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**Prospecting Requirements
for Online Communication in
Social Network Systems**

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Abstract. The Inclusive Social Network (ISN) *Vila na Rede* is being developed in a conjoined action with community leaders, end users and researchers from diverse fields of knowledge. The features of this ISN are being designed to support the needs of these social groups in a way that it makes sense to them and that it is part of their reality. In order to better understand this reality, the 6th Semio-Participatory Workshop of the *e-Cidadania* Project: "System and Methods for the Constitution of a Culture mediated by Information and Communication Technology" was held and one of its activities was concerned with the investigation of communication mechanisms for social network systems. This technical report presents how the workshop was conducted, the data collected from the activities and the analysis of the data. As a result, first requirements for online conversation on inclusive social networks are presented.

1. Introduction

The *e-Cidadania* Project is interested in investigating solutions for the interaction design of systems that make sense to the Brazilian citizens, promoting a culture mediated by Information and Communication Technologies. To reach these objectives, one of the premises of the project is the users' participation during all the development life cycle. This participation is being made viable by workshops where community representatives are present, as well as other known stakeholders and researchers.

The first five semio-participatory workshops happened along the last year and in the beginning of 2009. They involved the design of participatory practices to support methods and artifacts from Organizational Semiotics (Stamper et al., 1988; Stamper et al., 2000; Liu, 2000) in inclusive contexts (Melo, 2007). These practices ranged from initial stages of the development life cycle, where users participated in the understanding of the community information system and the semantic values in such contexts, to advanced stages of prototypes experiencing and validation. For details on previous workshops, see Hayashi et al. (2008a), Hayashi et al. (2008b), (Miranda et al. (2009), Hayashi et al. (2009) and Solarte et al. (2009).

The 6th semio-participatory workshop was conducted on March, 2009. At the workshop, representatives of the local community were present, partially reflecting the diversity found in the Brazilian population. They participated in the two moments that composed the workshop: interaction with TV - reported in (Miranda et al., 2009) - and the investigation of communication

activity in inclusive contexts of social networks – described in this report. It was an activity aiming at identifying requirements and behavior patterns of communication in shared places (the scenario used in the workshop involved a handcraft fair), which is guiding the development of a synchronous online communication tool. That tool will be integrated in the inclusive social network that is being developed in the context of the *e-Cidadania* (i.e. *Vila na Rede*¹).

This technical report is organized as follows: in Section 2 we present the description of the activities; in Section 3 we present the dynamics and the data collected in the activities; in Section 4 we analyze the data obtained and present the main results; in Section 5 we present the conclusion of the work.

2. Understanding communication dynamics in social interactions

In this section, the activities that composed the dynamics for understanding communication in social settings are presented, as well as the process of planning them.

Following the same path of the previous workshops, these activities were planned to collect data from the physical (as opposed to virtual) life of the target public, aiming at the elicitation of requirements for the development of a conversation tool to be used throughout all the pages of the Inclusive Social Network (ISN) *Vila na Rede*. The intention was to have a better understanding of the meanings the participants make of "conversation" within social interactions.

In order to figure out how conversations take place in the natural social networks, we wanted to simulate dialogs in a format that could be registered. The resulting plan was then thought to be presented in three separated moments: 1. Initial discussion, 2. Simulation of online conversations and 3. Final discussion.

Initial discussion. This phase was meant not only as a preparation for the next moment, but also to gather information to base the researchers' hypothesis. First, a set of decisions to be made was listed. These are the decisions that will be incorporated in the document that defines the characteristics and requirements of the chat tool to be used in the ISN.

In order to initiate the discussion, a scenario was proposed with the objective of identifying social norms related to the interactions that take place during conversations. The scenario presented is described as follows:

A handcrafts fair is taking place at the CRJ (Youth Reference Center) in which many people from the community and from other places are exposing and negotiating their products. In this moment, people are talking about their products and other subjects.

With this in mind, questions were proposed to different situations in order to capture the participant's behavior in the real (physical) world. In Section 3 we present the questions and answers collected from this part of the activity. In Section 4 we discuss and correlate these answers with the participants' actual behavior during the simulation of the conversations.

Simulation of online conversations. Instead of the paper cards initially considered for this activity, *post-it's* were used to simulate conversations in a poster hanging on the wall, as explained next.

Each participant would receive a pack of *post-it's*. They would write their messages on the *post-its* and paste them on a poster, as if they were posting their messages on the ISN. In order to provide a context for the conversations, the poster had the screens of an announcement from *Vila na Rede*. Since we expected to have a group of about twelve people, we decided to have three different

¹ <http://www.vilanarede.org.br>

announcements (see the image of the poster on Figure 1). The group was then be divided into three smaller groups and they would talk among them inside these subgroups. That way, the amount of people in front of the same place of the poster would be reduced, allowing the activity to be conducted in a more fluent manner.

To chose only three from all of the announcements on *Vila na Rede*, we searched for the adds following these guidelines: a. The most visited ones; b. The probability of the "owner" of the announcement to be present at the Workshop (based on their frequency in past Workshops) and c. the number of comments received (most commented ones).

Participants were instructed not to make use of oral communication: they were supposed to talk only using the *post-its*. Nothing was mentioned about the obligation of writing, meaning that there was the possibility of drawing or using any other symbols (e.g. smiles). Moreover, intentionally, instructions did not specify the order of the *post-its* nor their positions on the poster.

During the activity, researchers observed participants actions and behaviors, taking notes on the pre-elaborated forms that are found on Appendix 3.



Figure 1 - Poster prepared for the activity of simulation of online conversations.

