more insightful knowledge that would then be the basis for an effective communication between researchers and practitioners. Originally proposed for overcoming the gap between theory and practice in the social sciences and more specifically in management research, Engaged Scholarship has also gained attention in the area of information systems (Mathiassen & Nielsen, 2008). While this approach seems to be well suited to research where power is shared between researchers and stakeholders, it downplays the social dimension by focusing mostly on the production of (more effective) scientific knowledge. Our reflections connect with the relational aspects of Engaged Scholarship by stressing, in addition to mutual respect and collaboration (Van de Ven, 2007), the relevance of trust between researchers and community members.

In our view, CI thus also has also an interventionist, even social movement dimension, as it is viewed as "a new but necessary way of approaching Information Systems" representing an "evolutionary advance on traditional systems by integrating them with the dynamism and adaptability of life as lived in organic communities" (Gurstein, 2007). Gurstein also emphasizes "the development of productive relationships with communities that engage their talents and

interests in a way that does not involve technological determinism or colonialism by stealth" (CIRN, 2010).

In our own practice, we have seen how this "way of thinking" about informatics being applied or used in and by "organic communities" almost invariably depends upon the development of productive "relationships" with (and also within) communities. CI does not only take place in communities, but it also often helps develop and reinforce them. It is in this context where, from the researcher's or designer's perspective, gaining and sustaining the trust of the community becomes one of the key factors for projects to succeed. In our work, we observed how trust fueled the development of these relationships, which in turn was key for the process of community building. But can this understanding be grounded theoretically? What exactly do we mean by "organic communities" and how does this relate to the process of building relationships? What theory should inform and frame our understanding of the importance of trust in community informatics?

2.1 Building the Community

Being able to say what makes a community "organic" must be central to those who would center CI on the study of "really existing" communities in digital technology-mediated conditions. One needs to be precise because, as Gurstein (2007) argues, there is such a vast array of ways in which CI is used. Moreover, in everyday speech, "community" is used in so many different ways that one is tempted to think it merely connotes "something good." Thus, we cannot rely on popular discourses to give us an operational definition on which an academic research field can be built. For such an operational definition, we believe one can turn instead to the debate over community in Community Studies (CS). This Twentieth Century scholarly tradition is not only a strong part of social science; it is also the part of these fields, which has been more or less continually the most conducive to ethnography. This is at least in part because the field was founded on the use of anthropological field techniques to study smallish population centers (e.g., villages and small cities) in complex social formations. As we used ethnographic techniques in our projects, CS is a good starting place for this reason as well.

In CS, the term "community" has been mostly used in one of three ways. The simplest was to refer to a geo-political entity larger than a kin group but smaller than a region of a state. The Lynd's *Middletown* (1929) is about what went on within the city of Muncie, Indiana, while Lloyd Warner and colleagues, in their studies of *Yankee City* (Warner, Low, Lunt & Srole, 1963) bounded their study by the city limits of Newburyport, Massachusetts. Both were in the USA, where cities as such have formal standing. The importance of this usage is that the boundary of the city was taken to be the boundary of the relevant social universe, just as the boundary of a village was so taken by Malinowski (1932) and his ethnographic followers.

However, this first CS "community as geo-political entity" view was also typically presumed to imply something more; specifically that a distinctive set of social relations was characteristic of each such geo-political community, a set whose borders thus corresponded to those of the political unit. It was the dynamics of such social relations in Newburyport that Warner, et. al. (1963) saw as hierarchically manifest in interactions. For example, one could identify really existing social patterns typical of an Upper Upper Class person in relation to those of a Lower Lower one. While the Lynd's didn't use Warner's terms, they describe social relations in Muncie in similarly stratified terms.

Not only did people tend to interact more with those sharing their class; their interactions with those of other classes were similarly patterned, and, irrespective of their class, everyone tended to place the same people in the same classes; that is, they shared a community-based "social map." In this way, just as this second "shared sense of social relations" was presumed to be implicit in the first, geo-political notion of community, a third usage based on this second one was also implicitly inferred. Not only were there distinctive patterns of social interaction in each community. The shared social map was dense, so much so that one could presume a general

mentality, a *Weltanschauung*, even a shared moral universe. Further, congealing around this shared moral universe were social relationships, that is, not only did people relate to each other in patterned ways; as some of this relating became more dense, it also became more durable. Such relationships were so highly patterned that one could speak of social roles and norms, and hence of a community-based social structure.

