

Researching and Designing through Community Informatics: Lessons from Participatory Engagement with Seniors

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Abstract: This paper discusses a two-year long project involving a group of senior citizens and the social center that they frequent which we gradually came to think of as *Community Informatics (CI)*. The initial goal of project was to develop *information and communication technologies (ICTs)* that foster active ageing through inter-generational social interactions. The breadth of this overall goal, plus the heterogeneity of the target population (i.e., “the elderly”), meant that much initial energy was put into “scoping down” the project, to arrive at research questions and goals that were specific enough. Our reviews of the several relevant literatures, as well as some exploratory work, helped us to focus on socializing within face-to-face contexts, but we still felt a need to ground the project more in reality, to create a more concrete design space in which to work. To get this, we become actively involved with a community of older adults, in order to get first hand experiences of their needs and expectations, which could complement the literature- and design-based knowledge already attained. What started as a general exploration of seniors’ expectations of and perceived challenges regarding ICTs evolved into a long-term participatory engagement, in which seniors and researchers formed, sustained, and participated in co-learning, co-designing, and co-researching. Here, we reflect on how we gradually came to see our project as an example of CI, *Participatory Action Research (PAR)* and *Participatory Design (PD)*. We describe the different activities and methods we used, including i) a continuous laboratory for learning ICT skills, ii) a series of participatory design workshops, and iii) a field study about IT-supported social reminiscence using the system participatorily designed. We conclude with the most important lessons we have learned from our approach, lessons for both studying CI and designing ICTs, in terms of benefits, pitfalls, challenges and opportunities for the future. Our overall goal is to contribute to the discussion of guidelines and good practices for CI research and design projects.

Keywords: active ageing, community informatics, participatory design, participatory action research

Introduction

In what was a seminal publication for us, at the CIRN Conference two years ago, we reported on our project to foster community participation of senior citizens through participatory design and ICT training (Parra et. al., 2012). While for one of us (the primary fieldworker, Parra), experience with these approaches was somewhat limited, they were chosen based on a “gut-feeling” intuition that they would lead to answers to our research questions. What at that time we did not foresee, however, was that the original activities we organized following our intuition would become a *long-term community informatics (CI)* collaboration. Our research itself became the center around which engagement took place, where our *research and design efforts* were intermingled with an ongoing “*community building*” process through new forms of engagement. Although not initially intended, we came to see that we were *designing through community informatics*, using a community-based project as a research and design laboratory.

In this paper, we first reflect upon the two years of participatory engagement subsequent to our initial paper and discuss its implications. We begin by providing a few paragraphs summarizing the whole project, with the aim of providing some context. We then present our initial approach to the community, and the research questions that motivated this approach, followed by a section where we ground this discussion in a comprehensive overview of what

we have come to understand about CI throughout our experience. Next, we describe how the rest of our research and design activities were influenced by this new understanding, emphasizing how these activities were implicated in the process of *building and reinforcing the community*. We conclude with the most important lessons we have learned from our approach for both studying the correlates of ICT use in a community setting and for designing ICTs in such a context through the establishment of a community-based participation. Our overall goal is to contribute to the discussion of guidelines and good practices for CI research and design projects.

Context

The work and reflections we present in this paper stem out of two parallel long-term *community-based research and design* projects, both conducted in the city of Trento in Italy, within the same community of local and active senior citizens, aged between 60 and 80 years old; who are actively engaged in participating of a cooperative-managed *services center for older adults* (the CSA). Additionally, the *initial interactions* that triggered the previously mentioned long-term engagements refer to a series of informal workshops where a group of individual older adults, living in a retirement community, collaborated with the researchers in using some “new ICTs”.