Final Discussion. Looking from outside to the simulated conversations taking place, the researchers could see that the participants were very active, generating much more dialogs than they expected. In order to have a view from the inside (the point of view of the participants), after the activity, the whole group got back together in a circle and they exchanged their experiences and opinions about the activity, sharing with the researchers how they felt. The objective here was to understand how interactions take place in order to elicit requirements for the synchronous communication tool of our ISN. It is interesting to note that some of the participants have no experience with instant message software or chat rooms. A complete account on the topics from this discussion is shown in section 3.1.3 and discussed in section 4.1.

3. Results

In this section, the raw collected material from the three moments of the activity described in section 2 is presented, whereas the discussion on these data is found in Section 3.1.3.

MP3 recorders, video and photo cameras, and observation forms were used in order to register the activities. In total, 20 people were present at the Workshop, from which 10 were from the research group and 10 from the target audience.

3.1 Initial Discussion

After proposing the interaction scenario (presented in Section 2.1), a non structured set of questions were discussed along with all the participants of the workshop. The questions were supposed to conduct the participants to different interactive situations allowing us to identify their behavior in public scenarios where each one could talk about a specific object or any other subject. For the complete discussion consult the Appendix 1 (in Portuguese).

Next we present the questions discussed and indicate the perceived behavioral patterns and main differences among the participants' preferences.

- How do you start or engage in conversations?

We verified different strategies taken before deciding when and who can start a conversation. The most mentioned strategies were: a direct approach when finding some interesting product and to make a tour through the fair to select the most interesting products before starting to talk with some expositor. One person preferred only to observe the products and she pointed out that she would ask some question only if in doubt. Related to the content of the conversation, the main focus was on products negotiation. Otherwise some people were concerned about the production process and the materials involved in such process.

- What are the reasons why you go to a fair?

There were three kinds of answers: to see "new things", to see products of others in order to get ideas for their own work, and to talk to expositors about the production processes.

- Whom do you talk to and what do you talk about?

Most people like to talk about products' characteristics such as price, quality, raw material, etc. Moreover, some people mentioned that they usually talk about personal subjects aiming at generating quick confidence "relationships".

- If you are talking with a group of people and another person tries to engage the conversation, what is the attitude of the group?

All participants agreed that they do not feel uncomfortable if another person engages in the conversation because they believe that, if somebody wants to join the conversation, it is because s/he is interested in the subject or product. One important behavior that appeared about this question was the concern regarding to be cordial with the person trying to enter the conversation by smiling or welcoming.

- If you see that a stand is crowded, and another is not, what do you do?

Most of the participants were not attracted by the curiosity of knowing why a stand is crowded. Instead they said that they would look for a stand with less audience. The main justification was that they do not like to visit crowded places. This fact brings to us some indication about group sizes of the communication tool. Certainly a chat room with many people simultaneously talking would not be appropriate; instead, a private talk between two people would fit better.

3.2 Simulating the online conversation

This section presents the data collected during the second moment of the communication activity when users were invited to simulate an online conversation by writing their messages in *post-its* and pasting them on a poster (figure 2 illustrates the activity being conducted and a final result). Next we present some quantitative results and after we analyze the content of the posted messages.



Figure 2 - The online conversation simulation dynamics.

In the quantitative summary below, we identified the authorship of each message and the quantity of messages from each participant. Tables 1, 2 and 3 present the results of groups 1, 2 and 3, respectively.

Table 1 - Results from group 1 in the online conversation simulation

Advertisement: Returnable supermarket bags			
Author: Person3			
Participants	Post-it	Messages	
		With authorship	Without authorship ¹
Person1	Yellow	13	0
Person2	Pink	14	0
Person3	Blue	6	5
Participants' summary		33	5
Messages from other participants			
Participant		Messages	
Person6		1	
Person7		2	
Not identified		2	
Other participants' summary		5	
Group summary		43	

¹ In cases when messages' authorship was not explicitly available we tried to identify them by the *post-it* color, author's calligraphy or conversation context

Table 2 - Results from group 2 in the online conversation simulation

Advertisement: Pão de queijo ¹ and other homemade snacks			
Author: Person4			
Participants	Post-it	Messages	
		With authorship	Without authorship ²
Person4	Orange	2	4
Person5	Blue	3	0
Person6	Green	0	1
Person7	Pink	0	2
Participants' summary		5	7
Group's summary		12	

¹ *Pão de queijo*: typical Brazilian backed snack, made mainly with cheese

² In cases when messages' authorship was not explicitly available we tried to identify them by the *post-it* color, author's calligraphy or conversation context

Table 3 - Results from group 3 in the online conversation simulation

Advertisement: Accessing Vila na Rede			
Author: Person11			
Participants	Post-it	Messages	
		With ownership	Without ownership ¹
Person8	Yellow	7	1
Person9	Green	3	2
Person10	Pink	4	0
Person11	Blue	0	14
Person12	Orange	5	0
Participants' summary		19	17
Messages from other participants			
Participant		Messages	
Person6		3	
Not identified		1	
Other participants' summary		4	
Group summary		40	

¹ In cases when messages' authorship was not explicitly available we tried to identify them by the *post-it* color, author's calligraphy or conversation context

The conversation simulation resulted in 95 messages exchanged. From these messages, 63 were signed and 32 were not signed - but it was possible identify the author based on the *post-it* color, author's calligraphy or conversation context. The authorship was not identified in 3 of them and 6 were posted in the context of a different group. Two messages were directed to the entire group, including researchers that were only observing the activity.

The original poster where the messages were posted is 142cm x 90cm (55.9in x 35.4in) large. In order to facilitate its reading, a digital representation of the poster (Figure 3) was created (pictures taken did not show enough resolution to read). Next, an overview of the conversations from each group is presented.