It is these durable relationships based on a shared view of the world that Ferdinand Tönnies (1887) took to be characteristic of the traditional village's friendly *Gemeinschaft* (typically translated as "community"). He opposed this to the less personable *Gesellschaft* ("Society") typical of the large city, with its multiple world views based on cross-cutting social relations more than relationships. Thus, already in the 19th Century, "community"-talk had taken on a positive, even nostalgic valence, certainly in contrast to "society"-talk. Such a valence can be perceived in Gurstein's implicit contrast between real, "organic" and presumably false, "inorganic" communities. This hankering after something like *Gemeinschaft* came to be characteristic of applied community studies, including the "community organizing" carried out by Barack Obama as a law school graduate.

In sum, the key CS methodological presumptions are 1) that communities tend to be socially autonomous, 2) that they typically manifest stratified, social relations/patterns of social interaction, and 3) that much of their sociality takes place within social relationships based on shared, characteristic worldviews. The intellectual tasks of CS can therefore be summarized as, in any "medium sized," geo-politically distinct "community," identifying

1. The *social relations* (regular patterns of interaction);
2. The *social relationships* (reflected in and based on a shared world view) which were normal or typical of the community; and
3. How and when the first turn into the second.

Consequently, a basic "fault line" in CS differentiates between perspectives in which passage from relations to relationships is presumed to be "normal" and those for which this passage is problematic, even unlikely. After the foundational period, CS evolved, becoming marked by a back-grounding of concern with the first (geographic unit) usage of "community" while maintaining attention to when and how the second tends to become the third. Thus, from studying cities/towns, CS researchers moved to the study of particular ethnic, racial, and gender groups, and to document, whatever their political geography, the relationship patterns and worldviews that they clearly share. Others studied occupational groups (most recently, as "communities of practice") and then what later became known as "sub-cultures." It is this last form of CS that has arguably had the most direct influence (although this is seldom acknowledged) on analysis of "online communities," which is in turn arguably the most developed part of CI. Subculture Studies is clearly the form of CS into whose concepts and categories studies on online communities have most easily fit. Like sub-cultures, online "communities" have no particular geopolitical identity. Similarly, regularly repeated actions are taken as evidence of social relationships. Thus, Facebook or Second Life participants, or World of Warcraft guild members, can be treated as examples of (or be treated as similar to) sub-cultures or quasi-occupational groups. These are categories of people/avatars whose patterns of interaction are substantially denser than those not in the categories, as well as among whom a world view might be more shared than by those outside it.

2.2 On the Importance of Trust (A Brief Literature Review)

Following the previous section, "community" can be seen as something that is more an achieved than an ascribed social attribute. Even when already there, community continues to be built, hindered or empowered. This is the basic social practice that mediates CI interventions. Indeed, as Carroll (2014) points out, "the challenge of community informatics" is not only to explore, but also to cultivate and disseminate "active roles for local communities in shaping the future of information technologies as community technology". He adds that "participation" is one way to

make this possible, that "effectively including and engaging community members in participatory design research projects in community informatics will require a continuing commitment and ongoing effort."

This connection between on-going community development and CI interventions is important. It is central to understanding when CI practice and research actually helps to bring about the achievement of community, as well as what the ethical stance of researchers must be in order to develop relationships with the community. Gaining and later sustaining trust from the community is, we argue, key for participation to become possible.

In research literature, trust is often introduced as one of two key components of the broader concept of *social capital* (Oxendine, Borgida, Sullivan & Jackson, 2003; Pigg & Crank, 2004; Simpson, 2005), with the other component being civic engagement (Oxendine et. al., 2003). Understood as "the norms and social relations ... that enable people to coordinate action to achieve desired goals" (World Bank [WB], 2007), social capital is seen by some authors as one of the key features that communities possess, albeit to varying degrees (Oxendine et. al., 2003; Coleman, 1988, 1990; Putnam, 1993, 1995). Oxendine and his colleagues (2003) summarize social capital in terms of social trust, "...the individual-level internalization of norms of reciprocity, which facilitates collective action by allowing people to take risks and to trust that fellow citizens will not take advantage of them."

Among the problems associated with the "social capital" notion are its tendency to compel every relation into being viewed instrumentally. This is a manifestation of a general tendency to view all social relations in those terms favorable to the reproduction of capital, whereas a large part of what makes an interaction "trust-worthy" is the extent to which it is *non*-instrumental. Another problem more closely relevant to our concerns is that the kind of trust involved in social capital is perhaps best termed "shallow trust." Consider, for example the cases of community crisis defense often described by Putnam, as when volunteers fill bags of sand to protect against flooding. In such situations of obvious need, it doesn't take much trust to join in. We are talking instead about the kind of extensive trust that involves much more, the open trust required to commit to a relationship wherever it ends up going. Extrapolating this to the CI context, it is deep trust that is required if community members are to take the risk of engaging with CI, a conclusion documented in several surveys by Oxendine et. al. (2003) and by our experience in the field (Parra, 2012, 2014).