Of the two long-term engagements, the first is known as the *Laboratory of Technologies*, which started in 2012 (Parra, 2012) and continues still at the moment of writing this article. The *laboratory* consisted of a weekly encounter where members of the community and researchers engaged in mutual learning of a myriad of 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, 2013). Known as *Reminiscens*, it started with a series of *participatory design workshops*, where 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 adults *narrators* (7 of which were part of the same community) and younger *listeners* in sessions of social reminiscence, assisted by a first implementation of the previously designed tool.

The corpus of data that we collected throughout these interactions comprises *observational field notes, pictures, audio/video recordings, usage logs* of the tool we designed and *questionnaires* about subjective wellbeing and social interactions. The reflections that follow are based mostly in a *grounded-theory inspired* analysis of this data, and on the informal discussions of the authors of this article regarding the long-term engagement as a whole.

Community for Research and Design

When we started our project, Europe was in the midst of a “European year for active ageing and solidarity between generations¹”. The term “active aging” refers to a rather new understanding of the ageing process, which is now to be seen in terms of *opportunities* rather than only *limitations*. On active aging, especially in developed countries, the old “needs-approach” to ageing, thinking of elderly as the people who just need care due to their limitations, is to be replaced by a more positive “rights-approach” that seeks to improve and create new opportunities for security, health and participation as people age (WHO, 2002). This global cultural change comes along in a world whose population is both rapidly ageing and living longer. An estimated 1.2 billion people worldwide will be over the age of 60 by

¹ <http://europa.eu/ey2012/>

202. There will be 2.0 billion by 2050, when 80% of them will be living in developing countries (WHO, 2002).

Our research was based on the premise that social relationships and interactions are key factors affecting humans' health and well-being (Umberson, 2010). As social informatics researchers, we were interested in, first, gaining understanding of how information and communication technologies (ICT) could play a role in fostering senior citizens' social interactions and relationships, and, second, designing ICT for this purpose. To get started, we needed to find ways to narrow such overly broad research questions and design goals, to be sure that what we were doing was both ethically attentive to the needs of seniors and was productive research.

Initial Interactions

As reported earlier (Parra, 2012) we began by organizing several of workshops where some individual elders and the researchers collaborated in using some "new ICTs" (e.g. devices like tablets and applications for communicating or visualizing maps).



Figure 1: Initial exploration workshop

While this allowed us to observe how older adults interacted with technology, we realized that it was an essentially naïve approach. A couple of workshops would give us some hints about usability challenges and maybe some ideas of what can potentially interest seniors, but they offered a rather narrow window of observation for social interactions and needs. In other words, they were not enough to identify the new opportunities for social interaction that ICTs could afford and sustain, nor were they attentive enough to the needs of the community of elderly we had involved. However, from the experience of the workshops, it was also clear that technology could provide an excuse for dialogue, a ticket-to-talk (Svensson, 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.

Community for Research

In this way, our research became an exploration of how we 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 still contributing to interactions among the community participants. To accommodate these goals, and following a personal interest in *participatory design* (Ehn, 1993) as a methodological and ethical stance for research and design, we contacted a local *Community Center for Older Adults*² to collaboratively create a space for this engagement to occur (see also Carroll 2007). Weeks of communicating back and forth between researchers and the managers of the community center made it clear that

² Elderly Services Center of the Social Cooperative *Kaleidoscopio*:
<http://kaleidoscopio.coop/index.php/ita/I-nostri-servizi/Centro-Servizi-Anziani>

they were not interested in “yet another research project.” Instead, looking out for *community building* became the most important aspect of our activities.

Following these interactions, a *Laboratory of Technologies* was created, in which seniors would actively choose what they wanted to learn, while a group of researchers would teach them the basics for using computers as well as what they chose. Only then did the managers of the community feel comfortable enough with the research to *transfer to us the trust seniors vested upon them*. During the lab, we indeed learnt many interesting things related to our original research (Parra, 2012), but we also realized that our research itself was being reshaped by the interaction with the community, even that the community interaction was driving our research. We went from exploring general ideas about how ICTs 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, we had, inadvertently, *created one*.