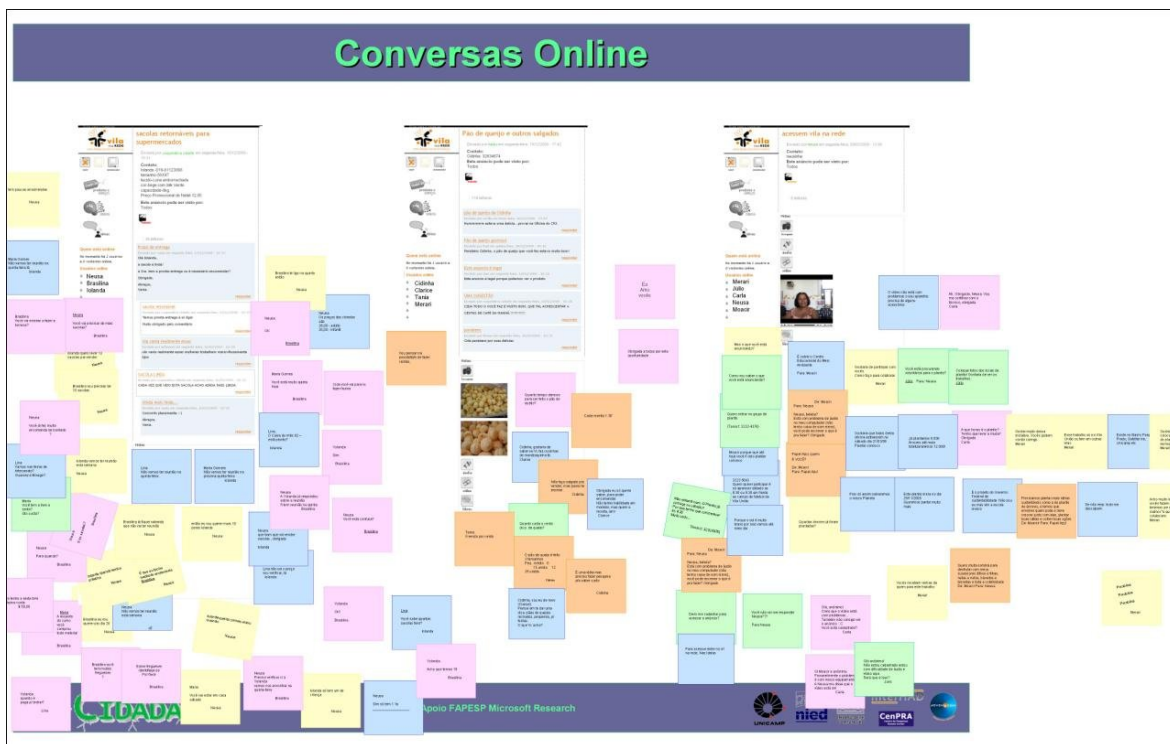


Figure 3 - Representation of the resulting poster

Group 1. The conversations generated in group 1 (regarding the announcement of ecological bags) were related to the participants' reality. Many *post-it's* (9 out of 44) were about the same subject: the meeting that they were expecting to have later that week, but which had been canceled. It is important to notice that the participants from this group were all members of the same cooperative (handcrafts women) and already knew each other. One participant from another group tried to join in the conversation by asking personal questions. One question was directed to a woman named Brasilina, who works for the cooperative, asking her about how her business was going. The answer asked for the person to identify him/herself first. The second question was directed to Maria Gomes, a house keeper, asking her about her work days still free. The answer obtained seems to have been the result of an oral communication that took place during the activity (the *post-it* with the answer was written with the same handwriting as of the *post-it* with the question). The content of the *post-its*, are presented in the Appendix 2, in Portuguese. Misspellings and other mistakes were not reproduced in this transcription. The sentences are not in order (they do not form closed conversations in this order), as the *post-its* also were not always in linear order.

Group 2. This group focused their conversations on the advertisement, which was about *pão de queijo* and other homemade snacks. The same participant who tried to join in the conversations in group 1 also posted a question in this group, asking about the price per hundreds of *pão de queijo*. The answer given stated that it was not sold per hundreds, but no further information was given regarding the price. Other messages were about the recipe and a suggestion for the variation of the product.

As mentioned before, the poster had the image of the announcement as it is on *Vila na Rede*, including its comments. Surprisingly, one of the messages was an answer to one of the comments, which suggested an idea for business (the author of this comment was not part of this group).

Group 3. The advertisement to work as a trigger for the conversations in this group was in the format of a video. Thus, participants were not able to acknowledge what the advertisement was

about. Interestingly, participants got in the mood of the role play situation and conducted the conversations as if they really were in front of the computer. They asked about the content of the video stating that they were facing problems to see the video. Discussions were around the problem with the original video file or with the computer of those trying to see the video. After this initial conversation, the subject changed, turning to environmental initiatives of the nongovernmental organization, in which the publisher of the announcement works. This started with the question asking what the advertisement was about. The participant answered that it was about the "Environmental Education Center" (the name of the NGO - nongovernmental organization - in which the participant works), but actually, the announcement was an idea for spreading the ISN *Vila na Rede*, and the NGO was an example of what could be advertised in the ISN.

Two messages were posted outside the context of the three groups. These messages contained affective responses from one of the participant towards the whole activity and it was directed to all participants, including the researchers. Originally in Portuguese, the messages stated: "I love you all" and "Thank everyone for this opportunity".

Figure 4 represents the flow of the conversations, indicating the position of the posts related to the original question and answers.