Another research tradition where the importance of building and maintaining trust relationships with the community has been highlighted as a key factor for conducting community-based research is *community-based participatory research* (Christopher, Watts, McCormick & Young, 2008; Story et. al. 1999; Teufel-Shone, Siyuja, Watahomigie & Irwin, 2006). This research tradition, an extensive presence in community-based health research projects, finds the root of its ethical stance in *Participatory Action Research (PAR)*. PAR itself is the result of the combination of principles from two different research traditions: Action Research (AR) and Participatory Research (PR). AR can be defined as "supporting and engineering change as an integral part of the research process" (Robson, 1997). It was introduced in the 1940s into the social sciences as an "approach toward social research which combined generation of theory with changing the social research system through the researcher acting on or in the social system" (Susman & Evered, 1978). PR has its origins in the 1970s, in the work with oppressed groups of people in developing areas, and it is characterized as a type of research wherein people of the community or workplace control the entire research process, including identifying the problem to be studied (Hall, 1981).

The *participatory* aspect of PAR changes the power relations that exist between researchers and community, redistributing it and making it more democratic. It is also more challenging, especially if the community does not trust the researchers or the research process. For some, this can often happen when "research is conducted 'on' rather than 'with' the communities" (Oxendine et. al., 2003). For Carroll & Rosson (2007), the participatory aspect, specifically *participatory design* in their view, is manifest distinctively in CI because of its strong embrace of democratic ideals

(Schuler, 1996). In sum, the challenge of facilitating the real participation so important to CI has to relate to community as an achieved endeavor, something from which researchers and practitioners cannot escape. They, too, must become part of the community, transform *relations* into *relationships*, which in turn requires building and sustaining trust. This is the importance of trust.

3. DYNAMICS OF TRUST IN TWO COMMUNITY INFORMATICS RESEARCH SITES

The reflections in this paper are informed by two main community-based research and design projects, organized in different corners of the world. Here we present the field sites, in order to provide context for later discussion of the role deep trust played in our work.

3.1 Marginalized Communities in Vitoria, Brazil.

The first of the two field sites in this paper was the neighboring favelas of Gurigica, São Benedito, Bairro da Penha and Itararé? located in the city of Vitória, capital of the state Espírito Santo, Brazil. Favelas are considered "wrong" places for studying technology because they are outside the main economic, technological and political centers. Although they are peripheral, studying such "wrong" places helps us to learn much about places and their persisting importance in today's "knowledge economy" (Takhteyev, 2012). Like other urban slums, favelas are typical unauthorized and informal urban settlements. They are areas occupied by squatters, often lacking public services or urbanization. The absence of the state in favelas, allows the emergence of non-state armed groups which control drug dealing and use violence to enforce contracts and maintain power (Ferraz & Ottoni, 2014). They maintain the order in the favela by enforcing their own laws. The drug lords are respected by the residents because they create an environment in which critical segments of the local population feel safe despite continuing high levels of violence (Nemer, 2015).

Nemer conducted his CI ethnography from April to October, 2013. The fieldwork focused on two LAN houses (Life Games in Itararé and Guetto in Gurigica) and two Telecenters (one in Itararé and one in São Benedito; see Figure 1.) He visited two CTC's per day five times a week, and then switched to two different CTC's the following week. This weekly CTC swap continued until the end of the fieldwork, which optimized the time in each CTC and allowed the researcher to reach a larger and more diversified user population. He observed user activities in these CTC's and conducted 56 in-depth and semi structured interviews with CTC users (14 interviewees from each CTC). The participants visited the CTC's at least twice a week. Thirty participants were female, and 26 were male. Regarding age, 35 participants were between 15 and 24 years old, and 21 were between 24 and 45 years old. The research focused on the motivations, engagements, and adoption of ICT's by marginalized people in CTC's. It emphasized the socio-cultural aspects of ICT's practices among marginalized people and attempted to understand such aspects and practices from their perspective.