Participants in the laboratory went from learning how to turn on the computers to blogging (which continues today³). 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 2: Brainstorming topics for the laboratory and laboratory sessions

Community for Design

The success of the laboratory as a space where community was happening made it possible for us to gain some trust from the community. This in turn allowed us to propose new activities, ones based on potential opportunities for more social interactions that, after realizing how important the face-to-face aspect was, we wanted to explore. One of such opportunities was *reminiscence in a social context* (Webster, 2010), collectively revisiting and sharing past memories. We envisioned a tool that would allow seniors to share their life stories in a conversational context and invited our community center participants to help us 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 us enough as to immediately say “Yes, we want to participate.”

Almost all the laboratory participants came to our first *participatory design (PD) workshop*. During a very interesting and active afternoon, they tested some of the designs of our research group and, using the paper prototypes we prepared, helped us brainstorm further the *social reminiscence* tool we envisioned using. *Interesting* because the encounter between researchers and the community played out as a full-fledged intergenerational exchange, rich in insights about this type of engagements; *Active* because it resulted in a highly interactive set of conversations, where all the participants engaged and contributed actively with their ideas, up till the end of the afternoon and without any fear to voice their opinions.

³ <http://contradalarga.wordpress.com/>



Figure 3: The first participatory design workshop

The richness of the both the interactions and the insights we obtained from this workshop surpassed by far those we had gotten from the first workshops we 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 for community participation*, a feature of most projects in the field of community-based research (for some examples see Tinkler, 2010; Stillman, 2005; Stoecker, 2005a and Stoecker 2005b). From here on, we began to articulate our research as informed by a robust *community informatics* approach, one in which community dynamics seriously shaped our research and design process, questions, and goals. Research and community building, two different and equally valid agendas, come together in this setting, and reinforce 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 surmounts its original intended purpose and becomes a true discovery process.

At this point, we also became aware that our work required a deeper understanding about how to intermingle these two agendas in a mutually beneficial way. We wanted to have a sufficient understanding of the dynamics of the community so that our project could become *research and design WITH the community*. The field of *community informatics* (CI) seemed to offer an excellent perspective through which to articulate this kind of project. Therefore, it became our goal to understand CI and to see if it could help us.

Our View of Community Informatics

How the relationship between computing and change is manifest in community dynamics has been a matter of interest for some time. For example, Dowling, et. al., examined it from an activist perspective in *Computers for Social Change and Community Organization* (1991). Antonia Stone, a school teacher in New York City, had already set up a community technology center (CTC) to provide training and contact with other CTCs. Stone started “Playing to Win,” which evolved into CTCNet⁴.

As a distinct academic field, however, Community Informatics (CI) is rather new, its agenda still in formation. This CIRN conference is an important part of creating the new field. Nonetheless, Michael Gurstein, among those most influential in creating it, characterizes his most highly cited piece on CI as only “...An *Introduction* to my thinking about...CI...” (Gurstein, 2007; emphasis added). He frames the piece this way, “...because at this stage in its early development[,] CI represents a number of different things to different people.” He goes on to list these different views of CI, as:

- 1) “...A way of talking or thinking about a particular set of Information and Communications Technology (ICT) tools that are available for use in and by local communities...”

⁴ See the <http://ctcnet.org/>

2) "...a form or methodology of Community Development that happens to use ICTs rather than blackboards as a primary means for facilitating community communications....",

3) "...a way of formulating and integrating the use of ICTs as an instrument for economic and social development into more mainstream Information Systems thinking and research...", and

4) "...the beginnings of a 'movement' by means of which ICTs are appropriated by the marginalized to realize a new role for themselves in the Information Society."

Gurstein sees CI as including a bit of all of these, but, at its most basic, "...CI is about a new but necessary way of approaching Information Systems and in fact represents an evolutionary advance on traditional systems by integrating them with the dynamism and adaptability of life as lived in organic communities" (p. 9).