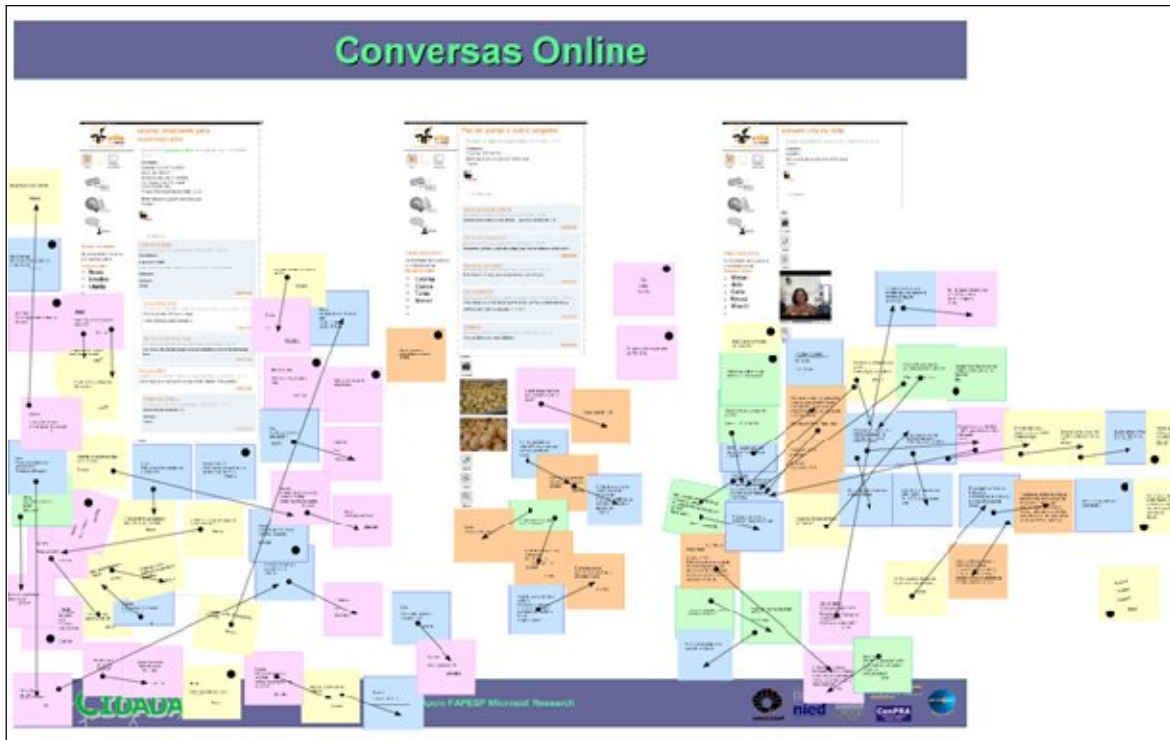


Figure 4 - Map of the conversations flows.

3.3 Final Discussion

In this section, we present an overview of the comments from the discussion that took place after the activity, in which participants were able to express the sentiments and impressions that they had while performing the task of communicating through *post-its*.

One of the participants reported that at first she was not sure what she was supposed to do, but after receiving the first responses, she felt that the conversations came naturally. This uncomfortable feeling was probably, as the participants said, due to the fact that the announcement was in the format of a video, and, in the poster, only an image of the video was shown, which left group 3 with no information on the subject of the announcement. The same participant described her basic behavior in the activity: to write a question and wait for the answer.

In order to overcome the problem posed by one of the rules of the activity (they were not supposed to talk), they said they communicated through gestures, by expressing something with facial expressions or with signs (pointing to a specific *post-it*) and by writing (meta)information on *post-it*'s that were not intended to be pasted on the poster. For example, one of them wrote: "I can't speak" and put it on his mouth, a behavior that was taken with humor by his fellow participants, as they reported it laughing and making jokes during the discussion. At this point, the facilitator commented that it is also a form of communication.

An issue concerning identification was mentioned when the sender of the message did not write his name on the *post-it*. They said that they were able to know who the author was, only because they saw who was writing, but they expressed that they wanted everyone identifying themselves.

Another way to identify the author of the message was by the color of the *post-it*, which could be seen at distance. In one group, the flow of the conversation was followed by the proximity of the *post-it*'s.

As for the subjects of conversation, they varied from the theme of the announcement. One of the participants said that she had many issues pending to be solved with other participants and she was able to have them all solved during the activity. She said: "Can you imagine if we would be able to do this more frequently?". Another observation made regarding the ISN: besides seeing an announcement, one can also chat with other people and therefore end up spending more time in the net. This participant was able to identify, through this activity, a different use of the net that was new for her. This, as highlighted by the facilitator, contributes to the creation of a digital culture. It is what is happening now, when people who are not familiar with ICTs discover the universe of possibilities and information that they can find in the web. Most participants agreed that it is all a matter of "creating the habit", by inserting digital interactions in their daily routines.

Other ideas about what to do online came up; things that are of the interest of that community, for example, posting ideas, news, alternative recipes (cooking with the peel of aliments), etc. One subject that was raised in the 3rd group was related with an environmental initiative. During the discussion, the author of the announcement invited all participants to join them in the activity to plant trees in order to preserve their (the community's) river. The facilitator pointed out that this invitation is very important: although *Vila na Rede* is in a virtual world, it will only make sense if a link with the non-virtual world is kept (in this case, the physical act of planting trees and the announcement of the idea in the ISN).

4. Lessons Learned

After the workshop, the data extracted from the activities - shown in section 3 - were compiled and analyzed. For that, the recorded material (MP3 files, videos and observation forms) were used. The main resulting findings are discussed in this section.

The activities conducted in order to explore communications and interactions in social groups brought elements to compose the first requirements to communication tools in inclusive online environments. The three moments of the activity (initial discussion, simulation of online

conversations and final discussion) provided rich material for researchers to base their investigations.

In general, the topics that were addressed during the group discussions were related to:

- identity (knowing who the members of the community are - and who you are talking to);
- awareness (conversation history, knowledge about who is talking, who is typing (or speaking or gesturing) and other events notifications);
- different forms of communication (gestures, facial expressions, signing (pointing));
- digital culture (the creation of the habit of getting information from the web);
- link between the virtual and physical world (*Vila na Rede* and the physical events).