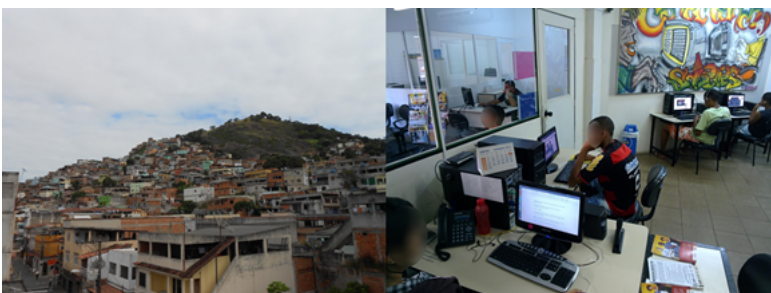


Figure 1: View of São Benedito from Itararé and the Telecenter of Itararé

Since the beginning of favelas, outsiders have perceived them as sites of violence and drug trafficking, where the residents are favelados: uncivilized, poor, lowly educated, and culturally sterile (Alves & Evanson, 2011). This perspective is shared among the majority of people in the upper classes. Nemer grew up in Vitória and was also part of the large group of outsiders that

believed that the city's main source of evil came from the favelas. This strong class-ist prejudice was heavily reinforced by media reports, in which favelas mostly showed up on police blotters. In essence, the discourses he was immersed in did not speak well of favelas, whether it was in conversation with family or friends, news reports, soap operas or the government discourse. Despite all the bad reputation, he felt appealed to by the struggle and social injustice suffered by favela residents, which led him to a less derogatory view of the favelas. As he became more acquainted with the favelas through the years, he realized that something was wrong. There was another side of the story to which most people were not giving the attention it deserved. Favelas could still be violent places, due to drug cartel activities, but their residents were not culturally sterile or uncivilized. Quite the contrary, they were savvy and fully human;ⁱ there was as much to be learned from them as they could learn from those in other classes. Still his interest in the favelas and in telling the "untold side of the story" stayed latent until he performed his ethnography.

During the time of this study, he lived at home, where he was raised. It was close to the research site, just 20 minutes walking or 1 mile away from Itararé. His home was located in an upper class neighborhood. In spite of its closeness to the favela, he was unfamiliar with the area of study. However, this created a useful distance that, when combined with the empathy of his approach, allowed him to see beyond what would be considered mundane or uninteresting at the site. Whilst he studied in schools in Brazil that followed western educational models, he was still surrounded and influenced by the local practices and situated knowledge, which goes beyond Western standards. He was aware of the differences of power and status that his background brought, being male and upper class. Collins (1991) refers to this approach as "the outsider within" positioning of research; sometimes in the field or sitting in on a research meeting, it felt like inside-out or outside-in research. To alleviate the barriers that such differences may have caused, he approached his informants as what Rubin and Rubin (2011) refer to as "conversational partners": He listened to the informants with an open heart and mind, and he kindly received what they had expressed and told him. (See Figure 2.) His motivation was not to judge, but rather to understand, during which he actively thought about what was being expressed and was deeply engaged. This dynamic avoided the back and forth replay of question-answer-question that ethnographers sometimes conduct (Madison, 2012).



Figure 2: Second author interviews the favela residents.

In order to gain access to the community and the CTC's, Nemer first approached the community's charismatic leader and the manager of the Telecenters. After gaining their trust, the community leader introduced him to the LAN house owners, while the manager of the Telecenters helped him meet with the Inclusion Agentsⁱⁱ. He observed that the favela residents felt more comfortable with him after he told them he knew the community leader, Telecenter manager, Inclusion Agents and LAN house owners, who all belonged to the communities and were admired and well liked there. Most of his interactions with the informants in the CTC's happened in front of a computer. As a way to gain their trust and return the favor of sharing their life experiences, he showed them more about using the computer, smartphones, the Internet, and other applications. Sharing information was not a condition for him to help them. He approached them by bringing examples and cases related to their context. As suggested by Freire (1970), these people were more motivated to learn when they studied subjects that related to their everyday life experiences.

At first, his being inside the favela was an issue for different groups of people. He observed that the word "research" stirred up silence, conjured up bad memories, and caused distrust. Favela residents mentioned being approached by previous researchers as "guinea pigs," which implied excessive class-ism, rude questions, and condescending power. The research, instead of benefiting them, reported outcomes, which classified and represented their life experiences according to the researcher's perspective; Favela residents did not identify with how their "stories" were being told and felt exploited. Smith (2012) claims that many researchers may see the benefits of their particular research projects as serving mankind, but they become oblivious to their practices and cause harm to indigenous communities by framing outcomes from the vantage point of the West. As suggested by Smith (2012), critical and post-colonial researchers have the ethical obligation to represent marginalized communities according to their terms, respecting their history, values and beliefs. Representation has consequences: "how people are represented is how they are treated" (Hall, 1997). Hence, Nemer "resisted domestication" by using the resources, skills, and privileges available to him to make accessible-to penetrate the borders and break through the confines in defense of-the residents' voices. He strove to provide a fair and empowering account of favela residents, whose stories were otherwise suppressed (Madison, 2012). Telling the "untold side of the story," through the lenses of those who have been suffering the consequences of marginalization and exploitation, would promote their recognition as human beings who deserve respect and recognition for their values and beliefs.