In so framing CI, Gurstein encourages those who write about CI to be self-consciously reflective about what the concept should mean or at least how they themselves are using the term. For himself, Gurstein locates CI firmly within the field of Social Informatics (SI). If we take "informatics" to be the study of digital technologies in use, then SI becomes the study of the ways in which social relations and digital technologies shape each other in use, as well as the integration of what is learned about this co-construction into the development of Information Systems. "Community Informatics" would therefore be the study of certain social correlates of digital system use, those connected to what Gurstein calls "organic communities."

It is indicative of the theoretical development of CI that Gurstein does not feel compelled at this point to address what makes a community "organic," "natural" presumably as opposed to an "inorganic" or "artificial" community. However, being able to say what makes a community "natural" 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 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 as to tempt one to think it merely connotes "something good." Thus, we cannot rely on popular discourses to give us the 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., small cities) in complex social formations. As we used ethnographic techniques in our project, CS is a good place for us 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 et. al., 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 (e.g., 1925) 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 geo-political community, a set whose borders moreover also 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 in relation to a Lower Lower one. While the Lynd's didn't use Warner's terms, they describe social relations in Muncie as similarly stratified.

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 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 world views. 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 (based on 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.

The evolution of CS after the foundational period was marked by a backgrounding 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 world views 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 geo-political 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 and among whom a world view might be more shared than by those outside it.

When the connection between CI and the intellectual pedigree of the CS tradition is recognized, it becomes easier to see the problematics toward which CI is oriented, although as most only implicitly so. Doing so also helps us see how CI shares the problems implicit in CS presumptions. One problem is the initial assumption that the boundaries of a geo-political unit encompass all the social relations and relationships of import. This presumption is on its own doubtful. However, in the absence of such a unit (as in Subculture or Online Community Studies), how is the unit of study to be bounded? If the presence of a particular pattern of relations or relationships is taken as boundary setting, doesn't this make community study tautological? The assumption of a boundary is always questionable, even with the most isolated groups; in "cyberspace," where "space is increasingly decoupled from place" (Dourish, 2006) it is clearly faulty. What is to serve as the primary unit boundary if not the geo-political unit? Bureaucratic authority and self-identification are alternatives, but neither is generally satisfactory: the former removes all individual agency, whereas the latter makes it all powerful.

A second problem concerns the presumption that most of the relevant social interactions are manifest within the "social relations" of a community. The problems with this presumption are the same as those that make the term "sub-culture" of not much technical use. It certainly does not hold for gamers and social networkers, for whom gaming and networking are unlikely to be their primary activity. How, then, is the importance of some actual online social relations to be assessed, even understood? (This is a primary reason why ethnographers, with the exception of Boellsdorff (2006), have been generally reluctant to limit their studies to online behavior only.) The third problem follows from this: If "cyberonauts" actual social relations are decidedly multiple, how can one identify important *relationships* that are shared and world view concepts that are a) central and b) based on these relationships?

What sharing these problems implies is that the problems central to CS are shared by CI, can even be said to constitute their underlying "*problematiques*." For both, the existence of community in the second (relations) and especially in the third (relationships) sense must be demonstrated, not assumed. Community (other than in the simple, #1 sense) is an achieved rather than an ascribed social attribute, something created through social interactions of certain types rather than something whose presence can be assumed. In online ethnography, as there is no bounded geographic unit to be treated as "natural," for community to exist, there must be some practices that tend in the direction of creating a meaningful "wall" around areas of dense social interaction, when "networking" come to clearly resemble "grouping." (Difficulty in identifying when these exist is a central problem for studies of online networking.) A demonstration of patterns of inter-action, the preoccupation of on line networking studies, is not a demonstration that the patterns are meaningful, nor, generally, of how meaningful they are. Their "emergence" needs to be demonstrated, not just presumed. Further, if one wants to talk about "community" in the most fulsome sense, the analyst must also demonstrate that significant relationships and shared world views, even if only over restricted arenas, correlate with patterns of social interaction. Finally, from an applied perspective, one wants to know which online practices seem to correlate with building community, with turning social relations into relationships.