Although it had been mentioned in the initial discussion that the identification was not a concern, participant's behavior during the activity of simulation did not reflect it (Table 4 shows a comparison between participant's answers during the initial discussion (column 2) and their behavior during the activity of simulating online conversations (column 3)). It seems that, in fact, it is important to know who one is talking to. Anonymity and privacy have been themes of research for quite long time and different experiments have tried to model those concepts (e.g. Wang, 2005 and Patil, 2005). Actually, they are concepts that change according to the communities' changes and evolution. The system that supports these elements should be flexible enough to adjust itself accordingly.

Table 4 - Comparison of participants' statements and their actions.

Question	Answer given	Answer as observed during the activity and other comments
You see everyone talking to each other. Would you like to know what are the conversations taking place at that moment?	Most of them (only one person disagreed) said they did want to know.	When the number of posts increased, most participants were busy minding their own conversations, so they did not wander about other people's chats anymore.
When you are talking among friends and an unknown person arrives to join the conversation. How do you react?	"I look to that person with a smile on my face to make her feel comfortable to join the group, because if you show unpleasant that person will not want to participate" "We put the person up to date with the conversation" "Depending on where it is, I don't join in, for example, when the place is too fancy, I don't like it" "If I don't know the group, I won't go"	- The conversations established in group 1 were basically related to the cooperative's daily business. One participant tried to join the group by asking questions. The response given was a request for identification. - We notice here that people are aware of the fact that each place - or each network - has its own rules ("depending on where it is, I don't join in"). - It is important that the place - or system, network - offers users a welcoming environment, making them feel "at home".

How do you initiate or join a conversation?	"Ask someone's opinion, for example: I want to buy a present, what would be nice?" "Say where you come from. People always want to say from which city they come from" "The product is an excuse to start a conversation. Later we start talking about the person" "Conversation concerned to the process of manufacturing of the product"	- Indeed, opinions were expressed in the form of suggestion for new ideas for business - Maybe due to the fact that participants were already familiar to each other; there were no communication about where they are from, or about the person. - Some conversations, especially in group 2, were related to the process of baking the product sold in that advertisement.
What do you talk about?	"About the product, asking about the price, material, etc"	- All of the groups had some conversation related to the product/idea announced (price, time, recipe).
At Vila na Rede:		
Would you like to be able to know who is talking to whom?	Most people: Yes One person: No, but it is ok if other people would be able to know who she is talking to.	- In the activity simulating the conversation everyone could see everyone else.
Any person may start a conversation with you at any time, or would you like to be informed before?	"Not everyone. It should be filtered" "You have to ask for permission" "If the person is registered in the system, it's fine"	- No restriction was observed
Would you like to be able to save the conversation to read (see, hear) later?	Most of them said yes and one suggested that it could be an option: either ask before or after the conversation: "The other person has to approve it, due to privacy reasons"	- The conversations were naturally saved in the poster.

For computer mediated discussions to convey as much information as face to face communication, it is essential to study the interactions in practice. The activities presented in this report were an important contribution in this sense. Participants managed to transmit their feelings and other concerns out of the written format presented in the *post-its*. In order to add meaning to or to clarify the written material, they made use of gestures and other physical expressions. Systems should be capable of allowing users to communicate in different ways, and not only by text. Emoticons are one example, but other tools should be designed and developed.

The affective state of users in relation to the system is another element captured from the messages posted during the activity. One participant expressed her contentment to the entire group, revealing another facility that the system could support. A tool that would help users to express their sentiments in relation to the use of the system could give developers an indication about the system at that time and also give the users a sense that their feelings are being considered.

We can see that there are many different ways to communicate as well as different levels of communication. Computer-mediated Communication (CMC)'s goals should be to try to reproduce as close as possible the real life communicative possibilities, making the digital world more natural to the users.

This point directs to another subject debated during the final discussion: the establishment of a digital culture. One of the participants mentioned that with the activity she discovered why people spend so much time in front of the computers. That is the first step, but only finding out the benefits

is not enough to foster a new culture, it is necessary to incorporate it as a habit. Some suggestions were given by the participants, like reserving a time of the day for the online experiences.

These online experiences are always connected to the offline physical world, and it was very clear in all of the three groups, as the advertisements were about products or ideas from the offline world. The conversations on the third group extended to after the activity was over, in the form of face-to-face oral conversations, and even further, in the final discussion, when the author of the ad invited everyone to participate in her NGO's initiative of planting trees. This link between both online and offline worlds is very important, especially for this audience.

The three moments of the activities provided elements to characterize a communication tool for ISN and what it should have, that distinguishes it from the commercial chat tools available today (e.g., MSN, Skype). One example is the interest in knowing the conversations that are happening at the moment, which requires the development of some visualization feature. Other aspects are presented on Table 5, which summarizes the main characteristics observed and the requirements elicited from the activities.

Table 5. Summary of main characteristics observed in the communication activity and the requirements extracted.

Characteristic	From the Workshop	Requirements
Access points	<ul style="list-style-type: none"> • People usually start their conversations talking about products; • They talk about personal subjects too; • They prefer to talk with registered users. 	<ul style="list-style-type: none"> • User name present at any page in the website; • User must be authenticated; • There is no need to accept an incoming conversation
Conversation scope	<ul style="list-style-type: none"> • A participant can talk to more than one person at a time. 	<ul style="list-style-type: none"> • User can start a new conversation or add another user to an existing conversation; • One or more simultaneous conversations
Representation	<ul style="list-style-type: none"> • People want to know who is talking at the moment. 	<ul style="list-style-type: none"> • Graph to represent ongoing conversations (in which one may browse using keyboard or mouse).
Emotional state	<ul style="list-style-type: none"> • People expressed their emotional status by facial expressions and sending messages describing their feelings. 	<ul style="list-style-type: none"> • Smiles.
Focus/position	<ul style="list-style-type: none"> • People usually talk about objects; therefore they should be able to visualize them along the conversation. 	<ul style="list-style-type: none"> • Conversation window located at the outer part of the main field of vision; • Conversations intersect every page of the system.
Up-to-date information	<ul style="list-style-type: none"> • People signed their messages; • They called attention of the receiver to the posted messages by pointing to them; 	<ul style="list-style-type: none"> • Provide information on the context/environment: • Textual - who is in the conversation, new message, others typing, invitations/questions (e.g., accept file from user, join audio conversation); • Graphical - video, audio transmission, progress of files transference; • Aural - new message, others typing, invitations/questions (e.g., accept file from user, join audio conversation).
Media	<ul style="list-style-type: none"> • During the simulation, people tried to communicate by gestures; • Low literacy. 	<ul style="list-style-type: none"> • Communication using different medias (Video, audio, text, and by sending files).