3.2 Seniors Community Center in Northern Italy

The second field experience on which we based our reflections took place in the northern Italian province of Trento. Parra and D'Andrea engaged in two parallel long-term community-based research and design projects within the same community of local and active senior citizens. They were between 60 and 80 years of age and actively participated in a cooperatively managed community center for older adults, the CSA "Kaleidoscopio".

Of the two long-term projects, the first was known as the Laboratory of Technologies. It was started in 2012 (Parra, D'Andrea & Giacomini 2012) and was still continuing at the time of writing of this paper. The laboratory consisted of a weekly encounter, where members of the community and the researchers engaged in mutual learning about a myriad ICTs (a word editor, a blog, email, social networking tools, etc.) previously selected by the community. The second long-term project started in late 2012 and finished in early 2014 (Parra, D'Andrea & Hakken, 2014). Known as Reminiscens, it started with a series of participatory design workshops. In these, researchers and members of the community engaged in co-design sessions, using low-fidelity prototypes, collage activities and focus groups, to design a tablet application that supports conversation around personal memories. The participatory design phase was followed by a field study that brought together 10 couples of older adult narrators (7 of whom were part of the community) and younger listeners in sessions of social reminiscence, assisted by a first implementation of the previously designed tool. The research side of these long-term engagements resulted in a corpus of data comprised of observational field notes, pictures, audio/video recordings, usage logs of the tool we designed, and questionnaires about subjective well-being and social interactions. All of these grounded reflections about the experience led Parra's and D'Andrea's perspective to go from seeing the community as a source for research to seeing the research activities as an important means to build community (Parra et. al., 2014).

When they approached CSA Kaleidoscopio, their research interest was to explore social relationships and interactions as one of the key factors affecting humans' health and well-being (Umberson & Montez, 2010). As social informatics researchers, they were interested in, first, gaining understanding of how information and communication technologies might play a role in fostering senior citizens' social interactions and relationships, and, second, designing ICT's for this purpose. To get started, however, they needed to find ways to narrow such overly broad research questions and design goals, to be sure that what they were doing was both ethically attentive to the needs of seniors and was productive research.

Parra and D'Andrea began by organizing several workshops where some individual elders and the researchers collaborated in using certain "new ICT's" (e.g. devices like tablets and applications for communicating or visualizing maps). While this allowed them to observe how older adults interacted with technology, they realized that this was not a sufficient research approach. The workshops gave them hints about usability challenges, as well as some idea about what might interest seniors, but they offered a rather narrow window for observing social interactions and needs. In other words, they did not allow identification of new opportunities for social interaction that ICT's could afford and sustain, nor did they reveal the needs of the community of the elderly with which they had become involved. However, the workshop experience made it clear that the technology did provide an excuse for dialogue, a ticket-to-talk (Svensson & Sokoler, 2008). The real value of the activity was the possibility of face-to-face social interaction and of fostering community with the people in the room.

In this way, their research became an exploration of how they could establish a more regular engagement, one that would take advantage of the value of *company for community* in order to create a better space for research, while also contributing to interactions among community participants. To accommodate these goals, and to follow personal interests in *participatory design* (Ehn, 1992; Carrol & Rosson, 2007) as a methodological and ethical stance for research and design, they contacted the community center "CSA Kaleidoscopio", asking to collaboratively create a space for this engagement to occur. Weeks of communicating back and forth between researchers and the managers of the community center made it clear that they were not interested in "yet another research project." Consequently, looking out for *community building necessarily* became the most important aspect of our activities.

Following these interactions, the *Laboratory of Technologies* was created, in which seniors actively chose what they wanted to learn, while a group of researchers taught them what they wanted, as well as the basics of using computers. Only then did the managers of the community feel comfortable enough with the research to *transfer to the researchers the trust seniors vested in the managers*. During the lab, Parra and D'Andrea indeed learnt many interesting things related to their original research (Parra et. al., 2012), but they also realized that their research was itself being reshaped by the interaction with the community, even that the community interaction was driving their research. They went from exploring general ideas about how ICT's could enable active ageing to exploring more concretely how technologies could enable seniors to actively engage in their local communities, mainly through face-to-face social interactions. In searching for social interaction opportunities, they had inadvertently *created one*.

Participants in the laboratory went from learning how to turn on the computers to blogging. They established new friendships and became more active in center activities. Beyond learning and research, the laboratory was a space where *community* was being fostered.