Our Project: Research and design *with* the community

There is of course another part of CI, that which is concerned with the implications of online activities for the dynamics of offline community, as well as visa versa: the implications of offline community for online community. This was the aspect of CI that we found ourselves dealing with most directly in our project. During the first participatory design workshop described there, it became clear to us that our intended research and design activities could not continue ahead without thinking of *community*. Given that *community* is

an achieved rather than ascribed social attribute, and given recognition of how our activities depended upon the form and level of it, we started to think that, not only should they be conducted in concert with the community, but also that they should 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 (i.e., to making it more dense)?*

From that point, our project became a back and forth process, one where the paths of research and community were at times very close, while diverging at others. Figure 4 is an abstract representation of how this process worked. For simplification purposes, research and design share a line. As the project moved forward, the distance between the research/design and community building paths were progressively reduced, as was also the time between the moments of close coincidence. The *community* was no longer a field lab where research and design took place, but rather a social construction to which research and design was actively contributing. We were *designing through community informatics*. It is only from here on that we can really talk of our project as a *participatory action research and design initiative* by which research and design was conducted *with* the community (as opposed to *on*).

In this section, we follow up the description of our project, emphasizing how the *responsiveness to community dynamics* shaped our activities.

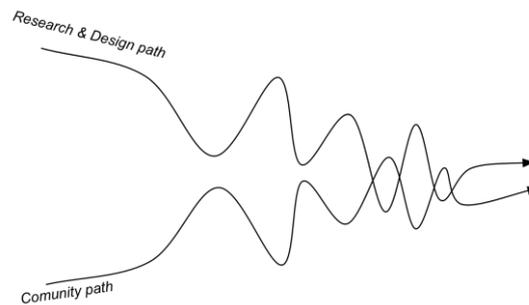


Figure 4: Designing through community informatics

Participatory Design Workshops

Starting from where we left off in the second section, being responsive to the dynamics of the community shaped each of the participatory design workshops that followed the initial one by converting them on creative activities by which participants were contributing to the creation of a tool *for the community*. These workshops were the most challenging part of our project. Our goals with them were both to deepen our understanding of the topic we had chosen to design for (social reminiscence) and to iterate our design with the help of the community. Almost all the participants of the laboratory were also participants of the workshops, which we think were seen as an *extension of the laboratory*, where they had the chance of keep on learning (i.e., how to use tablets). Workshops were yet another activity where the community was developing.

For some participants, the workshops were also seen as an opportunity for saying “*thank you*” for our service in the lab, by helping in our design effort. The high level of attendance from participants of the lab was an indication of how our *relation* with the community was becoming a *relationship*.

In trying to be attentive to this reality, we placed special attention in each workshop to create an environment where creativity and constructive collaboration could also further develop relationships within the community. Groupwork was organized in ways that could deepen the connection between people who were already developing one. Similarly, we tried to maintain the same group of volunteer facilitators working alongside the same groups.



Figure 5: Creativity and collaboration in the Participatory Design Workshops.

Despite our efforts, however, there were also breakdowns. For example, many participants missed what their role was after the third workshop. This led us to adjust our program and introduce *comeback moment* in the workshop that followed, where a video was shown emphasizing their contribution to the project. The comeback is an example of adapting the research program in response to the dynamics of the community.

Participatory design workshops were also a place where intergenerational engagement flourished. All the volunteers who helped during the workshops were university students whom the participants did not know a priori, and yet they engaged with them in highly engaging and open ways. This is surprising considering that many personal stories were told during these workshops, which were oriented to design for social reminiscence. We can argue that, as it happened with managers of the center, who transferred the trust vested upon them to us; we did the same for volunteers. Participants trusted them because they trusted us. Other interesting reflections about these workshops are published in Parra et. al. (2013).

The Reminiscens Field Study and the Reminiscens Books

Following the workshops, and after we implemented a prototype of the tool we have co-designed, we went on to evaluate it with the community in a real usage scenario. For this, we organized a field study that brought together intergenerational couples formed by one or two older adults (as *narrators of stories*) and one or more younger volunteers (as *listeners of stories*) into social reminiscence sessions supported by the tool we co-created (*Reminiscens*⁵). The tool supported the digitalization of physical pictures and provided multimedia stimulation in the form of contextual music videos and pictures from the past. The original goal of the study was to evaluate the potential of the tool to stimulate intergenerational engagement, but following its development, the goal became more and more to understand how such engagement could be sustained over time for the benefit of the community, *with or without the IT in the middle*. Again, our research was being reshaped by the dynamics of the community, whose members saw a real value in the interactions the study was fostering. *The study was in itself a place for community to happen*.

To be attentive to the community, the study was designed in a way that it would also have a community comeback, which in this case took the form of physical books that included the stories that were shared during the reminiscence sessions. And to be attentive to *extended community* and *managers of the center*, a special book was created, including a selection of stories, chosen by the participants, and that was delivered to the center as a *global comeback*.

The impact of the dynamics of the community in our research is most notable at this point, comparing what the research questions we actually ended up pursuing with respect to the ones that motivated the research in the first place. We started big, trying to understand what was the general role of IT in the broad spectrum of *active ageing*. We ended up exploring the specifics of how *IT supported social reminiscence* could create an opportunity for intergenerational engagement. The community pushed our research and grounded it to the local context, and yet, it still provided a simple answer to the more general question: the goals

⁵ www.reminiscens.me

of active ageing can be accomplished with the support of IT, *if it carefully considers the dynamics of the community.*



Figure 6: IT supported social reminiscence sessions.



Figure 7: Community Comeback: the Reminiscens Books and the printed Fearless Cards in Italian

The Laboratory

To close the circle, our initial and star activity was also redefined by the community: an initiative that was first intended to last a couple of months, became a regular offering of the seniors community and, interestingly, half of the original participants remained active. *The laboratory was the community* (at least for this half). As we moved forward, we observed how the most enjoyable and most community reinforcing activities were those that favored creativity and work in pairs or teams. In trying to be attentive to this realization, the last edition of the laboratory (during the 2013/2014 winter) was focused on using *creativity* and *doing* as the principal strategies for learning.

Inspired by a project we got to know during the 2012 CIRN's conference, the last edition of the lab focused on translating and recreating the *fearless cards*⁶, a deck of computer usage, bilingual, guiding cards designed to “help underserved communities such as Hispanic day laborers overcome emotional barriers to learn computer and Internet use” (Gomes, 2013). The cards were used as triggers for both learning and collaboration. Once they learnt how to use Google Translate to translate the content of the cards to Italian, each session of the laboratory centered on reproducing the cards using OpenOffice Presentation. By doing this, they progressively acquired new skills while developing a collaboration culture with the group, which extended beyond sessions, in meetings that were organized by themselves at the Seniors' Center. The fact that they were creating something that was going to be used by the extended community was a powerful motivator of the interactions.

At the end of the lab, the translated cards were printed and delivered to both the participants (who did the work) and to the extended community, where they are now available to others. *Creativity* and *doing* served not only as vehicles for learning, but also to create something of value for the community, giving participants a sense of purpose that further reinforced their *relationships*, helping them to strengthen their *community*.

⁶ <http://www.fearlesscards.org/>



Figure 4: Using the “Fearless Cards” to motivate creativity, collaboration and learning by doing.

Implications and Discussion

Implications of our project

The narrative of our research and design project follows the same trajectory of interest to studies of community, that of social *relations* becoming *relationships*. Our commitment to *participatory design* principles, coupled with our research interests, led us to become closely involved with a group of people, already part of a bigger *senior center community*. As these seniors became more closely involved, we were able to do *participatory action research*. Along the way, project activities inadvertently became ways to increase participation in the community, both building and reinforcing it. When we noticed all this, we recognized that we needed a better understanding of what community entails and explored how technology could help make our research more attentive to it. *Community Informatics* provided us with a term for the kind of thing we were doing, as well as examples and concepts that helped our project achieve greater responsiveness and what we came to call “deep trust.” Perhaps the most important outcome of our project was that the goal of *active ageing* was also realized through community members becoming more *actively and easily engaged* with the research and design efforts that surrounds them.

We also learned that adopting this approach was not easy. Being attentive to the needs of a community *shaped and reshaped* the project as it proceeded. In addition to demanding a research program that was *highly flexible*, the approach also required assembling a *multidisciplinary team*. Building and sustaining relationships with the community implied an extra effort in every single research and design activity (e.g., getting calls to provide tech support out of the work schedule, staying for longer after activities at the senior center, reshaping these activities in order to be attentive to the community, etc.). The approach often meant a great deal of adapting to context change (from *technical* to more *social* activities). The greater *time* required for the project to unfold also became a challenge, not only “working” time, but also calendar time.

On the down side, the extra effort reduced the time available for pure design or deep analytical activities. Changing context so often some times affected individual productivity, another reason for well established multidisciplinary teams. In our project, the fact that the main contacts remained the same gave the stability needed for relationships to develop, but these contacts themselves had to develop *interdisciplinary* abilities with which to bridge between the languages and narratives of the different disciplines involved in the project.

Another feature of our adopted approach relates to the process for gaining and sustaining *trust*. Our project was only possible if the community trusted the researchers, and this trust was only won through responding to the needs of the community. There are two key moments that were challenging in this regard: the *entrance* to the community and *exit* from the research. We gained entrance to the community through the *transference of trust*, winning the trust of those in the staff upon whom seniors of the center already trusted. When arranging to exit, we had to keep in mind that, having developed relationships, we would never *fully* leave the

community, even if we moved geographically. One can exit *from the role of researcher* and end the project. The important thing is to make sure there are explicit moments of project *closure*, but there are also moments of personal *comeback to* the community, in at least some of which community members must be able to see real outcomes from research and design, outcomes like *research papers* but not only these.

Broader implications for community informatics

For the broader *community informatics* community, our “deep trust” approach has several implications. For example, it highlights the promise of CI research that directly benefits communities by building and reinforcing them. This kind of CI often aims directly to *achieve community* (i.e., to form, build, and sustain it). Fostering active ageing is one domain to which this is relevant; fostering civic participation may be another. We also think it likely that the *long-term engagement* engendered by “deep trust” projects, in which researchers themselves developed relationships with a community, has additional benefits. This approach opens doors to other research projects and future collaborations, some independent of the initial researchers. The approach bridges organically to traditions and methodologies whose incorporation into it could substantially improve CI. Two additional to Community Studies were drawn on directly in our project. *Participatory Action Research* (PAR) reinforced our willingness to bring community members into the process of articulating research goals and methods, while *Participatory Design* (PD) justified bringing them directly into discussions about which computing artifacts to work with.

One key message of our paper is that *community informatics* (CI) can be done in a deep trust way that *takes community seriously*--that is, is attentive to the dynamics of the community, shapes research and design activities to contribute to the continuous growth and development of the community, and reinforces the process by which *relations* turn into *relationships*. Another message is that doing deep trust CI is not easy, requiring more time and effort. For example, doing CI in this deep trust way probably makes it unavoidable that researchers themselves develop *relationships* with the community, becoming members of it and advocates for its development. Nonetheless, we think the benefits of deep trust CI are so substantial that the onus should be on those who would not do it this way to justify their choice.

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