History	<ul style="list-style-type: none"> • People would like to be able to watch and review past conversations; • Otherwise they want to decide which conversations will be recorded. 	<ul style="list-style-type: none"> • User decide when to store the history of the conversation; • This history can be deleted; • Multimedia; • The scenario of the conversation should be constructed considering the events' timestamps.
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In the list of requirements presented in Table 6, there are items that expand the existing possibilities of face-to-face communication interactions as, for example, the possibility of establishing independent simultaneous conversations and the visualization of the conversations that are taking place among geographically distributed people.

4.1 Observing the facts in action

As mentioned before, during the activity, researchers observed participants actions and registered remarks on a form. These forms were analyzed and the resulting information is presented in this section.

Researchers were presented to the questions on the form before the beginning of the activity so that they would know what they were supposed to focus their attention on. The form was composed of three simple questions and a place for additional comments. A copy of the form can be found in the Appendix 3 (in Portuguese). The annotations from all forms were summarized on Table 6.

Table 6. Summary of the observers annotations

Questions	Group 1	Group 2	Group 3
The conversations were between only two people or involved the group?	The conversations were question-answer like.	Between two people, even when a third person was mentioned (when that happened, a new conversation would be started).	At first, the conversations were established only with the author of the announcement, who tried to keep up with all demand. Later, the answers came from other participants.
Did the participants try to know about other conversations?	One participant noticed that another participant was not writing. So the first signed to the second to indicate that she had posted a question to her, and said: "Look at the question I asked you!"	In order to get acquainted with the context, they all read the entire conversation. When the number of postings increased, making it more difficult to follow, the authors of the posts pointed to indicate a new message.	They read the messages to know what was being discussed and to whom it was addressed. One user signed his message identifying himself and he questioned about an anonymous message by posting the question: "Who are you?"
Did they use non textual registers? Which ones?	Gestures to point out other things; they exchange gestures before posting messages on the poster.	Gestures indicating new messages.	They used only text simulating a colloquial conversation, and gestures to point to the post-it when the message was directed to someone.

Other observations	The area in front of the poster was small; one user seemed shy to post the messages (would she behave the same way when using the electronic media?). The same user changed group and a conversation was established between two other participants).	In the beginning of the activity, the post-its' were being freely placed on the poster. Later on, due to the lack of context of the messages, participants began to address the messages, informing sender and receiver, and put the related messages close together.	Concern with the correct spelling when writing the messages. The answers were posted close to the respective questions; the conversation developed to other subjects and was kept even after the activity was over, in oral conversation during the coffee break.
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Most of the conversations were between two people. In group 1, the same subject was being discussed between more than one participant, and one of them even posted the same sentence more than once, only changing the name of the recipient.

In all the groups, it was noted some kind of communication outside the posting of messages. These communications were attempts to solve some difficulty in the act of communicating using *post-its*. Mainly gestures were used to point to a post indicating the new message.

Researchers annotations, when compared to the information resulted from the final discussion, seemed to contain much less information. One possible reason is the proximity of the researchers in relation to the activity. During the activity, they were very close to the poster, in the middle of the participants, so that they would be able to read the posts. Other researchers, to whom the observation form had not been assigned, and who were some steps far from the group, were able to capture more events happening (e.g. when one participant placed a *post-it* written "I can't talk" on his mouth). Apart from that, everything that they did observe confirmed what had been said in the discussion, and no contradictions were found. Observation forms and researchers specifically assigned to fill them were proved to be very important in the process of analysis for these Semio-Participatory workshops.

5. Conclusions

The design and development of technological tools that make sense to the digitally illiterate users require a deeper understanding of the context of life of these users. In order to elicit the requirements for a communication tool to be used at Vila na Rede - and Inclusive Social Network resultant from e-Cidadania Project – we proposed some activities to investigate users behavior when communicating in social groups.

The 6th Semio-Participatory workshop from e-Cidadania hosted these activities, that involved end users, community leaders and researchers from diverse fields. First, during a group discussion, the participants were directly asked about their behavior in social interactions. Then, they were invited to communicate to each other using pieces of paper and hanging them on a poster that simulated pages of Vila na Rede. At last, in a final discussion, the group talked about their experience in communicating using the poster. After the workshop, researchers worked on the material recorded from the activities in order to extract the main aspects of communication in natural settings.

This report described the activities and the results of the analysis of the collected material, focusing on specifying the requirements to conceive a synchronous communication tool to be used by the members of Vila na Rede.

Challenges for the accomplishment of the requirements include: the proposal of a solution for the multimedia history that viabilize the storage of video and audio and the synchronized presentation of them; an accessible graphical representation of the conversations even in cases where users are engaged in more than one talk and considering the possibility of larger number of users (more than 10) to be displayed.

Next steps include the development of a conversation tool to be integrated in the inclusive social network *Vila na Rede* and its validation considering a scenario of vast diversity among users.