Figure 3: Brainstorming topics for the laboratory and laboratory sessions

The success of the laboratory as a space where community was happening made it possible for Parra and D'Andrea to gain the trust of the community. Realizing how important the face-to-face contact was made them want to explore opportunities for more social interaction, and so they proposed new activities. One such opportunity was *reminiscence in a social context* (Webster, Bohlmeijer, and Westerhof, 2010), collectively revisiting and sharing past memories. This led them to envision a tool that would allow seniors to share their life stories in a conversational context,

and they invited the community center participants to help them design such a tool. This time, instead of the back and forth interaction or detailed negotiation over what the activity should entail, community participants trusted them enough to say immediately, "Yes, we want to participate."

Almost all the laboratory participants came to their first *participatory design (PD) workshop*. During a very interesting and active afternoon, the seniors tested some of the designs of the research group and the paper prototypes that had been prepared helped them brainstorm further about a *social reminiscence* tool. The workshop was *interesting*, because the encounter between researchers and the community played out as a full-fledged intergenerational exchange, rich in insights. It was *active*, because it produced a highly interactive set of conversations, where all the participants engaged and contributed actively with their ideas, without any fear about voicing their opinions, up until the end of the afternoon.



Figure 4: Creativity and collaboration in the Participatory Design Workshops, and final "Books of Life", created by community members in reminiscence sessions using the tool designed in the workshops

The richness of both the interactions and the insights we obtained from this workshop surpassed by far those we had gotten from the first workshops we had organized. Then, the role imposed on participants was much more passive; there was no *creativity-oriented* activity involved. In the PD workshop, the *community* made its presence felt again; it seemed to grow stronger as participants understood that their role was fundamental to our project.

This PD workshop was a tipping point in our work. We realized then that our research and design activities were not only methods to answer research questions; they were also *drivers of community participation*. This is a feature of many projects in community-based research, examples of which can be found in Tinkler (2010), Stillman (2005) and Stoecker (2005a, 2005b). From that point, we articulated our research as informed by a robust *community informatics* approach, one in which community dynamics seriously shaped the research and design process, questions, and goals. Research and community building, two different and equally valid agendas, came together in this setting and reinforced each other. The *community aspect* requires researchers to surrender a lot of control and be open to changes in direction, but doing so results in an interesting and highly interactive process, one where research supercedes its original purpose and becomes truly a discovery process.

At this point, Parra and D'Andrea also became aware that the work required a deeper understanding about how to intermingle these two agendas in a mutually beneficial way. We wanted an understanding of the dynamics of the community sufficient for the project to become *research and design WITH the community*. Thinking of *community* as an achieved rather than ascribed social attribute, and given recognition of how their activities depended upon its form and level, we started to think that research and design should not only be conducted in concert with the community. They should also contribute to the achievement of community. This meant asking ourselves the following question at every step of the research process: How might a proposed activity be reshaped so that it contributes more to building and reinforcing the community (e.g., by making it more dense)?

From that point, the project developed a back and forth rhythm, one where the paths of research and community were at times very close, while diverging at others. The community was no longer a field lab where research and design took place, but rather it consisted of acts of social construction to which research and design actively contributed. We were designing through community informatics. It is only from there on that we could really talk of our project as

participatory action research, as an initiative in which research and design were conducted with the community (as opposed to on it).

4. DISCUSSION

Communities can be defined in terms of physical aspects such as their geo-location (Gurstein, 2007) or on their social aspects, which connect community members' actions. According to Narayan & Cassidy (2001), such social actions are comprised of seven aspects: group characteristics, norms, togetherness, sociability, connections, volunteerism and trust. Putnam (1995) points out that trust increases cooperation: the greater the level of trust within the community, the greater the likelihood of cooperation, the end result of which is enhanced trust among members. Nahapiet and Ghoshal (1998) emphasize that, over time, a culture of cooperation tends to surface among a trusted group of people, which can then be further strengthened through more social interactions. When CI implements ICT's in order to accomplish communities' goals, such ICT's tend to be perceived as arenas that enhance capabilities for trust building (Eubanks, 2007). When developing ICT's, Gurstein suggests (2007) that CI should follow a bottom up approach, one in which the local community identifies a need or a possible application and then begins a process of "working with those with the requisite skills to respond to or satisfy that need[,] always within a context where the local community is in control and is directing the process of its own technology enablement" (p. 64). However working with CI researchers, referred to by Gurstein as "those with the requisite skills," is not as straightforward and simple as one might think. It requires trust building, since, as is the case of the authors' studies, many CI interventions are developed along with outside researchers. In order to promote a bottom up approach, the CI researcher needs to put herself in the community and cooperate with its members. In the CI literature, many studies call for things such as, "ICT's as enablers of members' trust" (Saeed, Rohde & Wulf, 2011; Mohd Yusof & Hashim, 2014) or "community trusting ICT's" (West, 2006; Eubanks, 2007; Graham, 2005). However, little is actually known about how to "create trust between CI researcher and communities." We believe that the noteworthy contribution of this article is its nuanced accounts of trust building, or, as indicated previously, the process of turning relations into relationships.

The authors in both cases used an active methodology to build trust with community members. In Trento, Parra first gained the trust of community gatekeepers, so that trust could be demonstrated to community members. Community building and trust shared the same path: the more he was engaged in the community, the more he was part of it, and the more his research and design activities intermingled with each other. A fundamental aspect of his engagement that strengthened the trust relationship was always providing something tangible for the community. With the laboratory, this took the form of learning new skills every day; with reminiscences, in the form of a book containing their life stories.

In the favelas of Vitória, Brazil, Nemer carried out an ethnography informed by commitment and compassion. He immersed himself in the culture by placing the community at the center, letting its members define what lives were to be valued. At first, he observed that performing "research" in the favelas stirred up silence, and bad memories, causing distrust, due to the residents' past experience. However, in order to overcome such barriers, as well as his personal privilege, such as being male and upper class, he approached the informants by treating them as "conversational partners." Listening carefully and engaging with the favela residents' issues, and explaining that helping the community was part of his research, enabled him to gain their trust. Also, as most of the conversations in the CTC's happened in front of a computer, explaining how to use the digital machines and applications also became a way to gain their trust and return the favor of sharing their life experiences.

In both cases, the key to gaining trust with the research informants was to first create a relationship with the "community leaders," who were charismatic and well liked by community members. Also, in both cases, there was not a simple utilitarian outcome but rather a more general empowerment, one defined by the community and not by the researchers. The fact that

the researchers were more interested in "hanging out" and helping the informants, was also important in creating relationships. As suggested by Mohd Yusof and Hashim (2014), periodic face-to-face meetings and activities, which was what both researchers did with their informants, enhanced social interactions and built trust. Although both researchers had larger goals for the community, immediate "givebacks", such as help with the ICT's, opened channels for turning relations into relationships. Givebacks can be seen as that part of trust, which is essentially "transactional," theorizable in terms of what anthropologists call "balanced reciprocity" (Sahlins, 1972).

Achieving balanced reciprocity is not an easy endeavor. It is very situational, depending of the context and re-negotiated each time one re-enters the field. Moreover, while givebacks were a key aspect of our research projects, another was to maintain a modicum of open-endedness regarding project results. Much as in making friends, the end-goal is not defined or closed, as it is always in flux. Turning "field relations" into a "relationship" requires researchers to become members of the community, new "friends." The field relation does not disappear, but it gains a new dimension, one that unavoidably shapes the CI project itself. A good metaphor to express this process is that of paths. At the beginning, the research (and/or design) path is far from that of the community. As the project advances in time, and trust is progressively built among researchers and community members, the paths come together, intermingle, and change each other, taking both to unexpected places. In our experience, being attentive to the needs of the community was fundamental to ensuring that these unexpected places were also positive for all.

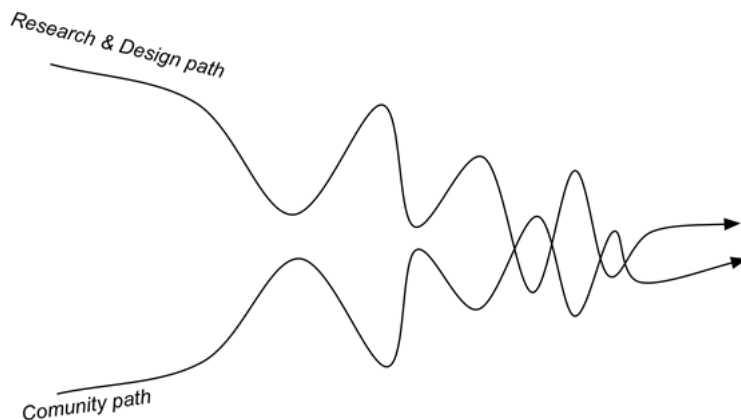


Figure 5: Research and community paths progressively coming closer, intermingling, becoming more like shared paths as both researchers and community members turn their relations into relationships

5. THE LANDSCAPE OF CI'S FUTURE: CHALLENGES AND ALTERNATIVES

In the preceding sections, we focused on the role of deep trust in two different CI projects. One combined ethnographic study with participatory design and implementation activities in a senior community center, while the other centered mostly on ethnography of computing in a poor, marginal community. In both cases, it was necessary to develop relations of trust, but this was not enough. Relations of trust had to develop into *relationships* of *deep* trust. This necessity, in light of the differences between the two projects, suggests that deep trust, including relationships likely to extend beyond the explicit period of the study, is probably central to a broad range of CI projects.