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Appendix

Appendix 1 - Questions discussed in the initial phase of the communication activity

Questão	Participante	Resposta
Como é essa conversa?	Iolanda	Inicia a conversa perguntando assuntos do produto como: preço e acabamento.
	Neusa	Ela pergunta como foi feito, informa se gostou ou não, onde aprendeu a fazer o produto.
	Neusa Nascimento	Olha todas as barracas, sobre as coisas que ela gostar vai perguntar o preço, lugar onde o expositor apresenta seu produto.
	Brasilina	Pergunta o preço sobre as coisas que interessa, ela gosta de ver bem o objeto, ver acabamentos para depois comprar.
	Maria Gomes	Ela pesquisa os produtos e compara preços.
	Clarice	Ela só pergunta características dos produtos só se ela esta interessada.
	Merari	Ela vai mais pela aparência, depois procura o mesmo produto em outros lugares e compara preços, ela gosta de observar para ver se o trabalho foi bem feito, gosta de pechinchar, gosta de comentar.
	Júlio	Olha a organização da feira, gosta de olhar em detalhe como as coisas são feitas, ele só pergunta se tiver dúvida, ele gosta de ver ao vivo não em catalogo, depois conversa e decide se comprar o não.
	Cidinha	Ela explora tudo e dois volta onde ela gostou e pergunta algumas características do produto.
Professora	O que move mais a conversa sobre o produto é o negocio (comprar e vender).	
Quais são as razões pelas quais vai até uma feira?	Iolanda	Gosta de visitar as feiras para ver coisas diferentes e acrescentar.
	Brasilina	Gosta de ver para adicionar mais ao seu trabalho.
Quando vão as feiras conversam! Com quem conversam? E o	Cidinha	Fala com o expositor, como faz o produto.
	Iolanda	Ela busca falar da idéia e como elas podem transformar, ela acha que as conversas são

que conversam?		puxadas a partir das opiniões.
	Merari	Vai até uma feria a passear, ela puxa conversa por temas pessoais criando uma ambiente de amizade.
	Julio	Acha que as conversas começam com temas mais pessoais.
	Brasilina	Ela gosta puxar conversa a partir das características do produto.
	Clarice	Ela pergunta sobre as características do produto.
	Neusa	Ela conversa se está interessa em alguma coisa da feira.
Se estiver em uma "rodinha" conversando e outra pessoa se aproxima para entrar, qual é atitude das pessoas?	Merari	Deixa entrar na conversa, convida para que a pessoa que chegou se sentir más a vontade. Se a pessoa que chega, para entrar é porque tem um contato o conhece alguém, se não conhece é muito difícil as pessoas entrar, ela acha que a pessoa vai ficar de lado. Destaca que em esse tipo de conversações uma pessoa pode entrar e sair quando quiser.
	Neusa	Fala de mostrar um sorriso para que a pessoa esteja mais a vontade.
	Maria Gomes	Ela deixa a outra pessoa entrar na conversa.
	Neusa Nascimento	Quando uma pessoa chega a um grupo, as outras pessoas percebem o interes de essa pessoa nas coisas que o grupo esta falando, se a conversa é aberta porque não permitir que outra pessoa entre nela?
Se a barraca está muito cheia você que faz?	Merari	Vai onde esteja mais vazio.
	Brasilina	Vai onde esteja mais vazio, mas depois volta à cheia.
	Cidinha	Vai ao cheio.
	Neusa Nascimento	Vai onde esteja mais vazio, ela acha que se todas tem a mesma coisa porque ir a um lugar cheio.

Appendix 2 - Transcription of the conversations (in Portuguese)

Group 1.

1. - Tem poucas encomendas. Neusa
2. - Maria Gomes, não vamos ter reunião na quinta-feira, tá? Iolanda
3. - Brasilina, você vai ensinar a fazer a boneca?
4. - Neusa, você vai precisar de mais sacolas? Brasilina
5. - Iolanda, quero levar 10 sacolas para vender. Neusa
6. - Brasilina, vou precisar de mais 10 sacolas. Neusa
7. - Neusa, você já fez muita encomenda de bordado?
8. - Lina, vamos nas feiras de Artesanato? Guarany e Mixage?
9. - Iolanda, vamos ter reunião esta semana? Neusa
10. - Maria, você tem livre a sexta? Quanto custa?
11. - Neusa, e as sacolas? Brasilina

12. - Neusa, para quando? Brasilina
13. - Não tenho a sexta livre. A faxina custa R\$ 50,00
14. - Maria, a respeito do curso, você comprou todo material?
15. - Iolanda, quanto é para entrar? Lina
16. - Brasilina, você tem muitos fregueses?
17. - Sobre os fregueses, identifique-se por favor. Brasilina
18. - Brasilina, eu vou querer pro dia 20. Neusa
19. - Iolanda, quando será a próxima? Neusa
20. - Neusa, não vamos ter reunião esta semana.
21. - Brasilina, já fiquei sabendo que não vai ter reunião. Neusa
22. - Lina, não vamos ter reunião na quinta-feira.
23. - Maria Gomes, não vamos ter reunião na próxima quinta-feira. Iolanda
24. - Então eu vou querer mais 10 pares Iolanda. Neusa
25. - É que eu tenho bastante encomenda Brasilina. Neusa
26. - Iolanda, quanto chinelo estou levando? Neusa
27. - Maria, você vai estar em casa sábado? Neusa
28. - Neusa, preciso verificar com a Iolanda, vamos nos encontrar quinta-feira. Brasilina
29. - Iolanda, só tem um de criança? Neusa
30. - Neusa, sim só tem um tá.
31. - Iolanda, OK. Brasilina
32. - Brasilina, você sabe quantas sacolas tens? Iolanda
33. - Iolanda, acho que temos 19. Brasilina
34. - Brasilina, te ligo na quarta então. Neusa
35. - Neusa, os preços dos chinelos são 28,00 adulto; 20,00 infantil.
36. - Neusa, OK. Brasilina
37. - Maria Gomes, você está muito quieta hoje. Brasilina
38. - Lina, o caixa do mês 02 está pronto? Iolanda
39. - Iolanda, sim. Brasilina
40. - Neusa, a Iolanda já respondeu sobre a reunião. Ñ tem reunião na quinta. Brasilina
41. - Neusa, que bom que vai vender sacolas, obrigada. Iolanda.
42. - Lina, não sei o preço. Vou verificar, tá. Iolanda
43. - Neusa, você está confusa? Brasilina

Group 2.