We can put this point about deep trust and CI research and practice a bit differently by drawing attention back to a primary intellectual focus of a related academic research field already discussed, that of Community Studies. The intellectual focus in CS is often on the question of under what circumstances the limited social relations of regular interaction turn into the open social *relationships* characteristic of strong, stable, influential social groups. That is, when does a network of social interaction become a strong, durable, dense network, even a group. Equally important is the obverse: Under what conditions do social relationships deteriorate into mere

social relations? These questions are about turning the relationship of communities of social interaction to communities of social relationships.

It is in this way that the two projects discussed here link directly to this key CS issue. They suggest strongly that in such projects mere interaction with one's informants/collaborators needs to be transformed into social relationships-ones of deep trust-if the research objectives are to be achieved. On the one hand, this means that CI research is directly relevant to the primary CS focus listed above, that we in CI have some experience directly relevant to CS. Additionally, experience in long period CI projects like these is relevant to another question high on the CS agenda, the extent to which digital mediation is correlated with changes in the social relation/relationship dialectic.

Yet the obverse also follows from the projects' demonstration of the importance of developing relationships of deep trust: That CI has much to learn from CS. Especially the ethnographic studies of community have much to suggest about the relative range, strength, and forms of community, and how community is mediated, whether by social structure, language, ethnicity, or technology. Not only has ethnography been the preferred research method in CS, from the earliest studies of *Middletown* (Lynd & Lynd, 1929) and *Yankee City* (Warner et. al., 1963) on through its densest period in the 1950s and 1960s. Ethnography has also been central to the large number of interventions characteristic of Applied Community Studies, many of which grew out of 1906's era urban renewal. These also presented much of the data which informed the creation of community organizing as a practice and profession.

In our view, there is a general commitment among people in CI to combining 1) an understanding of specific community' dynamics and 2) interventions aimed at making such communities better. The first is also characteristic of CS, so we in CI have much to learn from the careful ethnographies at the heart of Community Studies. An additional benefit of a CI informed by CS follows from the interest in this field that has come back to prominence through the study of virtual, online, and hybrid communities (e.g., Boellstorff, Nardi, Pearce & Taylor, 2012). CI also has much to learn from the interventions characteristic of earlier applied CS, just as it has much to contribute to its revival in digitally mediated environments.

CI research techniques also share much with another research area, action research (Lewin, 1958). The most obvious point of similarity is the shared orientation toward problem solving. This is not a necessary component of CI, but help in dealing with problems (in our two cases, around ICT use) is a common basis on which trust is built in CI projects. The need for deep trust and a shared orientation toward solving problems is another correlate of the second, "intervention" orientation of CI that we stressed. In many cases, this may mean doing CI research feels much like "choosing sides," with attendant problems of possible bias in findings. In our view, the best defense against such distortion is also deep trust. It is only from this position that it becomes possible to disagree about analyses regarding what to do about a problem.

Achieving "deep trust" has long been recognized as a necessity for good ethnographic work, and the two CI field experiences discussed here suggest that this will continue to be a necessity for much CI work. Ethnographers have known for a long time that the trust must extend beyond the time and space boundaries of the specific project, and they recognize this as something that both makes fieldwork more humane and also maintains opportunities to revisit the field at a later date. This truth has re-emerged in CI interventions like that in Trento, but with a new focus. Not only do we often feel that the *human relationships* need to survive the end of the project, as they often do. The new dimension has the do with the technological artifacts. Specifically in Trento, would the Senior Center get to keep the tablets? This is one of many practical issues that arise in quite cathartic form in CI.

In short, there are many reasons for a closer relation-indeed, a *relationship*-to develop in the future between Community Informatics and Community Studies. CS can give to CI a different time horizon, essential to distinguishing those correlates of use of a digital technology that are of

its essence, from those that are a contingent quality. A contingent quality that is only a function of newness will disappear, but it is hard to tell if a correlate is essential or contingent in the moment. We in CI need to be able to deal with time, and the long horizon of CS has much to suggest. CI's commitment to interventions also has much to suggest to a revived applied CS; indeed, it may well become the central focus of the revival of this field. CI has a bright future, to become even brighter if it makes a strong connection to CS.

ENDNOTES

ⁱSee Freire, 1970/2000, p. 55.

ⁱⁱInclusion Agents are the people responsible for taking care of each Telecenter, promoting computer related workshops and classes, and helping the users.

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