1. - Vou pensar na possibilid/e de fazer cestas.
2. - Quanto tempo demora para fazer o pão de queijo?
3. - Cada receita 1.30'
4. - Cidinha, gostaria de saber se você faz coxinhas de mandioquinha tb. Clarice
5. - Não faço salgado p/ vender, mas posso te ensinar. Cidinha
6. - Obrigada, eu só queria saber, para poder encomendar. Não tenho habilidade em modelar, mas quero a receita, sim! Clarice
7. - Quanto custa cento do pão de queijo?
8. - Tânia, ñ vendo por cento.
9. - O pão de queijo é feito em 3 tamanhos. Peq. Médio G. 15 unidades 12 unidades 25 unid/e Cidinha
10. - Cidinha, sou eu de novo (Clarice). Pensei em te dar uma dica: pães de queijo recheados, pequenos para festas. O que vc acha?
11. - É uma idéia, mas preciso fazer pesquisa p/a saber o custo. Cidinha
12. - Cida, você vai para lá fazer faxina?

Group 3.

1. - Mas o que você está anunciando?
2. - Como vou saber o que você está anunciando?
3. - Quero entrar no grupo de plantio (Tania f. 3232-4376)
4. - Moacir, por que que até hoje você ã veio plantar conosco?
5. - 3223-5643 Quem quiser participar é só aparecer sábado às 08:30 ou 09:30 em frente ao campo de futebol da Vila União
6. - Não entendi bem. O Plantio já começa no sábado? Por que tenho que comparecer às 08:30? Muito cedo... Tania (f. 3232-4376)
7. - Porque o sol é muito bravo, por isso vamos até meio-dia.
8. - De: Moacir Para Neusa Neusa, beleza? Está com problema de áudio no meu computador (não tenho caixa de som rsrsrs), você pode escrever o que é pra fazer? Obrigado.
9. - Devo me cadastrar para acessar o anúncio?
10. - Para acessar entre no *Vila na Rede*, nas idéias.
11. - Você não vai me responder, Neusa??? Para Neusa
12. - É sobre o Centro Educacional do Meio Ambiente. Para: Moacir
13. - Papel azul, quem é você? De: Moacir Para: Papel Azul
14. - Quantas árvores já foram plantadas?
15. - Olá anônimo, creio que este vídeo está com problemas... Também não consigo ver o anúncio :(Você está cadastrado?
16. - Oi Moacir e anônimo, provavelmente o problema é com nosso equipamento. A Neusa disse que o vídeo está ok! Carla
17. - Olá anônimo! Não estou cadastrado isto com dificuldade de áudio e vídeo aqui. Será que é isso? Julio
18. - O vídeo não está com problemas o seu aparelho precisa de alguns acessórios.
19. - Ah, obrigada Neusa. Vou me certificar com o técnico. Obrigada. Carla
20. - Gostaria de participar com vocês. Como faço para colaborar? Merari
21. - Você está procurando voluntários para o plantio? Júlio Para: Neusa
22. - Coloque fotos dos locais de plantio! Gostaria de ver os trabalhos. Julio
23. - Gostaria que todos desta oficina estivessem no sábado dia 21/03/09 plantar conosco
24. - Já plantamos 6.000 árvores. Até maio totalizaremos 12.000!
25. - Pois só assim salvaremos o nosso planeta
26. - Este plantio inicia no dia 28/11/2008 Queremos plantar muito mais
27. - A que horas é o plantio? Tenho que levar a muda? Obrigada. Carla
28. - Gostei muito dessa iniciativa. Vocês podem contar comigo. Merari
29. - Este trabalho é só na Vila União ou tem em outras vilas? Merari
30. - Existe no bairro Parque Prado, Satélite Íris, Unicamp, etc.
31. - Gostaria que você colocasse algumas fotos do plantio para nós vermos. Merari
32. - No site www.escolaviveiro.org.br
33. - É o projeto do Governo Federal de sustentabilidade. Não sou eu, mas sim a escola viveiro.
34. - Precisamos plantar mais idéias sustentáveis como a do plantio de árvores, e temos que envolver quem pode e deve crescer junto com elas, plantar boas idéias e colher boas ações. De: Moacir Para: Papel Azul
35. - Se não resp. todo, me desculpem.
36. - Vocês recebem verba de quem para este trabalho? Merari
37. - Quero muita sombra para desfrutar com meus sucessores (filhos e filhas, netos e netas, bisnetos e bisnetas e toda coletividade). De: Moacir Para: Neusa
38. - Parabéns Parabéns Parabéns Merari

39. - Acho muito legal o que vocês fazem. Só assim teremos um mundo melhor "e que todos" colaborem. Merari

For all the groups.

1. - Eu amo vocês
2. - Obrigado a todos por esta oportunidade

Appendix 3 - Observer Form from the communication activity (in Portuguese)

OFICINA 6 - ATIVIDADE DE COMUNICAÇÃO

Formulário de observação

2o. Momento - Simulação de conversas

Observador: _____

Participantes: _____

Anúncio trabalhado: _____

- As conversas foram entre duas pessoas ou em grupos? Como ocorreu a formação dos grupos?

- Os participantes buscaram outras informações para saber a conversa dos outros usuários?

Exemplo: olharam se o outro está escrevendo, leram o texto do outro antes de colocar no quadro, viram se haviam outras conversas.

- Os usuários utilizaram registros não textuais? Quais?

- Outras observações: