

Trust in Virtual Communities

Master thesis, 15 hp, Department of Informatics

Submitted: June, 2008
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Master thesis submitted June, 2008-06-16

Size: 131 pages

Supervisor: Odd T. Steen

Resumé

The way we see computers is changing nowadays. Computers are being seen not only as a utility, but also as a means and mediums of communication. With the proliferation of virtual communities and various social networks, the problem of trust becomes significant. Trust in virtual settings has been mostly researched from a security perspective; however, when it comes to virtual communities sociological aspects of trust has to be taken into account since trust is one of the most important factors for a community to exist successfully. Thus, there is a need to research how trust is experienced in the virtual world and evaluate how the virtual mediums influence trust between members of virtual communities.

The purpose of our research is to explore the phenomenon of trust in virtual settings. This is done by literature analysis and synthesis as well as elaborating qualitative research methodology which was inspired by phenomenological thought. Using qualitative interviews and observations, we explore how members of virtual communities experience trust.

The research revealed that technological medium often camouflages the social contexts and so reduces trust atmosphere within virtual communities. Trust in virtual communities is more superficial than in real life settings as it lacks embodiment.

Key words

Trust, Virtual Community, virtual world, online community, e-community, online relationships

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1 INTRODUCTION

1.1 Preface

The way we see computers is changing nowadays. Computers are being seen not only as a utility, but also as means and mediums of communication. Such shift from utility to medium is significant to informatics, as the focus of the field has to be shifted accordingly. With these changes, the issues that were traditionally addressed become more distant from engineering solutions and models. Technology is not socially neutral, as it might seem from the first glance (McLuhan 1967). In opposite it does affect the nature of human communication and this is especially true in virtual communities. What concerns the virtual world communities most studies focused on security, however such issues as trust traditionally are neglected (e.g. as discussed in Abdul-Rahaman and Hailes 2000).

Virtual communities refer to the variety of social groups interacting via the Internet. According to Rheingold (2000, p. “xx”) “when people carry on public discussions long enough, with *sufficient human feeling*” they form webs of personal relationships, even if this does not mean that, there necessarily is a strong bond among the members.

The ability to interact with likeminded individuals instantaneously from anywhere on the globe has considerable benefits, but virtual communities have bred some fear and criticism (for example Danet et al. 1997). Virtual communities can serve as dangerous hunting grounds for online criminals, such as identity thieves and stalkers, with children particularly at risk.

Virtual communities depend upon social interaction and exchange between users online where the factor of trust takes a highly important role. According to Barbara Misztal (1996), trust does three essential things in people life. These include the predictability of the social life, as people are able to predict the behavior of the one they trust. Secondly, trust creates a sense of community, or in other words, it would be impossible to have a community without trust. Thirdly, trust facilitates the process of people working together (Misztal 1996).

Therefore, the very existence and nature of the virtual community depends on the trust inside of it. Basic actions would not be possible without trust both in real and virtual communities, as without trust all the social interactions and everyday life that we take for granted, would be impossible

(Good 1988). Having this in mind it is important to know how trust is perceived by members of virtual communities in order to support it technically.

1.2 Problem area

However, technology is still very limited, especially in terms of mediating human communication that is deep, highly contextualized, flexible and nuanced (Ackerman 2000). There is a clear distinction between the digital communication and one in the physical world. This distinction is well presented and discussed by Myers et al. (2000), Furnas (2000), Erickson and Kellogg (2000) and Ackerman (2000). The central issue is the totally different nature of human beings and of technological systems that people use for communication. Technical systems are “rigid and brittle not only in any intelligent understanding but also in their support of the social world” (Ackerman 2000, p. 303). Information exchange is very complexly managed by individuals. Systems often assume a shared understanding of information, but people have subjective and different understandings or interpretations concerning the same information. Exceptions are normal in work processes and again roles determined by people are informal and fluid. However, systems need explicit commands and clearly defined roles. These and other issues demonstrate the existence of problem or a divide between what can be technically supported and what is needed to be supported socially. Ackerman (2000, p. 303) names this problem or divide as “social-technical gap”. This gap is especially visible in virtual communities that communicate electronically rather than face to face. A virtual or Computer-mediated community (CMC) uses social software to regulate the activities of participants, thus the software interface mediating the communication (or simply medium) is involved in the process of shaping the perception of trust.

The difficulty of digital communication stands in stark contrast to our ability to communicate with one another in the physical world (Erickson and Kellogg (2000). People make everyday decisions based on the activity of those around them, the context and other social information. People build trust based on this social information. However, the digital world makes people “socially blind” (Erickson and Kellogg 2000, p. 326). Thus, the main problem is the absence of social contexts in computer mediated interaction which is dominant in virtual communities. The problem is how people experience trust in such virtual environment and how this environment affects trust. Here we reach the point, where the field of informatics has to address sociological trust and mediated interaction through virtual interfaces. The mediation of interaction through interfaces does affect the

perception of trust. However, the problem is how members of virtual communities perceive this mediated trust and what the effects of the medium used are.

To sum up, there are two broad main problems we want to address in our research:

- The phenomenon of trust as it is experienced by the members of virtual communities;
- The influence of the medium upon trust in virtual communities.

1.3 Purpose and research questions

When computer becomes a medium of communication rather than just a utility, new requirements has to be set that are relative to the communication discourse. For example, when used as utility, computer had to solve computational tasks fast and effectively. However, seeing it as a medium for communication changes the situation. Thus in our research we approach informatics as far as it concerns the enhancement of communication in virtual communities and in particularly by providing social contexts and encouraging trust. So the main research questions are as follows:

- How is trust experienced by members of virtual communities?
- How does the medium affect trust in virtual communities?

These are two main questions we like to address in our study, however they might need some additional explanation. As has been said before, trust is a necessary element for a community (both real or virtual) to exist. One could question if trust is the same in real and virtual communities? In order to understand how members of virtual communities experience trust we have to define what trust actually is, how is it constructed, what kind of characteristics it has and how do these operate in virtual settings. Only then, we can compare the perception of trust in virtual and real communities and eventually crystallize what are the effects of virtual interfaces of technological mediums.

The purpose of our research is to **explore the phenomenon of trust in virtual settings**.

1.4 Knowledge contribution

The informatics field has to deal with complex human communication and support their relationships in virtual communities. However, trust in the field of informatics has always been a vague domain. Traditionally it addressed only security issues and was based on formal logics that are not suitable for nuanced human activities in virtual communities (see e.g. Gambetta 1990; Burrows et. al. 1990; and discussion in Abdul-Rahaman and Hailes 2000). Virtual communities are proliferating, evolving to more complex and various forms, however their technological support when it comes to social features such as trust is quite limited.

When it comes to informatics field, a common sense notion of trust is not enough for complex social interaction support. Thus, there is a clear need to expand the domain above engineering level and deal with complex social world (Abdul-Rahaman and Hailes 2000). This paper merges the problems of the fields of informatics and social sciences by dealing with sociological trust in computer mediated or virtual communities.

In our thesis, we treat technology as an electronic medium for communication and explore its affects on trust in virtual communities. We contribute to the field by expanding its scope beyond the security issues when it comes to trust. Further on, we define and analyze a specific phenomenon of virtual community trust. We examine how members of virtual communities experience this phenomenon. The findings of the study can contribute while developing new systems for virtual communities or improving existing ones. The study also reveals the problems that field of informatics has to deal with in order to successfully assist human communication, enhance and improve the quality of virtual activities.

1.5 Delimitations

Nowadays, the level of user involvement in any kind of virtual environments is very high. However, not any of those environments where people interact through the use of computers are considered as virtual communities, and that is exactly why the delimitations of the concept virtual community must be explained.

As will be discussed further, the basis of a virtual community must fulfill, uppermost the basis of a community itself. Therefore, the basic requirement to conform a Virtual Community is to play the

role of a community, as Ferdinand Tönnies (1887) would say, sharing this “unity of will” as well as the “sense of community” from McMillan and Chavis (1986, p. 6-23).

Thus, reaching this level throughout interaction supported by computers or any other network terminals generates Virtual Communities. On the other hand, phenomena such as shopping websites or online auctions are totally excluded from the term, although, there are some things in common, and some of the empirical and theoretical data discovered in this paper might be applied as well.

The limitations of the study are imposed from the variety of the virtual communities. So we do not aim to present the quantitative or representative study of virtual communities and cover the wide array of their types, nature and culture. Instead, we will focus on how some selected members of some selected virtual communities experience trust in their virtual environment. The selection was performed using snowball method where study subjects recruit future subjects from among their acquaintances. Thus, we did not choose any particular virtual communities and neither did we aim to. However, the method used resulted in picking two types of virtual communities: forums of some kind of interest, and a virtual community within Second Life.

Because many things can be trusted or distrusted, we have to limit ourselves to what the subject of trust is. We focus on trust when it comes to people within the virtual community and the medium, which can be certain tools, interfaces or just technology in general. Thus, in our thesis, we do not try to deal with all the perspectives regarding trust. Instead, we focus our study on psychological and sociological perspectives since these ones are most relevant in the context of our research, as will be discussed later.

When it comes to the field of informatics, we have to limit ourselves as well. If we look at the field it is quite obvious that in relation to trust and virtual communities the main work has been done in security and human-computer interaction (computer supported collaborative work in particular) fields (Ackerman 2000; Dourish 2001; Erickson and Kellogg 2000 etc.). So we limit ourselves to these fields and HCI in particular, as in the field of computer supported collaborative work there has been many researches (we present them later in our paper) that directly or indirectly addressed communication in virtual communities and trust.

In relation to our thesis, we focus on two things that can be trusted: people, and medium (that might be trust in some particular tools or software interface, or distrust in technology in general). Excluding other possible types of trust.

1.6 Theoretical research strategy

Theoretical research strategy is literature review, analysis and synthesis. Such strategy is useful when dealing with such a complex concept as trust. So in order to analyze it and do empirical study we have to crystallize essential theoretical background. First, we review the literature, present the concepts of community and virtual community. Then we analyze the notions of trust and provide background about trust definition and typology. After presenting trust, we use that theoretical material to crystallize the definition and characteristics of virtual community trust (we see it as the summary of the material about sociological trust that has been focused to the virtual communities). This will be used as the main theoretical background to create interview questionnaires and analyze empirical data about the perception of trust in virtual communities. Then we focus on trust in informatics field and analyze and synthesize the relevant literature in order to present the effects of the technological medium to the trust in virtual communities. This analysis will be used to analyze the empirical data when it comes to the effects of the medium to the trust in virtual communities.

Lastly we empirically research how trust is experienced by members of virtual communities, by this we mean how do they experience trust in virtual settings, how do they compare their experience of trusting in real and virtual communities.

1.7 Definitions and abbreviations

The Net is an informal term for the loosely interconnected computer networks that use CMC technology to link people around the world into public discussions (Rheingold 2000).

Cyberspace, originally a term from William Gibson's science-fiction novel *Neuromancer* (as cited by Rheingold 2000), is the name some people use for the conceptual space where words, human relationships, data, wealth, and power are manifested by people using CMC technology (Rheingold 2000). Computers and the telecommunication networks constitute the technical foundation of *computer-mediated communications* (CMC).

Avatar is a representation of a user in a virtual world. “*Second Life*” users interact with themselves with motional avatars.

SL is an acronym for “*Second Life*”.

RL is an acronym for “*Real Life*” commonly used inside virtual communities such as “Second life”.

VC is an acronym for “*Virtual Community*”.

Newbie is a slang term for a newcomer to an Internet activity.

TP is an acronym for “*Teleport*”. Teleporting is a usual transport way.

Lag is a symptom used commonly among VC users which refers to a late response of the system, usually due to overload issues.

IM is an acronym for “*Instant Message*”. Term used commonly to refer private chatting in SL.

LOL or **lol** is an acronym for “*laughing out loud*”. Well known and very common in online chat.

Tag is a label, used in SL to describe avatar’s name and group membership.

NP is an acronym for “*No Problem*”.

2 THE UNDERSTANDING OF COMMUNITY

In order to understand what *Virtual Community* means, and why this phenomenon appeared, firstly we need to narrow down the concept of *community*, which is a wide term, usually misunderstood with society. In this chapter, we discuss the understanding of community its typology and the shift to virtual communities.

2.1 A number of perspectives

In the very beginning of our literature study in this field, we realized that theories of communities have been developed in many fields (Wright 2004). “Outside the field of psychology, sociological perspectives were surely the most influential among those ideas that helped provide a background for early community psychology theorists, but given the interrelated nature of the development of intellectual history, perspectives in other fields such as anthropology may also have played an important role” (Wright 2004, p. 9). In spite of this, our study will not attempt to deal with all these theories. Instead, we focus our study on psychological and sociological perspectives.

2.2 The beginning of a Community

A community refers to a sociological group sharing an environment. This is a quick and popular definition which might be easily misunderstood with what society actually means. *Community* is perceived to be a tighter and more cohesive social entity within the context of the larger society, due to the presence of a "unity of will". Family and kinship are the perfect expressions of community, but that other shared characteristics, such as place or belief, could also result in such phenomenon (Tönnies 1887).

During human growth, and maturation, people encounter sets of other individuals and experiences. Infants encounter first their immediate family, then extended family, and then local community (such as school and work). During this progression, they form values, develop relationships with each other and start to take decisions of whom and why they want to interact with (Newman 2005). When an individual develops a feeling of belonging to a group, and they must help the group they are part of, then they develop what social psychology calls “Sense of Community” (McMillan and Chavis 1986). This concept will be discussed further.

2.3 Psychological Sense of Community

Psychologist Sarason (1974), introduced the concept “Psychological Sense of Community”. Sarason (1974, p. 157) defined it as “the perception of similarity to others, an acknowledged interdependence with other, a willingness to maintain this interdependence by giving to or doing for others what one expects from them, and the feeling that one is part of a larger dependable and stable structure”.

Many studies have followed Sarason’s work, and “some impressive theoretical and empirical development has emerged around this concept, which by 1986 had come to be regarded as a central overarching value for Community Psychology” (Wright 2004, p. 12).

2.4 Sense of Community

From all the theories of Psychological Sense of Community, McMillan and Chavis’ (1986) work is one of the most influential, and, at the same time, it is the “starting point for most of the recent research on sense of community in the psychological literature” (Wright 2004, p. 13).

McMillan and Chavis (1986) prefer to call Sense of Community, what we have been referring to as Psychological Sense of Community, and they say it is “a feeling that members have of belonging, a feeling that members matter to one another and to the group, and a shared faith that members’ needs will be met through their commitment to be together” (McMillan and Chavis 1986, p. 9).

2.5 Four elements of Sense of Community

McMillan and Chavis (1986) proposed four elements as the composition of the “Sense of Community”:

- Membership
- Influence
- Integration and fulfillment of needs
- Shared emotional connection

2.5.1 Membership

This is the first element that McMillan and Chavis (1986) proposed, and they divided it into five attributes: boundaries, emotional safety, a sense of belonging and identification, personal investment, and a common symbol system.

Boundaries define who belongs to a group and who does not, and those are language, dress, and ritual (Wright 2004). McMillan and Chavis (1986, p. 9) leave place for discussion by claiming that “group members’ legitimate needs for boundaries to protect their intimate social connections have often been overlooked”. Wright (2004) summarizes the second attribute, emotional safety, as the willingness of an individual to show or reveal how he really feels. When we talk about a sense of belonging and identification, we mean the will of being accepted within the community. The fourth attribute, personal investment, as the reader may imagine, refers to how much a member puts into a community. In the end, the last attribute deserves a bit more attention than a simple explanation.

Wright (2004, p. 15) claims that “understanding common symbol systems is a prerequisite to understanding community”. If we take a neighborhood as an example of a community, the architectural style, a landmark or a logo might be its symbol. At other levels, a flag, national language can also become symbols (McMillan and Chavis 1986). Going a bit further, ceremonies or rituals, accents or dialects, types of outfits, etc can be symbols, and therefore boundaries that define who belongs to a certain community and who does not.

2.5.2 Influence

This element is meant to be bidirectional. On the one hand, members of a community, in order to be motivated, they need to feel that their participation influences the whole group somehow. On the other hand, the group cohesiveness depends on the influence that the group has over its members. McMillan (1996) retakes the discussion about the composition of the sense of community and he discusses this element in particular from the standpoint of “trust”, pointing out that trust is the most important factor of influence itself.

2.5.3 Integration and fulfillment of needs

The third element, “Integration and fulfillment of needs”, is defined by Sarason (1974, p. 157) as “an acknowledged interdependence with others, a willingness to maintain this interdependence by

giving to or doing for others what one expects from them”. According to Wright (2004), the third element of the composition of “the sense of community” does not refer just to surviving and needs as such, but also what is valued and desired.

2.5.4 Shared emotional connection

This last element is, perhaps, the most difficult one of all the elements in terms of understanding. At the same time, McMillan and Chavis (1986, p. 14) describe it as “the definitive element for true community”. McMillan and Chavis (1986) introduce some important features of shared emotional connection but the following example might make it easier to understand. For instance, a person who has been awarded in front of his or her community may develop a deeper feeling of attachment to such community, but on the other hand, if such person is humiliated, the feeling would be the opposite.

2.6 Types of community

Riger and Lavrakas (1981) distinct two factors to categorize communities extremely similar to the ones that Gusfield (1975) defined 6 years earlier, “social bonding” and “physical rotedness”. According to those two factors, Gusfield divides communities in two main dimensions: territorial and relational.

On the one hand, “the relational dimension of community has to do with the nature and quality of relationships in that community, and some communities may even have no discernible territorial demarcation, as in the case of a community of scholars working in a particular specialty, who have some kind of contact and quality of relationship, but may live and work in disparate locations, perhaps even throughout the world” (Wright 2004, p. 11).

On the other hand, “Other communities may seem to be defined primarily according to territory, as in the case of neighborhoods, but even in such cases, proximity or shared territory cannot by itself constitute a community; the relational dimension is also essential” (Wright 2004, p. 11). This type of communities might be further divided into Communities of Culture such as disabled persons or ethnic groups; or Community Organizations, from family or kinship networks to economic enterprises, professional association (also called communities of practice), and so on.

Wright, based on Gusfield's (1975) theory, opens the door to the concept of Virtual Community by pointing out the most important statement for Virtual Communities to exist: territorial demarcation is not a limit.

It is also worth to mention that communities are nested; one community can contain another - for example, a geographic community may contain a number of ethnic communities. Some of those communities share both location and other attributes (Tropman et al 2006).

The communities that do share both territorial and relational issues are called Intentional Communities. For instance, people who live near to each other because of a common interests (retirement community).

2.7 Shift to Virtual Communities

“The hunger for community” that grows in the breasts of people around the world as more and more informal public spaces disappear from our real lives gives name to Virtual Communities” (Rheingold 2000), where people initially communicate through computers.

As we have seen in this chapter, territorial demarcation does not become a problem while forming communities, and that, together with the “hunger for community” that Rheingold (2000) mentions in his book, leads us to a whole new way of developing communities that is emerging nowadays, the very mentioned Virtual Community.

2.8 Virtual Community

According to Rheingold (2000, p. “xx”), Virtual communities are “social aggregations that emerge from the Net when enough people carry on discussions long enough, with sufficient human feeling, to form webs of personal relationships in cyberspace”. This is not a new idea, the first Virtual Community, was carried out by scholars associated with the London royal society that kept discussions and formed personal relationships by the exchange of letters.

Rheingold (2000) pointed out the potential benefits, individually as well as for society at large, of belonging to such groups as electronic mailing lists, IRC (Internet Relay Chat), MUDs (Multi-User Dungeons), etc. In the Internet, we can also read the term “On-line Community” or “e-Community”, referring to the same as Virtual Community, but excluding, in an implicit way, the Virtual

Communities that do not interact through computers, such as the pioneer Virtual Community carried out by scholars from the London royal society that we pointed out before. In spite of the appearance of this “urban concept” among the Internet surfers, we would rather use in our study the term that Rheingold (2000) gave to this phenomenon initially.

3 THE CONCEPT OF TRUST

Regarding the subject of trust there have been much work carried out in the fields of sociology, philosophy, socio-psychology and others (e.g. Good (1988), Barber (1983) and Govier (1997)). In this paper, we focus on trust as a sociological phenomenon, as it is concerned with the virtual communities. So first we overview what work has been done in this area and how do sociologist explain and define trust. This chapter deals with definition and typology of trust. Further, the concept of virtual community trust is crystallized and the characteristics of trust are discussed.

3.1 Definition of trust

The definition of trust is quite problematic domain. There were many attempts to define trust (Govier 1997; Dunn 1984; to name a few). However, trust is usually perceived and studied too narrowly even though it is a complex notion (Abdul-Rahman and Hailes 2000). When studies of trust are narrowly scoped, it is difficult to form a common ground when it comes to broader or interdisciplinary studies. Because of that, there is a lack of coherence among researchers about the trust definition, what makes trust studies difficult to compare (Abdul-Rahman and Hailes 2000).

Different authors stress different properties of trust, for example, Luhmann (1979) points out that, trust can be considered as a tool for complexity reduction as it provides the feeling of internal security before taking actions despite the uncertainties and lack of information. Misztal (1996) sees trust as something essential to economy and commerce, because it facilitates problem solving by influencing team members and encouraging them to share or exchange information, helping to formulate a sense of self-identity etc. Thus, trust is present in all social interactions (Misztal 1996). Rotter (1967) defined trust as an expectancy held by an individual or a group that the word, promise, or verbal or written statement of another individual or group can be relied upon.

However, above definitions do not show the full picture and grasp only some parts of the phenomenon. For example, the above mentioned Rotter's (1967) definition of trust is too narrow, as sometimes people trust others to do certain things even if they have not explicitly promised or indicated by other means that they will do them (Govier 1997).

Although some definitions leave space for potential formalization of trust, the problem is that trust has an implicit nature and is a complex phenomenon which is difficult to formalize. Gambetta (1990), as cited in Abdul-Rahman and Hailes (2000, p. 2) defined trust in the following way: “trust (or, symmetrically, distrust) is a particular level of the subjective probability with which an agent will perform a particular action, both before [we] can monitor such action (or independently of his capacity of ever to be able to monitor it) and in a context in which it affects [our] own action”. The notion of subjective probability implies that there are different levels of trust which depend on the truster. However it is complicated if possible to mathematically formalize this probability and the probability theory is unsuitable to deal with uncertainty (Abdul-Rahman and Hailes 2000). Another issue is that truster might not ground her trust in rational choice as she may have reasons beyond the cognitive evaluation of risk, and thus, the trust decision might be made spontaneously, without thinking of the future outcome (Gambetta 1990; Barber 1983).

As trust affects and goes deep into social life, many things can be trusted or mistrusted, such as other people, the government, leaders, foreign leaders, other countries, forces of nature, situations, human nature, machines, computers etc. We only focus on two things that can be trusted: people and medium (that can be some particular virtual interface or technology in general).

As we can see from above the universal definition of trust is beyond our paper, thus we focus defining trust in relation to communities. In order to define trust we have to understand its role in the community. As we already discussed above, trust is necessary for communities to exist. Thus, sociologists see trust as the core component of social life or the glue that connects people, enables social relations and social interactions (Govier 1997).

Trust is implicit in our daily lives and our social world to a far greater extent than we normally realize. When people trust they make judgments about other people based on a complex web of beliefs, emotions and attitudes thus trust enables people to move from limited evidence to expectations about a person they put trust on (Govier 1997). These expectations are based on implicit sensing of the other people’s competence. So trust can be considered as feeling or sense about what kind of person the other is, especially when regarding the motivation and competence (Govier 1997). The following definition sums it up:

“trust is fundamentally an attitude, based on beliefs and feelings and implying expectations and dispositions” (Govier 1997, p. 4).

This definition needs a deeper explanation. First, it reveals that trust involves expectations and beliefs that have an open-end character, which means that when people trust, they take risks and are vulnerable. However it is important to mention that trusting does not imply the presence of guarantees of some kind. In opposite - searching for guarantees would indicate lack of trust (Govier 1997). We especially stress this, as the claim reveals a potential way of sensing the atmosphere of trust within the virtual community (if its members were looking for evidence this would be an indication of lack of trust).

As was already mentioned trust involves open-ended beliefs. However, where do these beliefs come from? Usually these beliefs are not taken just out of nowhere; they are based on some kind of evidence or prior experience of an individual. For example when people trust the person they know, their expectations are usually based on the prior experience with that person, however if there is trust, “the expectations go beyond what evidence proves” (Govier 1997, p. 6).

Trust affects our interpretations of other people and their activities. However, trust is not a black or white thing; it involves various degrees of trusting other people depending on different roles and contexts (Govier 1997). Thus, trust on the whole does not mean trust in every context.

Govier (1997, p. 6) distinguishes such features of attitude of trust:

- Expectations of benign, not harmful, behavior based on beliefs about the trusted person’s motivation and competence;
- An attribution of assumption of general integrity on the part of the other, a sense that the trusted person is a good person;
- A willingness to rely or depend on the trusted person, an acceptance of risk and vulnerability; and
- A general disposition to interpret the trusted person’s actions favorably.

To sum up, trust is an implicit glue of social life, which is based on expectations that go beyond the evidence and involve sensing the others’ competence. It is role and context specific and has an open-end character.

3.2 Trust typology

In order to understand how trust works in virtual settings we have to distinguish the types of trust. Social scientists identified three types of trust. First type is *interpersonal trust* which basically is trust one agent has in another agent directly. This trust is agent and context specific (McKnight and Chervany 1996). For example, Peter might trust specific agent Tom the dentist in specific context of fixing his teeth, but not in the context of fixing his car. Similarly, Govier (1997) calls trust when people trust other to whom they relate in the context of social roles, a thin trust. Despite the contexts and intimacy involved in trust vary highly, the basic attitudes and beliefs or the logical core of trust remains the same (Govier 1997). There were even attempts to devise a scale for measuring interpersonal trust (Rotter 1967). Such Interpersonal Trust Scale was used in 1970s and 1980s by social psychologists interested in trust and distrust (Govier 1997).

The second type is *system trust* or *impersonal trust*. This type of trust “refers to trust that is not based on any property or state of the trustee but rather on the perceived properties or reliance on the system or institution within which that trust exists” (Abdul-Rahman and Hailes 2000, p. 3). The most common example is monetary system.

The third type is *dispositional trust* or as sometimes called the “basic trust”. This trust refers to the “general trusting attitude of the truster” (ibid., p. 3). According to McKnight and Chervany (1996), it is a feeling of basic trust or an attitude toward oneself and the world. McKnight and Chervany (1996) define subtypes of dispositional trust. The type A refers to the truster’s belief on the other agents’ benevolence. Type B concerns the disposition that is irrespective of the potential trustee’s benevolence, a more positive outcome can be persuaded by acting ‘as if’ we trusted her (Abdul-Rahman and Hailes 2000).

So to sum up there are three types of trust:

- **Interpersonal trust** – the direct trust between agents and it is agent and context specific.
- **System trust or impersonal trust** – the trust which is not based on the trustee but relies on the system or institution
- **Dispositional trust** – the general trusting attitude of the truster.

3.3 Trust Characteristics

In this sub chapter we briefly overview the work that has been done on characteristics of trust.

Trust is not an objective property of an agent but a subjective degree of belief about agents (Misztal (1996); McKnight and Chervany 1996). The degrees of such belief range from total trust to total distrust. For example, there might be a situation when an agent does not have an opinion of another agents' trustworthiness or in other words is ignorant about others' trustworthiness, however an agent still makes a trusting action based only on anticipation of a positive outcome (Abdul-Rahman and Hailes 2000). Trust is based on truster's relevant experience and knowledge with others, and thus it is not just a game of chance (Jardin 1993; Jøsang 1996). In future familiar situations knowledge and experience form the basis for trust (Luhmann 1979).

Abdul-Rahman and Hailes (2000) suggest that trust is created inductively rather than deductively. Govier (1997, p. 8) also points out that trust is created inductively:

The attitude of trust presupposes inductively grounded beliefs and confident expectations that go further than strict induction would warrant. So it presupposes something we well know: we are creatures who reason inductively, and we have a tendency to extend our confidence beyond the evidence.

According to Govier (1997, p. 8), “we build trust on the trust we have”. The trust of other people is possible because people inductively extend their beliefs and responses to others, their senses of themselves, position in the world and their values. This implies that trust is dynamic and non-monotonic as the additional experience or evidence may increase or decrease the degree of trust in others’ later on (Abdul-Rahman and Hailes 2000).

3.4 Virtual community trust

Having the above trust types as the theoretical foundation, we propose the operational notion of “virtual community trust” which can contribute to the above trust typology or just illustrate how these three types work together in particular virtual settings. By defining virtual community trust, we can concentrate and analyze how it works in virtual communities. This definition of virtual community trust can be regarded as the synthesis of the above theory on trust in relation to virtual communities.

Virtual community trust, as we see it, is a complex or multiple type of trust which deals with all three types of trust in some particular way. Based on the discussion above we define it as *agents trust to another remote agent that can be reached only via technological medium*. It always involves interpersonal trust as one agent puts trust in another remote agent within virtual community. This trust type is context and agent specific as well, however the difference here is that agent trusts another agent indirectly and the context is very limited by technological means.

Virtual community trust always involves system or impersonal trust, as the agent has to trust the technological medium as well as another agent. In addition, it includes the dispositional trust (or basic trust), as it is general trusting attitude of the truster. However, dispositional trust has to deal with both other human agents and technological medium. Therefore, trust within virtual community is multilayered trust and involves higher number of elements to be trusted (such as remote agent, the medium, and technology in general) as compared to e.g. interpersonal trust.

Although the trust can be defined in a variety of ways, they contribute to each other and reveal different characteristics of trust. We focus on virtual community trust which we define as agents trust to another remote agent that can be reached only via technological medium.

4 VIRTUAL COMMUNITIES AND TRUST

This chapter deals with trust in virtual settings. First, it discusses the work that has been done regarding trust in informatics field and presents the attempts to formalize trust. Then it focuses on the great divide between real life trust settings and the virtual settings that struggle to support trust.

4.1 *Trust in informatics field*

Contemporary society is sometimes defined as “risk society” (Beck 1992). According to Abdul-Rahman and Hailes (2000), the balance of trust and distrust determines how stable the community is. Because of the information overload and increased uncertainty, risk taking becomes a prominent feature of modern living. Thus, people as members of society cope with these risky complexities and uncertainties by relying on trust, as the core of all social interactions. However, trust in informatics has always been a vague domain (Abdul-Rahaman and Hailes 2000). Most of the work about trust in relation to the field is concentrated in the area of security and based on formal logics (e.g. Gambetta 1990, Burrows et. al. 1990). The few existing trust models for virtual mediums are criticized as impractical, artificial and ill suited as general models of trust (Abdul-Rahaman and Hailes 2000). The lack of concrete definition of trust and the assumption of the intuitive notion of trust to be universal results in the subjective interpretations and incompatible implementations of the trust models to virtual mediums (eg. Beth et. al. 1994, Jøsang 1996, Maurer 1996, Marsh 1994, Rangan 1988, Yahalom et. al. 1993).

According to Abdul-Rahman and Hailes (2000, p. 1), “virtual communities are as real as communities that meet physically or whose members exist in near or convenient proximity”. Thus, the same roles of trust apply to the virtual communities, as “all virtual interactions are human bound” (Abdul-Rahman and Hailes 2000, p. 1).

Abdul-Rahman and Hailes (2000, p.1) go even further and point out that “this is true even for artificial entities such as software agent as they are created to serve a human person and the result of their interactions are fed back to humans in one form or another”.

4.2 Trust models

Having above in mind there is a need for a trust model that is grounded in real-world social trust characteristics and is not artificially imposed from formal logics that might not always be suitable in real-life settings. Such model for virtual communities, according to Abdul-Rahman and Hailes (2000), would help (1) managing the increasing complexity of large distributed systems such as Internet more effectively; (2) electronic commerce proceed smoothly and (3) artificial autonomous agents to work more robust, resilient and effective by providing them with trust reasoning capabilities.

Abdul-Rahman and Hailes (2000) stress that trust is a social phenomenon and thus any artificial trust model has to be grounded on how trust works between people in real society.

We managed to find two models that are based on real life trust characteristics. We present these models in order to illustrate that there are attempts to specifically support and encourage trust in virtual communities.

4.2.1 Marsh's trust model

First one is Marsh's trust model which is based on the real world social properties of trust (Abdul-Rahaman and Hailes 2000). This model attempts to formalize trust based on a quite thorough analysis of this phenomenon. It has very strong sociological foundations and a lot of variables. However this is its both strong and weak point. Model tries to incorporate all aspects of social trust what results into a large number of variables. However, these variables are continuous values between 0 and 1 that aim to represent different abstract notions like risk or competence. Such representations of abstract real world concepts, according to Abdul-Rahaman and Hailes (2000, p. 2), “introduce ambiguity in the model, as the semantics of these concepts are usually hard to represent as single real numbers” and even more, “application of one value onto another amplifies this ambiguity”.

Another trust model which will be discussed in a greater detail is Abdul-Rahaman's and Hailes' (2000) trust-reputation model.

4.2.2 Abdul-Rahaman's and Hailes' trust-reputation model

Abdul-Rahaman and Hailes (2000) created a trust model that they claim is grounded in real-life trust characteristic. Another property of this model is that it is based on reputation or word of mouth. This model enables agents to make decisions about the other agents' opinions and their trustworthiness and by doing that to tune their understanding about the other agents' subjective recommendations (Abdul-Rahaman and Hailes 2000). The agent notion in this model refers to "all active trust-reasoning entities in a virtual community, human or not" (Abdul-Rahaman and Hailes 2000, p. 2).

The goals of this trust model for virtual communities are (1) to assist users in indentifying trustworthy entities and (2) give artificial autonomous agents the ability to reason about trust.

The authors stress that the model is based on real world characteristics of trust. A word of mouth plays an important role in this model, as according to Abdul-Rahaman and Hailes (2000), it is an important supporter of social trust.

It is obvious that one individual cannot possibly evaluate all aspects of a situation when it comes to trusting someone, so individuals have to rely on other sources while make trust decisions (Abdul-Rahaman and Hailes 2000). And actually, there would be no use of trust if all the knowledge would be possible and accessible to the individual. Abdul-Rahaman and Hailes (2000) suggest that in real life people obtain necessary information by a word of-mouth. Word of-mouth is a mechanism for propagating reputation and it influences the behavior of an agent when other agents act cooperatively. It is a kind of social control (Abdul-Rahaman and Hailes 2000; Tan and Thoen 1999; Rasmusson and Jansson 1996).

Thus, the reputational information is important as it helps making effective and informed trust decisions. According to Misztal (1996), as cited in Abdul-Rahaman and Hailes (2000, p. 3), "reputation helps us to manage the complexity of social life by singling out trustworthy people – in whose interest it is to meet promises". Abdul-Rahaman and Hailes (2000, p. 3) provide another definition of reputation: "a reputation is an expectation about an agent's behaviour based on information about or observations of its past behaviour". Further, reputational information is not necessarily the opinion of others. It may be completely based on an individual trusters personal

experiences. This allows people to “generalize reputational information to combine personal opinions and opinions of others for the same reputation subject” (*ibid.*, p. 3).

In this model “reputational information can come from an external source or from the truster himself, through experiences with other agents” (Abdul-Rahaman and Hailes 2000, p. 4). Simplified scheme of this model is shown in image 4.1.

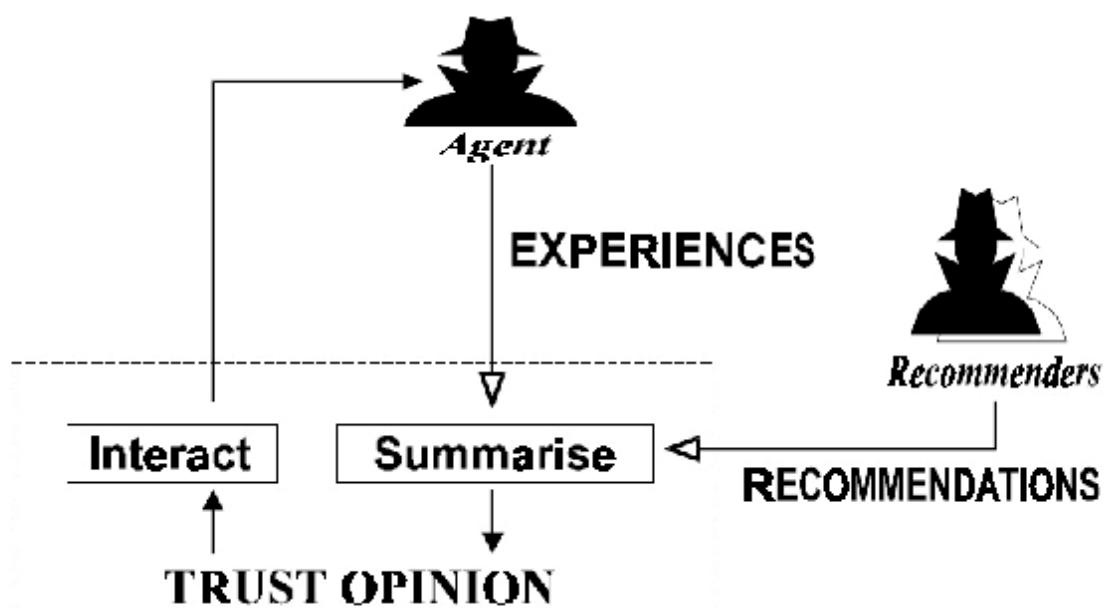


Image 4.1. Abdul-Rahaman’s and Hailes’ (2000) Trust-reputation model

This model supports the following properties of social trust (adapted from Abdul-Rahaman and Hailes, 2000):

- Trust is context-dependent.
- Supports negative and positive degrees of belief of an agent’s trustworthiness, although on a short range of values.
- Trust is based on prior experiences. Agents are able to identify repeated experiences with similar contexts and with the same agents.
- Agents are able to exchange reputational information through recommendations, thus supporting a reputation mechanism to assist in trust decisions.
- Trust is not transitive – all evaluations of recommendations take into account the source of the recommendation.

- f) Trust is subjective – different observers may have different perceptions of the same agent’s trustworthiness.
- g) Trust is dynamic and non-monotonic – further experiences and recommendations increase or decrease the level of trust in another agent.
- h) Only Interpersonal Trust is supported (Abdul-Rahaman and Hailes (2000) exclude Dispositional and System Trusts).

This model deals with beliefs when it comes to the trustworthiness of an agent. These beliefs are based on the experience and the reputational information that agent acquires. Abdul-Rahaman and Hailes (2000) describe experience as the result of evaluation of experience with an agent or result of relying on a recommendation from an agent. Trustworthiness of agents is determined by agent’s collected statistics on direct experiences and recommendations from other agents. However agents “do not maintain a database of specific trust statements” and instead “the trustworthiness of a particular agent is obtained by summarizing the relevant subset of recorded experiences” (Abdul-Rahaman and Hailes 2000, p. 4). The model represents an “agent’s belief in another agent’s trustworthiness within a certain context to a certain degree” (ibid, p. 4). It is important feature of the model that agents opinion is based on previous interactions with the other agents.

Despite the Abdul-Rahaman and Hailes (2000) ambitions to ground the model in real-world characteristics of trust the model is still very limited. First, the model covers only the interpersonal trust and excludes other trust typologies such as dispositional and system trusts. Thus, model application domain is very narrow and limited. Another problem is that authors tried to keep model simple while dealing with complex social phenomena this resulted in limitedness and questionable scales of trust degrees and their weightings. Authors themselves acknowledge this problem. Despite these shortcomings model is an interesting attempt to formalize trust even if it may be applied in a very narrow domain.

4.3 Social-technical gap

However creating trust models and their application to virtual communities is not enough. These models require that social information and contexts were available to the members of community, however virtual medium provides very limited means to get such information compared to the real communities. Anonymity and pseudonyms are dominating in virtual world, people who gained a bad reputation may easily create a new account and start over. Communication in virtual world is

also far different from the one in real-life settings. Thus even most satisfactory trust model might fail when dealing with mediated nature of communication in virtual communities. The problem here arises because the technology often fails to provide social information that is obvious in real life and makes people in virtual medium “socially blind” (notion used by Erickson and Kellogg 2000, p. 326). Thus, there is a need to discuss technological issues that affect trust decisions.

The way we see computers is changing nowadays. Computers became a commodity as Moore’s law still continues to hold (Myers et al. 2000). With the rise of the Internet computer “is becoming a technology for *communication* more than for *computation*” (Myers et al. 2000, p. 223). This is the key trend today and this trend seems to increase significantly with the rise of ubiquitous computing that is highly prospective. According to Myers et al. (2000, p. 224) “computers no longer are used as islands of computation and storage but rather as part of an integrated, multimachine, multiperson environment” (Myers et al. 2000, p. 224). The above statement that computer “is becoming a technology for communication more than for computation” may be questionable, thus instead we would claim that the use of computers is expanding from just utility to communication medium.

According to Furnas (2000, p. 53), “the scope of computer has expanded” as computers are “no longer just boxes on our desktops, they have become communication intense”. Thus, what started as “human interaction with a computer now includes individuals interacting with other via computational and communication media, families confronting unvetted content on the World Wide Web, and organizations participating in electronic markets”. Furnas (2000, p. 53) explains such shift in the following way: “we are not interacting *with* the technology so much as interacting with information, tasks, and other people *via* technology, carrying on activities made possible by those technologies”.

However, today technology is still very limited, especially in terms of social issues. The distinction between the digital communication and one in the physical world in terms of supporting social life implies a need to diminish this social-technical gap, support the mediated communication and thus facilitate trust decisions in virtual communities.

In this chapter we analyze what reasons cause such social-limitedness of today’s technology and what can be done in order to support the mediated communication and trust. We discuss the problem of “social-blindness” and the importance of the context in the mediation of communication

and trust. As a way to analyze what actors are involved in the communication and creation of the contexts, we elaborate the active-network theory.

According to Furnas (2000, p. 58), a lot of effort in HCI has been put to individual level (especially what concerns work issues), and at the level of group work (e.g. CSCW), however fairly “little at the family level or community level”. Furnas (2000, p. 55) claims that “at the level of neighborhoods, local community networks can potentially provide new cohesion and build trust”. In this case, we can see an opposite view when creating virtual communities can encourage trust in real ones.

4.3.1 Shifting towards communication medium

When computer becomes a communication medium rather than just a utility a new requirements has to be set that are relative to the communication discourse. E.g. computer when treated as computational utility had to solve computational tasks fast and effectively. Seeing it as a communication medium implies that it has to support complex social life.

Such approach reveals a limitedness of today’s technology. In order to support such social phenomena as trust and mediate human communication that is “deep, coherent, and productive”(Erickson and Kellogg 2000, p. 325), designers have to deal with the totally different nature of people and computers. As Ackerman (2000, p. 303) claims “human activity is highly flexible, nuanced, and contextualized” however technical systems are “rigid and brittle not only in any intelligent understanding but also in their support of the social world”.

In relation to computer-supported cooperative work there have been made many researches (e.g. Turoff et. al. 2000; Ackerman 2000, etc.). Their findings reveal that “social activity is fluid and nuanced, and this makes systems technically difficult to construct properly and often awkward to use” (Ackerman 2000, p. 304). Details and contexts are important in social interaction especially when it comes to trust, yet systems have difficulties handling this detail. Information exchange is very complexly managed by individuals. Systems often assume a shared understanding of information, but people have subjective and different understandings or interpretations concerning the same information especially when dealing with trust. Trust is very subjective and unamenable to formalization as it involves many social characteristics and contexts (Ackerman 2000). Exceptions are normal in work and communication processes and again roles determined by people are

informal and fluid. However, systems need explicit commands and clearly defined roles. These and other issues demonstrate the existence of so called social-technical gap that is “the great divide between what we know we must support socially and what we can support technically” (*ibid.*, p. 304).

As the technology becomes more and more ubiquitous and communication oriented, it is necessary to diminish this social-technical gap. However the question is how to support the complex social processes including trust and diminish the gap? Social context might be one of the answer.

4.3.2 Social translucence

According to Erickson and Kellogg (2000), the difficulty of digital communication stands in stark contrast to our ability to communicate with one another in the physical world. People make everyday decisions based on the activity of those around them, the context and other social information. However, the digital world makes people socially blind (Erickson and Kellogg 2000, p. 326). Thus, the main problem is the absence of social contexts in computer mediated interaction.

Erickson and Kellogg (2000, p. 327) suggest that some of the social contexts can be provided by creating social translucence which is a “fundamental requirement for supporting all types of communication”.

In order to explain the concept of social translucence, Erickson and Kellogg (2000), use the door metaphor. They describe the door that has a design problem – when opened quickly, it is likely to slam into anyone who is about to enter from the other direction. One of the possible solutions is to place a sign “Please open slowly” on the door. However, such solution is not very effective one. They contrast this to another possible solution – putting a glass window into the door which solves the problem without any additional signs. Through the glass window people see if anyone is approaching the door from the other side and thus they can “modulate their actions appropriately” (Erickson and Kellogg 2000, p. 327). This is a simple example of what Erickson and Kellogg (2000) call a socially translucent system. Although it is obvious why such system works, Erickson and Kellogg (2000) explain it in more detail. There are three reasons for such effectiveness of the glass window (Erickson and Kellogg 2000, p. 327):

1. First, the glass window makes socially significant information *visible*. That is, as humans, we are perceptually attuned to movement and human faces and figures. We notice and react to them more readily than we notice and interpret a printed sign.
2. Second, the glass window supports awareness. I don't open the door quickly because *I know* that you're on the other side. This awareness brings our social rules into play to govern our actions. We have been raised in a culture in which slamming doors into other people is not sanctioned.
3. There is a third, somewhat subtler reason for the efficacy of the glass window. Suppose that I don't care whether I hurt others. Nevertheless, I'll open the door slowly because *I know that you know that I know* you're there, and therefore I will be held *accountable* from my actions. (This distinction is useful because while accountability and awareness usually co-occur in the physical world, they are not necessarily coupled in the digital realm.) It is through such individual feelings of accountability that norms, rules, and customs become effective mechanisms for social control.

So, social translucence consists of visibility, awareness and accountability. Erickson and Kellogg (2000) see these three properties of socially translucent systems as building blocks of social interaction. The problem in virtual communities is that if they lack these properties the trust decisions become more risky as e.g. there is no clear accountability for ones actions.

Erickson and Kellogg (2000, p. 328) claim that “social translucence is not *just* about people acting in accordance with social rules”, and that in such systems “it will be easier for users to carry on coherent discussions; to observe and imitate others’ actions; to engage in peer pressure; to create, notice, and conform to social conventions”. Thus such systems can be seen as fundamental requirement for supporting all types of communication and interaction between members of virtual community and thus facilitate trust decisions.

However, Erickson and Kellogg (2000) point out that they are talking about socially translucent systems rather than socially transparent systems. This is because the tension between privacy and visibility has to be balanced and thus socially transparent systems would not be the best solution. What people do and say depends on *who* and *how many* others are watching. It is worth mentioning that privacy is neither “good nor bad” *per se*, according to Erickson and Kellogg (2000, p. 328) it just “supports certain types of behavior and inhibits others”.

Erickson and Kellogg (2000, p. 343), consider the digital world to be “populated by technologies that impose walls between people, rather than by technologies that create windows between them”. Erickson and Kellogg (2000, p. 343), suggest that “by allowing users to ‘see’ one another, to make inferences about the activities of others, to imitate one another [...], digital systems can become environments in which new social forms can be invented, adopted, adapted, and propagated – eventually supporting the same sort of social innovation and diversity that can be observed in physically based cultures”. Thus, trust in virtual communities if supported by such socially translucent systems might be closer to real life settings, as the systems would provide the users with enough social information and not impose them to rely on some clumsy ratings or other artificial characteristics.

However, these three properties alone are still not enough to fill the social-technical gap. A future perspective of context-aware computing provides some more issues to discuss.

4.3.3 Context-aware computing

Another approach should be considered that focuses on the context. By that, we mean context-aware computing that is generally associated with elements of the ubiquitous computing. It involves the idea of distributing computational tasks and interactions through environment instead of concentrating it at the desktop computer (Dourish 2001). Human activities, not excluding the mediated ones, are enmeshed in a variety of practices and relations that make them meaningful by setting a context within which they can be understood and evaluated (Dourish 2001). From this perspective context in which interaction emerges has to be taken into account. Such context includes all the factors that affect the interaction and on which user will make decisions about the actions to take or interpret the relationships or the medium itself. Thus the interaction between systems and people are themselves features of broader social settings Dourish (2001).

This perspective suggests a deeper role for context in interaction. It argues that the context in which actions take place is what allows people to find it meaningful. Context – the organizational and cultural context as much as the physical context – plays a critical role in shaping action, and also in providing people with the means to interpret and understand action (Dourish 2001).

This perspective provides much wider view towards the context. It even claims that the systems themselves feature in the social settings. Thus, for analyzes of the context it is necessary to

distinguish what actors are involved and what role do the systems of computers have in the social settings. For this purpose, we elaborate the actor-network theory.

4.3.4 Actor-Network theory

Law (1992) argues that knowledge is a social product. Knowledge may be seen as a product or an effect of a network of heterogeneous material. Law (1992) goes even further and claims that this is true for all social life including organizations, families, computing systems, technologies etc. In the framework of actor-network theory, all these elements are networks consisting of heterogeneous materials, whose resistance has been overcome (Law 1992).

This might seem to be a quite radical claim as it states that social networks are composed of not only people but also machines, animals, ideas, architectures and of any other materials; however we would argue that it just reveals that materials and technology are not socially neutral. Almost all human interactions are mediated in one or another way. Even in face to face communication, different cultural contexts or peripheral noise can be seen as mediators that influence the perception and interpretation. In the framework of the actor-network theory, all our communication is mediated by a network of objects or objects and people. These different networks participate in the social and are actually shaping it. The main point of the actor-network theory is that human beings form a social networks not because they interact in certain ways, but rather because they interact with human beings and various other materials too (Law 1992).

Actor-network theory thus treats all participants of the network equally e.g. people and machines both can be actors and affect each other. Actor-network theory does not give a priority neither to people, nor to objects while determining the character of social change or stability (Law 1992).

The actor according to this theory is a patterned network of heterogeneous relations, or an effect produced by such a network rather than a body alone. Thus, the relationships between actors in the network are what matters. Relationships usually are determined by the communication itself thus we reach the point in this paper where we have to consider the communication theory and its relation to the actor-network theory.

4.3.5 Actor-network theory, communication and trust

Materialistic actor-network theory neither gives priority to the people as actors of the social network nor does it give priority to the materials that are involved into the interaction. Thus, materials or mediums can equally influence the interaction as the people do (Law 1992). The actor-network theory provides a good base for understanding that technology is not socially neutral. However, in the context of technologically mediated communication which is the ground for virtual communities to exist, we would question the equality of influence of the medium and people. As discussed above the technology mediated communication lacks the social context which is crucial for trust decisions and is very different from real world communication thus it makes a big difference and does affect the interaction. The problem is at the very nature of the human communication. We assume communication to be a construct of thought; however, it is created by our bodies: mimics, face expressions, intonations, body movements, gestures etc. Today's technology cannot provide such embodiment thus mediated communication has a thought, but lacks a body (Giddens 2000). Thus, the media through which communication occurs shapes the message itself. The prophet of the electronic age Marshall McLuhan (1967) puts it as "the medium is the message" what clearly illustrates today's situation regarding the computer mediated communication and it's relation to trust. In the context of our work, it would simply mean that the medium of virtual community does affect the trust. (The interpretations of how it influences trust is presented in empirical part)

According to Olson and Olson (2000, p. 411) "trust is very fragile in the world of electronic communication". One of the explanations for this might be the fact that people have to trust not only the other people but another actor that is medium as well. Another explanation is provided by Olson and Olson (2000, p. 411), who claim that people interacting in virtual world need to put "extra effort to establish common ground" and common ground is "an important precursor to trust". Handy (1995) observed that remote teams are less effective and reliable than face-to-face teams, this, according to him, is because trust needs touch. Thus, the lack of embodiment in virtual environments results in the lack of trust.

Thus to sum up, in the framework of actor-network theory today's technologies are active actors that not only shape the social networks, but also influence the interaction, and trust in them. It illustrates that in order to support trust in virtual communities there is a need of social translucence, contexts and embodiment that today's technology still cannot provide enough.

5 STUDY OF TRUST IN VIRTUAL COMMUNITIES

In this chapter, we present and analyze the original empirical material about the trust, as it is perceived by the members of virtual communities.

5.1 *Problem area*

When technology becomes a medium for communication of communities, it is important to understand how it affects the social interactions. According to Abdul-Rahaman and Hailes (2000), people as members of society cope with risky complexities and uncertainties by relying on trust, “which is the basis of all social interactions”. Thus, it is important to understand how trust is perceived by the members of communities in virtual settings. However, there was very little research on this topic and the problem remains open. In order to bridge social-technical gap, we need to understand how do users of technology experience and perceive it. The success here depends not only on technological achievements, but also on the possibility to address and match these achievements to user needs and requirements. Thus, it is necessary to look into trust from the perspective of the member of virtual community and analyze how he is experiencing this phenomenon.

The approach we take is influenced by the phenomenological thought; however, our research is not purely a phenomenological study. We use some stand points of this school of thought but we do not aim to provide a full phenomenological study as described by Creswell (1997).

5.2 *Research goal*

The **goal** of the empirical research is to find out how members of virtual communities experience trust.

To achieve this goal we raised the following objectives:

- To find out how do members of virtual communities experience trust
- To analyze how do members of virtual communities compare trust in virtual and real communities
- Analyze how members of virtual communities make trust decisions and how are these supported technologically

5.3 Research method

According to Gerber (2008), the research method is directly connected to the problem area and research goal, and because these two factors may vary, different methods of research can be utilized. In this study we will use two methods: qualitative interviews and participant observation. Each method is discussed in more detail in the following dedicated sub-chapters.

5.3.1 Empirical research strategy

The study is inspired by a phenomenological thought as described by Creswell (1997). However, we do not claim it to be purely phenomenological, as it has some of the properties of the ethnographical study (*ibid.*). We study a single phenomenon like any phenomenological study, trust in Virtual Communities (*ibid.*). However, our study reports the sociological perspective of the phenomenon, rather than a philosophical perspective more typical for phenomenological studies (Creswell, 1997). On the other hand, we explore roles and behavior within the environment (Virtual Communities) through the use of participant observation as one of the data collection methods, which is a characteristic feature of an ethnographical approach. We deliberately choose such strategy in order to get a broader approach to the problem.

Although the motivation for our data collection technique is explained further in the following subchapters, it is worth mentioning beforehand that we use interviewing as main data collection method to find out how virtual community members experience trust, and additionally, the secondly selected data collection method, participant observation, gives us details that we can't perceive through the analysis of individual perspectives (interviews) in order to complete our findings through empirical data. Thus, the data collection techniques in this study are interviewing and participant observation. As mentioned, the main focus is put on interviews of the members of virtual communities. First, we analyze these interviews, then briefly look at observational data and finally we draw conclusions based on previous analysis.

Interviewing

To rephrase Kvale (1996), if we want to find out how members of virtual communities experience trust, why not to talk with them about it? Thus the suitable method for the research is qualitative interview, because "the qualitative research interview attempts to understand the world from the subjects' point of view, to unfold the meaning of peoples' experiences, to uncover their

lived world prior to scientific explanations” (Kvale 1996, p. 1). This research aims to find out how do members of virtual communities experience trust, thus the suitable method for this is qualitative interview. Especially when research is not limited to some particular virtual community, and thus case study would be not suitable and limiting method. And in opposite when researching different and not interconnected virtual communities we can get encourage polyvocality and variety and thus get more insights for analysis. Quantitative interview would impose limits to such delicate topic, as it can be unfolded only by letting subjects to talk freely. Quantitative data would be difficult to generalize to broader contexts and this research does not aim to such quantitative generalizations, in opposite it aims to make qualitative insights. Thus the method chosen to be semi-structured qualitative interview. By semi structured interview, we mean, that in interview protocol we have created structure by topics, however we freely change and add new questions during the interview based on the situation and interviewees answers.

Interviews were made by directly meeting interviewees at places where they felt convenient.

On the one hand, this process is mostly based on interviewing. Such procedure requires a series of steps (Creswell 1997), which are:

- § *Identifying interviewees*, applying the “snow ball” (Salganik 2004). Methodology.
- § *Determining which kind of interview* will provide the most useful information to answer the research question.
- § *Designing an interview protocol* with some open-ended questions for the interview itself. Such interview guide helps the interviewer driving the interview and not getting lost during its being performed (it is added as appendix at the end of this paper);
- § *Determining the place* for the interview; *obtaining consent from the interviewee to participate in the study*.
- § And *maintain the right attitude* within the interview in order to keep the flow of it and maximize the data gathering, with the help of our interview guide.

Subject selection

The subjects were selected using snow ball methodology (Salganik 2004). In social science research, snowball sampling is a technique for developing a research sample where existing study subjects recruit future subjects from among their acquaintances. Thus, the sample group appears to grow like a rolling snowball. This sampling technique is often used in hidden populations which are

difficult for researchers to access (Salganik 2004). This selection methodology was used because of the following reasons: it is impossible to even evaluate the number of virtual communities, not talking about the members. Thus, we needed more or less random members that were actively involved into virtual communities. By asking for recommendations from other members of virtual communities, we got contacts of some particular subjects that were considered as actively involved (and therefore selected as interviewees). Because of this, the snowball selection method seemed to be most appropriate. As we knew some people who were involved into virtual communities, we asked them to recommend other people they know are involved as well.

Participant observation

On the other hand, participant observation will be the other main data collection procedure, which, as well as interviewing, it requires some steps (Creswell 1997):

- § *Selecting a site* to be observed.. It is basically a place where the members of a virtual community behave in a normal context, providing the same information as a bar for communities in real life. We selected to explore virtual communities within SecondLife, as this is probably most famous and innovative virtual world that allows its users to interact through motional avatars with high level of flexibility. The studied virtual community was selected randomly;
- § *Identifying who and what to observe, when, and for how long.* Members of the virtual community and their behavior in different contexts is the main issue to be observed.
- § *Determining a role as an observer* which can range from a complete participant to a complete observer. In our case we became members of a selected Virtual Community within SecondLife, and therefore we were participants;
- § *Designing an observational protocol* as a method for recording notes in the field. Such methods will be mostly notes out of participant observation so we keep the nature of the situation without breaking the context loosing too much time (the observational protocol is provided in appendix III);
- § *recording aspects* which is a hard step considering that it is not in real life. However, pictures and chat conversations are recorded in order to prove the validity of our findings;
- § And *opening and ending* of the observation.

5.3.2 Quality

'Quality' is a somewhat elusive phenomenon that cannot be pre-specified by methodological rules (Seale 1999). There is a variety of conceptions of qualitative research with different and competing views towards what counts as good-quality work, but we have chosen to Kvale's (1996) approach in order to get high quality in our main data collection method and interviewing.

By this we mean, that we made sure that quality is taken care of in each of the seven stages, which an interview consists of: thematizing, designing, interviewing, transcribing, analyzing, verifying and reporting. First of all, a good attitude from both involved persons in the interview (interviewee and interviewer) is needed. Such thing is based on some guidelines and techniques, for instance, an advance preparation is essential to the interaction and outcome of the interview. We know that a substantial part of the investigation should take place before the actual interview situation. Thus, before the interviews, we prepared ourselves by reviewing the questions to be discussed and we make sure our interviewee reach a level of comfortability needed to carry out the interview in a proper way. For instance, in all cases, we let our interviewees decide where the interview should take place according to their preferences.

As a second aspect to point out, that communication interviewing is not just words, but rather it must be seen as a non reciprocal interaction in which the interviewer is the one who controls and drives the interview, and he must use techniques as body expression in order to maximize such interaction. During the interviews, we made notes of some reactions of the interviewees (such as laughter etc.).

Another concept we are aware of is, as Kvale (1996) describes, "framing the interview". This consists of setting the interview stage a short briefing before and debriefing afterwards, where the interviewer defines the situation purpose of the interview as well as explain the use of a tape recorder. And during the debriefing, an opportunity to deal with issues the interviewee was thinking or worried about during the interview must be given to him or her. Before each and every interview, we informed the interviewee about the purpose of the research and provided all the necessary information. Besides that, we asked for some additional comments about the topic and feedback about the interview process itself. By this, we got very interesting and useful data, as the interviewees summarized their thoughts and expressed other issues they had to say. This also served as a way to verify some points of interviews.

The next point is to maintain a good sequence of the interview. This sequence consisted of an order of topics and questions. The quality of such questions is evaluated respect to thematic and dynamic dimensions, thus, a good question maintain a balance contributing in both aspects. On the one hand, thematic criteria measure how much the question has to do with the topic, and on the other hand, dynamical criteria measures if the question keeps the flow of the conversation. We used different types of questions in an interview (introducing questions, follow-up questions, probing questions, specifying questions, direct questions, indirect questions, structuring questions, silence, and interpreting questions) in order to get the most of the interviews. We used specific repeating questions, when the same or similar question is asked in other words in order to make sure that we correctly understood what the interviewee had in mind. The questions were structured to several main topics (see Appendix I) with additional comments provided in interview protocol. However, we did not always follow the structure of the protocol and asked questions in relation to the context of what interviewees are talking about.

While performing the interviews we had in mind the criteria that were suggested by Kvale (1996). Such criteria involves six points: extent of spontaneous, rich, specific, and relevant answers from the interviewee; the shorter the interviewer's questions and the longer the subject's answers, the better; degree of follow-ups and clarifications by the interviewer; the extent of interpretation throughout the interview (as much as possible); verification of interviewer's interpretations of the subject's answer during the interview; and "self-communicating" interview, not requiring much extra descriptions and explanations.

5.3.3 Validity

In order to ensure validity we use different triangulation methods (Seale 1999). In spite of the ethnomethodological and philosophical criticism of *triangulation*, we consider this method as the main technique to validate our research study. This method, which is basically used in qualitative research, consists of employing several methods at once so that the biases of any one method might be cancelled out by those of others. Triangulation includes four types (Seale 1999): data triangulation, investigator triangulation, theory triangulation, and methodological triangulation. We practiced all these triangulation methods. First, use data triangulation. Although our main data source is the interviews, we also performed observation and short interviews during the observation as the way to triangulate the data. We also did investigator triangulation; interviews were performed by changing the interviewers. And finally, methodological triangulation, which we already

mentioned before. We elaborated several methods to get empirical data these include interviews, observations, our own impressions, and short on-site interviews during the observation. However, the data revealed there were no major conflicts between the results from these methods and data sources. Because of that, we focused on the interviews as we consider them to provide most diverse and deeper empirical data and thus source for analysis.

5.3.4 Transcription and analysis

The interviews were recorded using laptop with microphone that was given to the interviewees. Sound recorder was used as a backup. After the interviews, the transcriptions were made. The sound quality was pretty good, so the possibility of transcription errors is minimal. In order to avoid transcription errors we performed some kind of transcription triangulation. The transcriptions were done by one member of the researchers, and after that, the records were re-listened while reading transcriptions by other researcher. In this way some errors were fixed thus minimizing the possibility of wrong or incorrect interpretations of the words pronounced.

The analysis was performed by relying on the structure of the questions provided to the interviewees. Because of the huge amount of data, we do not see the reason to present all the results in the main text of the thesis. Because of this, we took a different approach and present results based on main topics discussed together with analysis of these topics. This allows the reader to see the relevant quotations in analysis without the need of looking to the appendixes where all the interview transcriptions are provided.

The mini-interviews from observations were taken directly from logs that were created by the second life software.

5.3.5 Ethics

Ethics is important issue in our study as it addresses such sensitive issues as trust. According to Israel and Hay (2006, p. 1), “[...] ethics is about what is right, good and virtuous”. In order to get the necessary and valid data, we need to maintain trust of the publics we will work with and thus behave ethically. In our study there are several ethical issues to be considered. The first one is the principle of informed consent. We will provide the full information about the study and how their answers will be used.

Another problematic issue is confidentiality as we might not always be in control of our environment and thus problems might arise while assuring the maintenance of confidentiality. The problems might arise when, for example, if we study a small virtual community with few members in it, what means that it might be easy for other its members to guess who in particular was interviewed. This is especially sensitive while dealing with trust problems that might involve negative opinions towards some particular members of community. Thus in order to assure the confidentiality the nicknames and special details that might reveal subjects' virtual identity will be changed or removed from the reports. The subjects will be informed about potential consequences of participation in the study and all the necessary means will be taken to minimize the potential risks to the subjects involved in the study.

5.4 Analysis

In this chapter, we analyze the empirical data that was gathered during the research. This chapter consists of analysis of interviews and observations. First, we analyze the interviews, then briefly observational data and finally we synthesize both analysis and provide some conclusions. As was already mentioned before, the main part of empirical data was the interviews. And observations and mini-interviews in the field were as a ways to triangulate the data and methods. However as we did not get conflicting data we focused on the interviews.

5.5 Interview results and analysis

Before starting the analysis, we briefly introduce the interviewees and communities they belong to (for the full interview transcriptions see appendix II).

The first interviewee Eduardo belongs to the “Whoa” community. He is a member of this community since 2001. He joined it because he likes hip hop music, and according to him, *Whoa* is all about hip hop. As Eduardo puts it “*this is a community for people who like Hip Hop, especially for people who are DJing, or producing, or rappers*” (Int 1.8). So *Whoa* is virtual community for people who are actively involved in hip hop. Eduardo believes, that the purpose of this community is “*to increase our knowledge about the culture, or, for example to get contacts and start having collaborations in different forms*” (Int 1.10). This virtual community is not only about sharing information, but also about music production, e.g. members of this community can sell or buy each

other loops, beats, or even records, find producers etc. To put in Eduardo's words "*it's not like just for talking*" (Int 1.8).

The second interviewee Taif belongs to quite a lot virtual communities: "*Starting with SecondLife... Some different groups regarding my interests... eh... networking... economical issues of... how do you finance money in SecondLife and Marketing channels and different media groups*" (Int 2.3). We narrowed down our conversation to *SecondLife* virtual community and Taifs experience in it. He was influenced by some of his friends from real life to join this virtual community. One of the main Taifs roles in *SecondLife* is journalist or news reporter. So he is a member of journalist virtual community inside the *SecondLife*. Taif sees second life as "*virtual on line game*" (Int 2.5) where the main objective of his virtual community "*was to broadcast news*" (Int 2.5). His particular job "*was to gather the data [...] and give it to the publisher inside that group*" (Int 2.5). Members of that virtual community have different tasks and roles, they call meetings and "*actually [get] an amount of money for each task or every project that [they go] through*" (Int 2.6).

The third interviewee Oskar belongs to several virtual communities that are mostly martial arts communities. These include *sherdog.net*, *fightermag*, *bladeforums.com*, *utrustning.se* and few regular forums like *passagen.se*. However, he is mostly involved with the *sherdog* and *utrustning.se* virtual communities, that's why we focused our discussion on these two. *Utrustning.se*, according to Oskar is a virtual community for "*discussing and spreading information in general, about stuff you like, [...] And you can sell and buy stuff too... like knives*" (Int 3.10). Oskar uses these virtual communities mostly "*to find out information... and for fun [...], to talk to a lot of people who have the same interests... and to find out information about [his] interests*" (Int 3.11).

5.5.1 Virtual communities

All three interviewees belong to different virtual communities. However, the reasons why they belong to those communities are more or less the same. All the interviewees mentioned that the communities they belong to are related to the field of their interest. For example, Oskar is interested in martial arts and knives, so the most of the virtual communities he belongs to are dedicated to these topics. The same applies to Eduardo, who is fond of hip hop and as he claims *Whoa "is a community for people who like Hip Hop"* (Int 1.8). Taif claims that he found *SecondLife* to be "*a cool idea to try it out*" (Int 2.9), so he started to explore and understand it. When his curiosity diminished, he "*tried to find [his] role inside the community*" (Int 2.9). Taif said, it was "*based on*

[his] personal references of what [he] liked and what enjoyed to do..." (Int 2.9). As he considers himself to be "*a very outgoing person*" so he thought "*journalism and just being around people is a really cool thing*" (Int 2.9) and he got involved into journalist virtual community in *SecondLife*. So it is clear that all three interviewees are the members of virtual communities because of their real life preferences and interests.

The virtual communities of the interviewees work in different ways. The members of virtual community operate in limited set of rules and roles that are the basics of trust system. By analyzing how these communities work and how do members share their roles, we can make insights about the *system trust* or *impersonal trust* (Abdul-Rahman and Hailes 2000).

The dominant platform for virtual communities appeared to be forums where members share information by posting threads and communicating through personal messages. All three interviewees mentioned the possibility of buying or selling stuff inside the virtual communities, however, not all the communities provide appropriate tools for this. Forums usually are used as a way to find people who sell or want to buy, but not to mediate a transaction itself, as they do not have the tools necessary for this. The most different platform was *SecondLife*, which was in Taifs words "*virtual online game*" (Int 2.5). It has its own economic system and money transactions are common there.

5.5.2 Roles and system trust

What concerns roles in forum based virtual communities they are quite limited and determined by administrators of particular virtual community. In Eduardos case, there are only members and moderators. Eduardo provides an example of his friend, who got banned from this virtual community twice. First time it was a misunderstanding:

"What happened was that he said something in a sarcastic way, and one moderator thought it was racist. And the fun thing is that this guy is actually an immigrant, he is not "white", he was just joking around with another friend. I remember that he showed me, and I didn't think that it was racist at all, but this moderator was like a referee who likes to give away a lot of red cards, you know? He liked to ban people." (Int 1.21)

After joining for a second time and changing nickname, that same person got banned again, because of an argument with a moderator. This situation illustrates, that moderators can get personal and ban

members without considering the whole virtual community welfare; however, banned ones can rejoin the virtual community by simply changing a nickname. If we consider trust typology as presented by Abdul-Rahman and Hailes (2000), this situation serves as an example where forum system fails to encourage *system trust* or *impersonal trust*.

In comparison, Oskar mentioned that knife community (*utrustning.se*) is very tightly moderated: “*As I said, they don't accept anyone... You have to tell some stuff about yourself... You can't just apply and then they don't know about it...*” (Int 3.23). This can be explained by the very nature of virtual community which focuses on knives. There is sensitive information in the forum that might be dangerous for minors, so it has to be controlled accordingly. Some of Oskar's comments might be interpreted as if he trusts the members of this community in terms of system or impersonal trust: “*some people are like moderators... so they have a little more responsibility of the site... They moderate and make sure that everything works fine*” (Int 3.25). If Eduardo talked about personal issues and misunderstandings inside the virtual community, Oskar stresses *responsibility* and *making sure everything works fine*. So even if virtual communities run on the very similar platforms, the inner rules and roles make a difference on the perception of system or impersonal trust.

If in forums one is limited by the predefined roles, in *SecondLife* one can create a role by himself. In Taifs situation, he deliberately found the role he wanted to take in this virtual world by joining virtual community. These roles, according to Taif are based on “*professional area or expertise*” (Int 2.7) and thus are not predetermined as in Eduardos and Oskars cases. *SecondLife* provides a total freedom of actions; however, this can be interpreted not only as a positive characteristic but also as lack of *system trust*. The following Taifs words illustrate this:

“*...when you go in the second life, there is not other upper hierarchy or someone controlling the whole community, so people tend to form their own values in different groups, so when you're working in a group and you switch to another group, it's different set of values and different set of morals, and that is all that can rise some conflicts. One example is when we worked with the contractor we had to form a contract, with different demands, so that we had a proof that say we had established a contract. So we had to make up our own rules and own values, and it must be shared by everyone in the group, if no one shares it then the whole group will fail. We couldn't achieve any results at all. One thing to improve is maybe to have some more common values I mean the whole overall community.*” (Int 2.39)

So to sum up, if system trust is to be encouraged, the virtual community has to tune their system so that it represents their rules, values and roles. Just a forum platform is not enough to encourage system trust. The system has to be properly balanced while not limiting members to only predefined roles such as member-moderator, but at the same time providing control so that community members share and obey the core values. However, this gives us only a superficial understanding of the system trust. Another question is how members of virtual community perceive trust in virtual settings and how do they make trust decisions.

5.5.3 Virtual community trust

While talking about virtual community trust we asked interviewees what do they think about trust in virtual communities, and especially we were interested in their experience with money transactions within members of virtual community, as we consider such transactions involves high level of trust. However, only Taif had such experience.

Oskar claims that he has not had any problems with trust in virtual communities. Oskar told, that in knives forum “*for example you can't start buying things or selling things until you've been on the forum for a while and they know a little about you... and you can send them a mail and you tell a little about yourself and then they decide if you can start buying and selling stuff on the forum*” (Int 3.13). Oskar was going to buy a knife from somebody, he describes his feelings of trust in the following way: “*I was a little curious about how we were supposed to do with the money... If I put money in his account first or he sends me the knife first... But, he seemed like a really reasonable guy so I thought... It doesn't matter...*” (Int 3.14). However, Oskar later reveals, that he did quite a research on that “guy” before forming a positive opinion:

“*I looked up all the posts he wrote all the discussions he had, and I looked up information and everything but... I don't know... I made a judgment, I guess. [...]I also looked up a lot of other things [...]how other people react to him and to what he is saying... He seems to be a reasonable person... and other people trusted him as well... So out of that I make the judgment*” (Int 3.16).

From these answers, we can see two things. **First**, Oskar does quite a lot of research about the person he is going to buy a knife from. According to Govier (1997, p.4) looking for guarantees,

would be an “indication of lack of trust”. Although Oskar does not look for guarantees, he does a considerable job questioning and checking all the information he can get about that person. This indicates the initial lack of interpersonal trust to that particular agent. However Oskar trusts the system of the knives forum, he knows, that “*they don't accept anyone... [...] You can't just apply and then they don't know about it...*” (Int 3.23). He also takes other agents’ opinions into account; however, this is done by simply reading the previous posts. **Second**, this situation clearly illustrates the importance and the need of explicit searching and tracking of social contexts. For Oskar, social contexts were very important while making trust decision:

“He said in the home page that he was 35 years old... and he had been in the military for a long time... He was a psychologist who worked with retarded people... He did the military service abroad... So... All those things... His age and his profession... Stuff about him generally told me that he was a reliable person.” (Int 3.15)

So Oskar is questioning another agent and he does quite a lot of research when it comes to trusting someone. The social contexts play an important role while making trust decision.

Taif claims that “*both in real and second life [one is] dealing with people and they have their own motivations, [...] needs, their own personal goals*” and this is what is causing issues as these goals “*doesn't always match what the group wants*” (Int 2.12). From this answer, we can see one important difference from other two interviewees’ answers that is considering group interests. Besides talking about personal goals and personal preferences, Taif mentions the group wishes or goals and the feeling of belongingness: “[*it*] is more of having the belongingness, the role of having responsibility in the game” (Int 2.15). So to rephrase Taif, the conflicts and disagreements arise when personal goals do not match the community goals. When it comes to virtual community trust, the medium eliminates the chance of what Taif calls “[*getting*] the first impression” (Int 2.14). According to Taif “*the first impression is really important in real life*” (Int 2.14). In virtual communities, the first impression is important as well, according to Taif it is the only thing you have when starting the game. However, people in virtual worlds “*have different methods of forming that first impression*”(Int 2.23). Taif personally is investigating personal profiles, and researching what kind of person he is dealing with. The problem with this virtual first impression is that it often appears to be very untrue, as it is based on the labels, profiles and other information that is provided by the user. Taif gives an example about the trust feelings when meeting the CEO labeled person:

“I feel naturally... the natural trust that I’m trusting what this person says and I have completely confident at what he is saying or what he is claiming. But... as we go along... people tend to be not who they described as... so you start to have a more careful approach... you need to know and see if they really have that knowledge or competence.” (Int 2.23)

So according to Taif, the trust in virtual communities begins with first impression, which however, has to be formed using methods that differ from real life. But if we look closer to the process of forming the first impression in virtual life, we can see that Taif is actually talking about getting the social contexts, e.g. social status like job position, knowledge or other properties that he thinks are important. From the above example we can clearly see, that similarly to Oskar, Taif puts a lot of importance to socials status and thus, to social contexts. The problem here is that the medium does not provide the social contexts effortlessly. People can easily pretend to be something they are not, thus forming the first impression and creating trust requires a lot of effort and researching:

*“In virtual communities you often share to begin with interest and you ... and you start negotiating about knowledge, just how much insight do they have about the subject how much do they know...and the trust comes automatically when you start doing small tasks... And bad experiences is where people often pretend to be something in that virtual game that is really hard to see, for instance, someone who is claiming to be CEO, and that they have staff... and then it turns out that they don’t have any resources at all... And you kind of learn from that...and be much more careful... I’d say there is, of course, there is a lot of cheating going on... but if we have a **common goal** and everyone knows their part and play it all goes smooth.”* (Int 2.14)

When it comes to money transactions, Eduardo puts it this way: “Well... I don’t do that type of things like selling stuff [...]Because I don’t feel like I need to do it.“ (Int 1.27-28). He said that the reasons behind his decision not to sell “stuff” in the virtual community are “*a matter of integrity*” (Int 1.30) and seeing other people in the community as not “*professional*” enough. When asked if he would sell a beat if he found a good deal, he answered: “Yeah I would do it... But usually I get my contacts in other ways. I don’t usually use “Whoa!” for that, but I could if I wanted to. But, a lot of people there aren’t... how do you say... professional“ (Int 1.29). Despite that, he usually does not trust people in virtual communities if it concerns something more than just information about upcoming events:

“Hmm... I'd like to trust people in Virtual Communities but I don't think I really do, because it's so easy to be someone else, hiding behind a nickname... you can write down whatever you want, I could be a millionaire on the Internet, but it doesn't really mean that I am... So.. No, I don't. Usually, human beings are, maybe not intentionally, but we're all liars.” (Int 1.41)

Eduardo admitted that he himself has lied:

“Like white lies. Like “I have a big ready” but I haven't done anything, you know? Stuff like that. So... I mean... Even I lie... And I consider myself... almost... as honest as I can be... But I mean... Even a person like me lies...[...] But I don't do it to hurt anybody or... I don't lie to hurt anybody... But, there are persons who can do it... So that's why I don't trust people but... not only in “Whoa!”, I mean in anything...” (Int .1.44-45)

So Eduardo reveals that he has cautious general trusting attitude or dispositional trust, which, as he claims is not only relevant to virtual communities, but all other aspects of life as well:

“You have to be critical with what people say. And you notice that sometimes people are talking completely nonsense... So you can't really trust all you read either... But doesn't lead to virtual communities... it leads to everything... for example, pick up the paper, just because it's in a paper it doesn't mean you have to trust what a person has written there. So it's the same thing all over again...” (Int 1.48)

We can see, that Eduardo, as well as Oskar, claims to be questioning and rechecking the information he gets. However later discussion about the comparison of trust in virtual communities and real ones reveals, that Eduardo tends to trust members of real communities much more than virtual ones (this will be discussed further). This might be interpreted that Eduardo does not lack interpersonal trust or dispositional trust in people, but that he is cautious when it comes to system trust and dispositional trust in medium. This is confirmed with the further Eduardo's statements. He told us that he actually bought some records from a member of Whoa but only via physically meeting that person. Eduardo even claimed, that he would have said no if that person suggested doing a virtual transaction. However, before the meeting Eduardo only has read information in the profile of the person in question, and did not perform thorough research. We interpret such situation

in the following way: Eduardo does not perform a thorough research, because he is meeting the person and thus all the social contexts that are necessary to trust a person while making a transaction will be apparent at the moment of physical meeting. This situation clearly illustrates the lack of trust in the medium. The earlier example (provided by Eduardo) about the trust in papers also involves a medium which is paper. Having both Eduardo's claims in mind we can interpret, that he actually does not trust the medium (or the message itself – if we come back to Marshall McLuhan (1967) and his famous phrase “the medium is the message”). According to Lovink (2007), questioning of the message is an a priori attitude in this postmodern state when nihilism is not considered a danger or problem but the default condition. Therefore, it confirms our earlier claims that the medium of virtual community does affect trust and in a way reveals that this effect tends to be discouraging trust as in Eduardos case. Although Oskar basically trusts the system in knives virtual community, he still struggles with getting the social contexts and does a considerable job acquiring relevant information. Taif is also struggling with getting social contexts, however he stress the importance of common goals and the feeling of belongingness. Taif also seems to lack impersonal trust of the medium as he sees the shortcomings of forming first impression and he tries to avoid making risky financial transactions.

Another issue is the dispositional trust when it comes to virtual communities. Our interviewees claimed to be cautious; however, Oskar provided some example of naïve members of virtual communities. So we can roughly divide members of virtual communities into cautious and naïve. Oskar provides such example:

“There was a girl for example... Who... I don’t know... She was a finish girl I think... And she was just posting all over this forum, and she would just write everything what she feels, she just doesn’t care about things... She just writes exactly what she feels... And what happened was that people started to get annoyed by her, and some people start basically to harras her over the internet... She was like, little naive almost, for example, and she put a lot of information about herself on the forums, like her e-mail address and messenger address and everything... and people started to mail-bombed her, because they were annoyed by her. They send virus to her as well... so her computer crashed down, I think...” (Int 3.29)

So to sum up, despite the differences in nature of virtual communities we can clearly see that there are same issues when it comes to trust in virtual settings.

First, people need to make a research about the agent in question and explicitly search for the social contexts.

Second, social contexts play very important role when making trust decisions in virtual communities.

Third, people in virtual communities have to trust not only other people, but the medium as well. Usually additional agent (that is medium) in the trust chain does not contribute to encouraging trust. Even if an agent trusts the medium, he is still struggling with getting social contexts that are camouflaged by the medium.

Fourth, common goal is important for communities to work, however in virtual communities the personal interest usually goes first and this can rise conflicts and discourage trust.

Because virtual communities are based on personal interest, they are usually used for personal goals leaving the community goals as secondary or non important issues.

5.5.4 Trust in virtual communities vs. trust in real ones

In order to get deeper understanding of trust in virtual communities, we analyze how our interviewees experience trust in virtual communities compared to real ones.

As we already discussed Eduardo does not basically trust the medium. So his attitude towards trust in virtual communities and real ones confirms this. Although Eduardo admits the advantages of virtual communities when communicating in a long distances, but still he sees virtual communities as limiting interaction between people: “*you can't have the same interaction with the person*” (Int 1.61). He considers virtual communities, despite all the technological achievements to lack “*humanity*”. And that is “*really important*” for him. Eduardo thinks that humanity or embodiment enables to form another opinion about the person and this is particularly important when it comes to trust. To our own surprise, Eduardo actually expressed (only in other words) the idea that we have mentioned in the theoretical part: “*today's technology cannot provide such embodiment thus mediated communication has a thought, but lacks a body*” (Giddens 2000). Apparently, embodiment or humanity as Eduardo calls it is crucial for Eduardo to trust people. If analyzing the words Eduardo is using, we can notice that “*knowing the person*” is used as synonym to “*meeting the person*”:

“And especially when it comes to business for example... I need to trust the person... I need to know how this person is... I mean... I need to have met this person at least once, in person”.

(Int 1.64)

Oskar also gives a lot of importance for physical meeting: *“people usually have like... an unconscious sense of knowing people, like when you look a person in the eye, and see how the person looks and everything, I mean... it’s easier to... just... make a judgment of how the person is...”* (Int 3.30). According to Oskar in virtual communities one can never know who you are actually dealing with: *“it might be a convict sitting in the prison, who has access to the internet, or like a person in a mental hospital.. Or I don’t know”* (Int 3.30). So when it comes to trust Oskar tries to be more careful in virtual communities. This is why he keeps *“relationships with the people from the virtual communities in a very superficial level”* trying to *“never run any risk or get in trouble with none of those people”* (Int 3.36). As we can see, such cautiousness leads to superficial communication and relationships. Once again, in Oskars case the basis for virtual community is personal interests and personal goals.

Taif explained that when situation involves money one can never be sure of how people going to act and if one can trust them in virtual communities. Even if you sign virtual contracts, you cannot be sure: *“... so we had to write or contract or a letter that the newspapers sends to us: ‘by this result you have to accomplish this to receive this money’... and sometimes we didn’t get any money at all... and that means ... the financial trust we had with the partner we were working with... you never actually know who you are dealing with... that’s a problem when it comes to money...”* (Int 2.33). Taif concluded that when it comes to high risks especially financial risks one has to fully trust another person. That is why his decisions where based on the people he could trust in real life. These include friends from his real environment:

“My decisions where based on close people around me that I could trust in real life... some friends from my environment... people that I knew were trustworthy... Because I know were he lives and I can trust him, and we had a face to face contact” (Int 2.33)

Taif provides an interesting example which reveals his attitude towards trust in virtual and real communities:

I live in a dorm-room in a corridor and I'm responsible for the things to buy for the corridor. We have a system that every semester, the students who live in the corridor donate 250kr to the person that is responsible and with that money, we buy common stuff for the corridor. You can actually see some differences, every beginning of a semester when I have to collect the money, I can meet the people, I can interact, I can remind them... and I can do exactly the same thing in SecondLife (I can remind them, I can send a message) but there is one thing missing... they live close to me, next door to door, and I've grown to know them during the semesters, and you kind of respect or know what kind of persons they are... you form that first impression really fast... that is one of the downsides in second life, you can't really do a first impression when you can trust your instinct of this person is really who he claims to be... you just have to take his word for it.[..] And when you remind them about money transactions, they don't feel obligated, because it's just a game, here is the main problem, some people see it as just a game, other people see it as a great opportunity to make money and to be successful... and for those people who think it's just a game or as a business opportunity there's a thin line" (Int 2.36-37)

Taif exemplifies the tension between two approaches towards trust in virtual communities that according to him depend on how people see the virtual community. Some take it just as the game while others seek for belongingness and relationships that are more serious. Having both types of people in one virtual community creates a tension between its members thus discouraging trust. In the game, one does not have to oblige or be responsible for anything. However, during the whole conversation, Taif uses the term *game* to describe SecondLife and this also illustrates his attitude. Taif also said that virtual communities lack instinctual level of interaction and thus one cannot form first impression as already discussed above.

Another interesting finding is the duration of the relationships in virtual communities. All the interviewees claimed to have very short relationships in virtual communities except the cases when they know the members from real life. For example, Oskar said: "*not long usually, there are so many people, and they change all the time... Some people became members... and then they are there for a while and then they don't attend the forum anymore... There is no deep relationship usually*" (Int 3.32). Similarly Taif mentions that "*the whole community or the groups are moving so fast, you switch groups really really fast, so you don't have that connection with the people, not that very strong connection*" (Int 2.40). Taif sees it as a "*downside because maybe some people take advantage of that*" (Int 2.40).

Although the nature of relationships depends on the virtual community itself, we can see that these communities are perceived by the interviewees as being more dynamic and lacking strong bonds. As we already discussed in previous article, this can be explained that virtual communities in question are based only on personal interests, so even if members of these virtual communities can formulate the common goals it does not necessarily mean that the common goal understanding is shared between members of the community. Taif describes the connection establishment as the process of “*try an error*” (Int 2.38).

Therefore, to sum up, interviewees experience trust in virtual and real communities very differently. **First**, they claim virtual communities to lack some kind of special interaction level that only real communication can provide. They name it differently: instinctual level trust, trusting by looking in the eye, or feeling trust from first impression. These feelings about trust in virtual communities are based on lack of embodiment that technologies yet fail to provide. Besides camouflaging the social contexts, mediums of virtual communities do not provide the embodiment. Embodiment provides additional contexts or clues, that can be used while trusting (or not) a person. Virtual communities even if they are sophisticated and provide virtual bodies or avatars, are camouflaging these contexts rather than making them translucent. This is what Erickson and Kellogg (2000) call social blindness. Social blindness and lack of embodiment negatively affects trust in virtual communities, as people have to do much more research while looking for these hidden clues and contexts. **Second**, interviewees claimed the relationships to be fast changing and short duration. When members of virtual community are bond together, only by the personal interest, the common goals or values of the virtual community itself become secondary issue. This results in fast changing members and superficial relationships. Some interviewees revealed a high amount of cautiousness and distrust to the medium what in turn affects trust in virtual communities. When one has to put a lot of effort in order to trust someone, having deeper relationships with a group of people in a virtual community becomes difficult, as it requires too much effort.

5.5.5 Technological solutions and trust

In above chapters we looked how members of virtual communities experience trust and how it compares with trust in real communities, by that we found out what are the shortcomings and obstacles of trust within virtual communities. To analyze trust and social-technical gap we look

deeper at what mediums of virtual communities in question are technically supporting to make trust decisions.

The first thing that virtual communities make easier is to review other member experience with each other. For example, Eduardo mentions that he is judging senior members by their activity and their writing. He can check what they have written before and see if it's true. So besides direct experience virtual communities enable person to get indirect experience by reading (in forums) earlier posts and interactions. In this way one can avoid biased interpretations of events and create his own image of some person in question. However the problem that we discussed with Eduardo was that one can easily rejoin the virtual community with another nickname and start everything over. There are some methods of preventing this to happen, like logging IP addresses, but usually if one really wants to rejoin the community, one will find ways to do it. Despite that, Eduardo still feels the situation is "better now compare to before" (Int 1.76):

"There is more control over the persons nowadays in Virtual Communities... I mean, compare on how was before... I have a lot more trust. Usually... it is in a more controlled form. I mean... If someone is acting false... you can find out... and that person can get excluded from the community" (Int 1.76-77)

However, when it comes to money transactions, Eduardo is cautious. He does not trust the virtual community system and prefers online shops or auctions such as e-bay. He feels more secure this way, because as he explains, in virtual communities one does not have to provide any real personal data. He suggests virtual communities to collect some real data: "*the only thing would be if you have to write your real name, your real address... I mean... you don't have to show it in the community or in your profile, but it's still there.*" (Int 1.81)

Eduardo considers today's technologies too limited for providing enough "humanity" to really trust someone. According to him, communication can sometimes become chaotic and uncontrolled and webcams or avatars will not solve this.

Besides direct and indirect experience with the members of virtual community, Eduardo uses profiles, provided links, avatars to make trust decisions.

Taif similarly explains about the methods of forming opinion about ones trustworthiness: “*every person in SecondLife has his own diary or description, who they are claiming to be, in the game and outside the game. They describe their avatar or person inside the game, for instance...*” (Int 2.21). Taif claims that many people use their real knowledge in virtual world. He forms opinion by seeing “*what groups that person belongs to, what status he has [...] what he's accomplished during his time in SecondLife... did he start his own business?*” (Int 2.24). So SecondLife also provide many tools or ways to find out about ones experience in SecondLife and thus form opinion.

Oskar also tells about direct and indirect experience, profiles and external sources, such as personal web pages as a away to form opinion on one trustworthiness. However, he also stresses the control: “*in that forum [knife forum] for example, the control is very high and that's pretty obvious, so it's easier to judge, I guess. But I guess... form what they say, and how they act, I guess. Because you can't see the person... It might be a lunatic or something... From the way they act... and how they behave...*” (Int 3.22). Oskar also mentions reputation system where reputation “*depends on how long you have been there and how many posts you have made how many comments you put there and stuff...*” (Int 3.25). However, such system is not based on other members’ opinions, experience or other qualities except the quantitative measurement of involvement in the community which can be easily misleading. Taif forms such reputation by looking at the achievements of the person, however there is no automated solution for that.

So there are some elements that are provided by the technological solutions that help to make trust decisions and form opinions. First, it is direct and indirect experience. An advantage or the virtual communities is that one can check the other member experience between each other by reading previous posts and making unbiased own opinion. Second, profiles, avatars, diaries and other tools where member can present him self. However as, Oskar puts it “*sometimes it seems like you can believe that stuff, and sometimes... you don't*” (Int 3.27). Third, the reputation or status. However usually getting that reputation is not effort free, it requires researching and probing, as the automated solutions are only quantitative. Here we can come back to Abdul-Rahaman’s and Hailes’(2000) trust-reputation model, which exactly deals with similar situations. As according to Abdul-Rahaman and Hailes (2000) it is “beyond each individual’s resources to evaluate all aspects of a given situation when making trust decision”, implementation of such or similar model would allow members of virtual community to reason about trust easier. Some on-line shops (such as amazon.com) use similar approaches where buyers evaluate sellers and goods. In virtual communities especially if they involve selling or buying things or even have their own economic

system as in SecondLife, such model would save a lot of time that users spend on probing, researching and gathering digital traces in order to evaluate somebody's trustworthiness. Eduardos case illustrates this clearly – he does not trust Whoa when it comes to money transactions, but he considers e-bay to be secure.

5.5.6 Encouraging trust in virtual communities

According to Abdul-Rahaman and Hailes (2000), trust is the basis of all social interactions, thus in order to have sophisticated interactions in virtual communities we have to increase trust in this medium. However as we already discussed it is complicated as we are facing the limitedness of the technology which cannot fully support rich and nuanced human communication, lack the embodiment and social contexts. Interviewees provided some ideas of what they wish was improved in relation to trust in virtual communities.

Taif expressed complaints that virtual communities do not belong to virtual society, and thus there are no common values or morals as in real life. According to him this rises conflicts and other problems. According to him, there are no guidance of how to act in virtual world, and virtual communities are left to make up everything from scratch by their own. Another issue is seeing virtual community as a game. According to Taif there is a very thin line between people who see it as a real thing and just as a game. However this highly influence trust inside the virtual community.

Oskar also expressed the idea of more control in the virtual communities as a way of increasing trust. However, he also said that some communities that do not have that much control should inform or warn their members about the possible dangers so that they are more careful.

So to sum up there is a need of solution which would enable virtual communities to manage themselves in more effective, strict or flexible way. From the interviewees answers it seemed that they see virtual communities as being too chaotic. Taif especially stressed the problem of common goals in the virtual communities. Of course, the inner management is the matter of the particular virtual community members, however the problem is that management might be to complex when it comes to fast changing and dynamic virtual communities, when moderators (if there are some) cannot physically follow what is going on. Thus, trust decisions require a lot of time, probing and effort. However, these activities can be technologically assisted if some trust models would have been implemented in virtual community platforms.

Another issue to think of is the development of virtual society idea, however this goes far beyond our topic and we will not discuss it.

5.6 *Observation analysis*

We have done participant observation in SecondLife ISTE virtual community (the full description of the virtual community and the observations are provided in appendix IV). In this chapter, we shortly present the general trust atmosphere as we experienced it and brief analysis of the interviews with the members of this community that were done inside SecondLife.

5.6.1 General trust atmosphere

Detailed experience is provided in the appendix IV, here we summarize and analyze this experience.

The trust feeling was influenced by the surroundings – seriously built buildings created a trustworthy atmosphere. A lot of available information and communication style of other members also encouraged nice feelings. Another issue was that in order to join this community we had to communicate and explain our purposes to representatives. This illustrates that members of virtual community form an image of other members by relying on communication. The control level of the group made a good impression, having both control and freedom of action balanced. So the first impression was very positive.

The community has educational purposes and all members of it were labeled to be teachers or people involved in academic field in real life. People appeared to be helpful and friendly, they shared their experience. To this serious image contributed the invitation to join real life ISTE community.

There were rules that members of community have to follow. Members were invited to make suggestions and comments on these rules thus contribute to the welfare of the community. All in all the impression was that people behind the avatars are trustworthy. The community seemed to be bonded not only by the personal interests, but by the greater common goals as well.

Members of this virtual community appeared to be really motivated to be here. The voluntary activities and absence of any financial transactions created the feeling of safety. However, it is difficult to judge how this feeling would have changed if money transactions were involved.

5.6.2 Data from mini-interviews

Most of the interviewees claimed that they did not have any risky experience within this virtual community. They use it mainly for knowledge sharing, getting new ideas, collaboration etc. The purpose of the ISTE does not involve much risk and the activities here do not involve much trust, as one interviewee put it: *“no I haven’t yet, because I am not looking for anything that deals with trust I am looking for simple information. I am not looking for love or a relationship”* (FC06). He claimed to “feel the safest here” because members of community are “*teachers for the most part, they are trusting and caring*” (FC06). However, when asked to compare trust in real communities and this one, the same interviewee claimed: *“I think in here people want to be something else its a way to escape from RL . Plus you lose the body language aspect of talking in person body language give a way lies”* (FC06). So once again, we come back to the problem of embodiment. Even in such safe virtual community where people exchange information and share knowledge, the lack of embodiment leaves a space for feeling of potential lie. Another interviewee Kittygloom Cassady also expressed some doubts about the lies: *“I read recently that they did a study that lying came much more easily when lying through an avatar - heart rate didn’t even increase as typically does when one lies”* (FC07).

When it comes to trust inside virtual community, the founder of the ISTE virtual community Kittygloom Cassady told, that:

“Trust is absolutely vital. Without it, the community becomes a sort of wild west. We have had few problems with this so far, but the ones we have had have been dealt with swiftly. The community had developed its own sense of group decision-making and methods of dealing with inappropriate behavior by visitors. We recently came up with some community standards to solidify how we expect participants to engage with each other while on group land.” (FC07)

The biggest problem, according to her, was how to balance the control and freedom of action. However, because this community is educational there were only few risky situations. She also explained the importance of reputation: *“your reputation in here is everything so typically people*

are very careful to protect their image and behave well in smaller sub cultures like the educational community” (FC07).

Kittygloom Cassady claimed that in this community trust is built “*slowly by demonstrating your integrity with each interaction*”. However, she explained, that ISTE “*community is pretty unique, though, in that most people know each other's real names, and there are opportunities for face to face meetings*” (FC07).

5.7 Discussion

The interviews revealed that although members of virtual communities experience trust in different ways, there are some issues that are common. Members of virtual communities struggle while forming opinion about trustworthiness of other members. They have to do a lot of researching and probing. This is because the social contexts that are necessary to make trust decisions are camouflaged by the medium of virtual community. In order to get these contexts subjects had to put a lot of effort. Interviews revealed that social context are of highly important when trusting someone. Multi levels of trust have to be dealt with, as the medium has to be trusted as well. This usually affects trust in negative way. Some of interviewees appeared to distrust the medium, what in turn caused general lack of trust in the whole virtual community. Virtual communities appeared to be lacking social translucence as discussed by Erickson and Kellogg (2000). While being socially blinded subjects used explicit researching and probing in order to form opinion. The results of the interviews confirmed that technologies are not socially neutral.

Another issue is the personal goals versus common goals. Interviews revealed that if community is based only on personal interests and the common goals are neglected or treated as secondary things, the relationships between community members are very superficial and trust is poor. And in opposite when members have greater goals like in ISTE community the trust is dramatically increased.

When comparing trust in virtual communities and real ones, all interviewees expressed ideas that can be summarized as lack of embodiment. Even most sophisticated technology still cannot provide enough embodiment to make instinctual trust decisions and needs a lot of researching or reminds the try and error method. Thus according to some interviewees body plays vital role when trusting someone. Participant observations revealed that biggest fear even in safe virtual communities is lie,

that cannot be easily detected in virtual world when hidden under an avatar. This confirms the statement that communication is not a construct of thought, it is created by our bodies (Giddens 2000). Thus without such embodiment as Olson and Olson (2000, p. 411) puts it “trust is very fragile in the world of electronic communication”.

According Olson and Olson (2000) a problem with trust in virtual communities is that it takes extra effort to create common ground. As interviews revealed only similar interests is usually not enough to form deeper relationships and establish trust.

The participant observations and conversations with the members of ISTE virtual community revealed other interesting issues. First, this community appeared to be very safe, as experienced by its members. It does not involve any financial activities and is based on voluntary purposes, has a solid image and academic background in real life. Second, despite that, some members still mentioned the possibility of lies, as it is easy to lie while hiding behind the avatar. Third, this virtual community is unique in that sense, that it is based on real life organization; most members know each others names and have opportunities to meet face to face. Thus, reputation here is very important, as the avatar is closely related to the real person outside the SecondLife platform. This can explain the high safety experience, nice and helpful behavior and responsibility. And lastly, the group appears to be bond by the common goals and not only by personal interests this also contributes to the general trust atmosphere within the group.

Although there is a variety of tools and methods of how to form opinion about the trustworthiness of a person, they are still very limited. Interviewees claimed that virtual communities still lack humanity. And this made them be more cautious when it comes to trusting someone. The problem here is that most of the tools and methods are not automatic, and requires explicit user effort, such as reading previous posts, and searching for information. Although there are some reputation systems, they are not effective enough. Observations revealed that reputation can be crucially important especially if it has connection with real life reputation. Any relation of virtual properties to real ones, has usually positively affected trust (were it real names, possibility to meet physically etc.).

CONCLUSIONS AND FUTURE WORK

The way we see computers is changing nowadays. Computers are being seen not only as a utility, but also as a means and mediums of communication. With the proliferation of virtual communities and various social networks the problem of trust becomes more important. It has been traditionally neglected or analyzed in the context of security. However, when it comes to virtual communities trust is one of the most important factors for a community to successfully exist.

Technology is not socially neutral and it affects trust. In the thesis, we defined and analyzed virtual community trust and how it is experienced by the members of virtual communities. We define it as agents trust to another remote agent that can be reached only via technological medium.

Because trust is social glue in virtual communities, the field of informatics has to deal with it. However as all interactions even virtual ones are human bound; the similar roles of trust apply in virtual communities. There have been some attempts to create trust models, but they did not get much attention. Empirical research showed that existing trust models were not implemented in virtual communities, where members had to invent their own ways to deal with trust.

In the beginning of this study, we explored the phenomenon of trust, as it is perceived by the members of virtual communities and examine how the medium affects it. Analysis showed that technology is not socially neutral and it affects trust in virtual communities. The differences between human nature and technological possibilities created so called social-technical gap, which is especially visible when talking about trust. One important thing that technological medium lacks is the social contexts that are vital for trust decisions. In order to encourage trust in virtual communities there is a need to dramatically increase the availability social contexts. The research showed that members of virtual communities put a lot of effort and struggle to find the social contexts in order to make trust decisions. However these are usually camouflaged by the medium of virtual community which makes its members socially blind. So the main effect of the medium is the camouflaging the social contexts and thus reducing general trust atmosphere.

Empirical research revealed that members of virtual communities experience trust with greater caution than real one. The problem here is that some subjects do not trust the medium itself as it is camouflaging the social contexts rather than providing them. Besides that research confirmed the

statement that trust needs touch (Handy 1995). As all the subjects expressed that lack of embodiment in virtual communities affect their trust decisions. When virtual community members are bond together only by personal interest and common goal is neglected the relationships between members becomes very superficial causing in lack of trust or even distrust. Thus, members of virtual communities experience trust as lacking some kind of embodiment and being superficial compared to the trust in real settings.

Future work. This thesis is too short to deal with the complexities of trust in virtual communities. This is a very broad topic which has to be explored further and deeper and it would probably get more attention in the future. Further research should include:

- Research of how different types of media affect trust
- Creating, enhancing and elaborating trust models in virtual communities
- Researching broader and more diverse array of virtual communities

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APPENDIX I: INTERVIEW GUIDE

-----INTERVIEW GUIDE-----

Information:

Id: _____

Interviewer: _____

Interviewee: _____

Date and Time: _____

Environmental Information (Place, context, etc): _____

Additional Data:

Interview's Structure:

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2. Framing of the interview: Briefing.....3
3. Recording Time: Questions.....4
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Before Hand

An advance preparation is essential to the interaction and outcome of the interview, thus, a substantial part of the investigation should take place before the actual interview situation.

Key questions which must be answered before starting the interview:

§ “what” (relevant data about the interviewee which differs from the others)

§ “why” (formulating a clear purpose of the interview, and explain if there is any particular difference in respect to the other interviews)

§ “how” (being familiar with different interview techniques and deciding which one will be applied in this specific case).

Framing of the interview: Briefing

(Out of recording time)

This consists of setting the interview stage a short briefing before recording time. Here we define the situation purpose of the interview as well as explain the use of a tape recorder.

Step1: Introduction:

Introduce ourselves.

Getting informed consent

Discussing confidentiality issues

Step2: Briefing:

"Before we start, let me give you some idea of what I'd like to cover in the next hour. First, we want to give you some information about our purpose, what we want to research, as well as answer any questions you may have. Then, the main objective of this interview is to review your experience in virtual communities so we can analyze it and use in our work. I'd like to hear about your experience, stories and anything else you'd like to tell me. And after we've covered the interview, I would like to give you the chance to add anything you want about it, and answer any questions you may have."

Step3: Interview's purpose:

"The purpose of our research is to explore the phenomenon of trust in virtual settings."

Step4: Extra Information:

a) Why taking notes?

"From time to time I will take notes to ensure I remember important points."

b) Why recording?

"The reason of using a tape recorder is because in this way, the data will be easily accessible, and, thus, we maximize the quality of the analysis."

Recording time: Questions

Here, the space after each question is given for additional information that the interviewer might consider relevant such as comments in silences or facial and body expressions, etc. It is NOT a space to fulfill with the interviewee's answer, although a brief explanation of the answer might be relevant.

(Play tape recorder)

Topic A: Virtual Communities.

Purpose: Find out which Virtual Community the interviewee belongs to, how it works (including technological solutions) and which role he or she plays.

Technique: The use of:

- § introducing questions,
- § follow-up questions ↳ extending subject's answers and keeping the dialogue's flow,
- § proving questions ↳ asking for further examples to pursue the answers and probe their content,
- § specifying questions ↳ getting more precise descriptions

(other types of question might be useful depending on the context as well as the thematic and dynamic dimensions).

Questions:

The explanation of concept of virtual community might be needed.

1. *What Virtual Community(-ies) do you belong to? Why?*

2. *How does such Community work?*

3. *Does this community have its purpose?*

4. *What is your role in it?*

5. *What do you use the community for?*

6. *How did you learn about that particular community and how did you join it?*

Topic B: Trust.

Purpose: Discover how the interviewee have experienced the phenomenon of virtual community trust, what happened, what the subject thought, decisions the subject took.

Technique: The use of:

- § introducing questions,
- § follow-up questions ↗ extending subject's answers and keeping the dialogue's flow,
- § direct questions ↗ closed questions, getting to know what aspects of the phenomena are central to the subject,
- § specifying questions ↗ getting more precise descriptions

(other types of question might be useful depending on the context as well as the thematic and dynamic dimensions).

Questions:

7. *What do you think of trust in virtual communities? Do you often deal with trust issues in virtual communities?*

8. *Could you tell me about it? (e.g. some concrete example when you needed to trust someone/something in virtual community)*

9. *What decisions did you take and which aspects did you consider?*

10. *How much previous experience with or knowledge about the ones you put trust in have you had?*

11. How do you judge about their competence and motivation?

12. How did their reputation and context influence your trust in them?

Topic C: Psychological and sociological aspects.

Purpose: Discover how does the subject think, why that happened, how the subject thought, why the subject took such decisions.

Technique: The use of:

- § introducing questions,
 - § follow-up questions ↳ extending subject's answers and keeping the dialogue's flow,
 - § indirect questions ↳ asking about the attitudes of others in order to find out about subjects real opinion,
 - § silence ↳ giving the subjects time to associate and reflect
- (other types of question might be useful depending on the context as well as the thematic and dynamic dimensions).

Questions:

13. How do you feel and think when it comes to any relation of trust inside a Virtual Community?

14. Have you ever had to deal with risky situations that required to put trust in someone? (e.g. buying from somebody? ...)

15. How could you compare trust in virtual communities and in real ones? Could you tell some examples?

16. Have you ever met the ones you put trust in real life?

17. How long have you had relationships with the ones you put trust?

18. What do you know about them? Social status? Gender? Picture? Etc?

19. How do you know these things? (Profiles? Pictures? Avatars? Communication? Other member opinions?)

(Stop tape recorder)

1 à

Framing of the interview: Debriefing

(Out of recording time)

In this step, some words must be put in order to give the subject an opportunity deal with issues he or she was thinking or worried about during the interview. Considering that we are out of recording time, the answer must be written down.

QUESTION:

Now, once the interview is over and we are not being recorded, is there any comment, additional information you would like to add? or, perhaps, any question you would like to formulate?

2 à

Additional Notes

Once the interview is covered, here is the place were we write down any relevant aspect of the interview that was NOT highlighted so far:

APPENDIX II: INTERVIEW TRANSCRIPTIONS

-----1st INTERVIEW: TRANSCRIPTION-----

Information: *First Interview*

Id: Int 1

Interviewer: *Jon I. Aldama and Gytis Burauskas*

Interviewee: *Eduardo Ocaña*

Date: *September 23th 2007*

Time: *18:00 PM*

Environmental Information (Place, context, etc): *Eduardo's apartment. Malmo.*

Additional Data: *We considered Eduardo's place as the best place available to carry out the interview, due to the fact that there he will feel comfortable and, in case it's needed, he can use his desktop computer to show us some kind of information.*

Gytis Burauskas: We are writing a master thesis about trust in virtual communities...

1. *Eduardo Ocaña: Yes...*

G: and we'd like to hear your experience on that.

2. *E: ok...*

G: Of course, everything will be used only for scientific purposes and... we need your informed consent, do we get it?

3. *E: Yeah! No problem.*

G: So, the purpose of our research is to explore the phenomenon of trust in virtual settings.

4. *E: ok...*

G: We are going to record this so we can analyze it later on, and during the interview we will take notes if we need to.

5. *E: I have done interviews like that as well so... I am used to it.*

G: Jon, you can start with questions whenever you want.

Jon I. Aldama: Yes. First of all, we'd like to know which Virtual Community you belong to...

6. E: I belong to "Whoa!".

J: Ok. And why did you decide to become a member of "Whoa!"?

7. E: Why did I join? Basically because I like Hip Hop... It was many years ago, around 2001... Then, this community started and... to be honest I don't remember exactly how I found out, I think it was through a friend or something. And I decided to join it.

J: Could you tell me more about the community itself?

8. E: Well... this is a community for people who like Hip Hop, specially for people who are DJing, or producing, or rappers... stuff like that. So it's not like just for talking.

J: So, you mean people who are actively involved in Hip Hop...

9. E: Yeah!

J: Ok. Hmm... What do you think is the purpose of this Virtual Community, why do people belong to "Whoa!"?

10. E: Eh... I would like to think that the main objective is to increase our knowledge about the culture, or, for example to get contacts and start having collaborations in different forms... like in music... if you are producer, you can get in touch with rappers for example... and they can buy your beats... etc... And at the same time you can spread information about things that are happening in Sweden...

Yeah, that's what I like to think, but at the same time it is a place where people talk a lot of shit...

[Laughs]

11. E: Yeah... unfortunately.

J: So, you were saying that you can buy beats from other people...

12. E: Yes, it's like... If someone says "I'm a producer, check this link...", and then it goes to the myspace site, or "you can download this song from me" and then you can get opinions of what people think about my stuff...

J: Ok... I see... let's say someone wants to buy a beat from you, how do you communicate? Through e-mail? Chatting?

13. E: You do it in the community, you can send e-mails through "Whoa!"...

J: So... Through e-mails...

14. E: Yes, you can send personal messages or you can send an e-mail to the other person...

J: And... how do you find out that someone is selling a beat for instance?

15. E: Because they usually write it: “I’m a producer, and I do this...”

J: So it also works as “advertising”, right?

16. E: Yeah, you can do it if you want to...

J: But, Like virtual Post-its or how?

17. E: Yeah... You do a thread saying: “I’m producing, if someone is interesting on rapping over my songs...”

J: So it would work like a forum right?

18. E: Yes, exactly... It works like a forum.

J: And... Are there different roles in the community? Or everybody is in the same level?

19. E: There are members and moderators.

J: Which role are you?

20. E: I’m just a simple member.

J: How do the different roles work? Have you had any experience?

21. E: Yeah, I have a friend who has been banned. He actually got banned twice. What happened was that he said something in a sarcastic way, and one moderator thought it was racist. And the fun thing is that this guy is actually an immigrant, he is not “white”, he was just joking around with another friend. I remember that he showed me, and I didn’t think that it was racist at all, but this moderator was like a referee who likes to give away a lot of red cards, you know? He liked to ban people.

J: Ok... I understand. But He banned him just temporary because you said he was banned twice...

22. E: No, he entered with another nickname.

J: Ahh! So you can do that, there is no way to check that, so when you join the Virtual Community, you don’t have to give your real name, right?

23. E: No, you can write your real name if you want to, but you don’t need to.

J: So you can easily pretend to be someone that you are not...

24. E: Yeah... If you want. My friend entered with a new nickname and his friend became a moderator. So they got pissed at each other and he got banned...

[Laughs]

J: Again!

25. E: Yeah! His own friend banned him...

J: Ok, so let's take for instance that someone is scamming people, he says that he is buying beats but he is not giving away any money, so he gets banned... He could easily enter again with an account right?

26. E: Yeah, he could do that.

J: So, what do you think about that? You trust this system?

27. E: Well... I don't do that type of things like selling stuff so...

J: Because you don't want to or because you don't trust this?

28. E: Because I don't feel like I need to do it.

J: So if you have the chance of selling a beat for good money, would you do it?

29. E: Yeah I would do it... But usually I get my contacts in other ways. I don't usually use "Whoa!" for that, but I could if I wanted to. But, a lot of people there aren't... how do you say... professional.

J: Yeah, I see...

30. E: It is also a matter of integrity. I mean, selling it is a commodity... but it's something that you have created, and I'm really picky when it comes to things that I have created, because it's like giving away... eh...

J: An art creation?

31. E: Yeah! Exactly! And for now, I haven't found that many persons in "Whoa!" that are very good rappers for instance.

G: How do you judge if they are professional or not?

32. E: Hearing it, you can hear songs that they have done for example. And you can see if they are young people. There are many youngsters there, nineteen, twenty-years-old usually. So you can notice those things.

J: But how do you upload those songs? Do you have a profile or something?

33. E: Oh... No, you can't put up your music. You do have a profile but you can not upload songs. They put up link for example, and they take you to another web page... to his "myspace" for example, and there you can listen to his songs. I actually have a link to "myspace" on my "Whoa! Profile", and there you can listen to my beats.

J: Ok... Tell me more about the profile, is there anything else you can do there?

34. E: A picture, some text... and links basically.

J: Is there any kind of rating system or something like that?

35. E: Rating system in what way?

J: Let's say for instance that someone is good at what he is doing and...

36. E: So you can go to his profile a vote? Is that what you mean?

J: Yes, that's exactly what I mean.

37. E: No, no. You can't do that.

J: Ok, so it's quite simple, just picture, text and links...

G: And... Do people usually put their own pictures?

38. E: No, no. They usually put other pictures. I mean... I don't have a picture of myself for example.

J: And do people give their real names there or just nicknames?

39. E: It's usually nicknames. Actually... I still haven't met anyone who has his real name. It's usually a nick name or a "tag", since in Hip Hop you have some kind of name that you use.

J: That is what you call "tag"?

40. E: Yeah. You have a tag or you have your artist name... So it's still a nick name.

J: Ok... Now... Let's go I little bit deeper in "trust". What is your general idea of trust in Virtual Communities, and how do you deal with it?

41. E: Hmm... I don't know... Hmm... I'd like to trust people in Virtual Communities but I don't think I really do, because it's so easy to be someone else, hiding behind a nickname... you can write down whatever you want, I could be a millionaire on the Internet, but it doesn't really mean that I am... So.. No, I don't. Usually, human beings are, maybe not intentionally, but we're all liars.

[Laughs]

J: You think so?

42. E: Yeah... I mean...

J: Have you lied?

43. E: On the Internet?

J: Yeah... In which way?

44. E: Hmm.... Like eh... Like white lies. Like "I have a big ready" but I haven't done anything, you know? Stuff like that. So... I mean... Even I lie... And I consider myself... almost... as honest as I can be... But I mean... Even a person like me lies...

J: So if you lie, you think that anybody else could lie...

45. E: Yeah, yeah... But I don't do it to hurt anybody or... I don't lie to hurt anybody... But, there are persons who can do it... So that's why I don't trust people but... not only in "Whoa!", I mean in anything...

J: You don't trust people... But you belong to the community... You are an active member...

46. E: Yeah yeah yeah

J: So... what do you do when you get information from the community, you believe it or...

47. E: In that case, in that purpose I do trust it...

J: So, when it comes to information you trust it but when there is money involved then you do not?

48. E: Well... In a way... Hmm... But, for instance... when someone is discussing something in a threat... You know? You have to be critical with what people say. And you notice that sometimes people is talking completely nonsense... So you can't really trust all you read either... But doesn't lead to virtual communities... it leads to everything... for example, pick up the paper, just because it's in a paper it doesn't mean you have to trust what a person has written there. So it's the same thing all over again...

J: Yeah... but in a paper you know for real who has written that...

49. E: Yeah... That's the difference...

J: But going back to "Whoa!"... You have been several years being a member of this Community... So you have probably gotten information about a concert for example? How do you deal with that?

50. E: When it comes to think like that I trust it... because its just playing information... like this date, at this time, this person is going to perform and It costs this money... And that I like... It's specially what I like about the community... Information that people give away...

J: And... if someone says... there is a really good concert in Malmo... bla bla bla... But you've never heard of it... How do you deal with this? You trust it this kind of info?

51. E: I would find out myself. I'd try to find information about the artist on the Internet... Download the music...

G: Do you trust some people more in that Virtual Community than others?

52. E: Yeah...

G: On what bases?

53. E: Because they have been members for a long time and they have been very active. And writing. And you know them because what they say is true.

G: So it is based on experience?

54. E: Yeah, yeah.

G: And you can also see their previous posts...

55. E: Yeah.

[Brief pause off few seconds]

G: And, could you tell more about your experience with this senior members? Do you consider their recommendation or their opinions about other members? For example, if someone has been in the community for a long time and you know that he is some kind of an active user, and he is saying something bad about...

56. E: About another member?

G: Yeah! How do you consider that?

57. E: I try to stand neutral to that... And try to find out what has happened, what did the new member say to make this old member mad... But... Unless it's something really really horrible that this person has done, like saying something racist or whatever, then I stand neutral... So, I stand neutral, I find out, and then I make a decision, I mean, what I think of... if this person is telling the truth or not...

J: How would you compare, Eduardo, Virtual Communities and real ones? What do you think it's the connection between?

58. E: Hmm...

J: When you make the communications of a community be through computers? Which things change? What is better or worse?

59. E: What changes is that you can't have a normal dialogue, like you could have in a normal community, because then you are speaking to people in person... and you are using words... you are pronouncing words... and you can speak, you can say more... That's the difference with for example, a Virtual Community it's so limited... You can only say... what you can type with your fingers...

J: You know that nowadays, there are Virtual Communities where you can talk to people... listen to people... even put face expressions through avatars...

60. E: But I still don't think it's the same thing... Although nowadays you can use a microphone and speak to a person... it's hard because, for example, when you are in a meeting with five or six persons, you can see who is talking, the way he is moving... you know? You can have a completely different dialogue with the persons... With a webcam... you can speak maybe to one person... But seven persons talking at the same time... I don't know... for me it feels like it's a completely

chaos... Seven persons talking at the same time... Someone tries to say something and the another person comes and interrupts... you know?

J: But that can happened in both communities right? Virtual and normal...

61. E: You can stop it in a Normal Community, you can use your hands and say “please stop, I want to finish what I’m saying” or whatever... I think Virtual Communities are limited... it’s good because you can contact with persons from another part of the world, but at the same time it limits you because you can’t have the same interaction with the persons.

J: So you think that physical movements of an avatar are still not enough, right?

62. E: Yeah, they are not enough. You can’t compare it to real life.

G: Do you think it lacks some kind of context?

63. E: I think what it lacks is humanity... And that’s for me really important.

G: So you think that this physical meetings... this humanity... embodiment... encourages trust?

64. E: Yeah, it makes me make another kind of opinion about the person I’m talking to... And specially when it comes to business for example... I need to trust the person... I need to know how this person is... I mean... I need to have met this person at least once, in person. Then, sure, a Virtual Community would be fine... specially if there is a long distance, for instance I’m doing business with someone from the United States... SO that’s ok.

J: Have you ever met in real life other members of your Virtual Community?

65. E: Of “Whoa!” yes.

J: How was it? The Virtual Community organized a meeting or...

66. E: Some of the persons I had met them in real life before I joined “Whoa!”, and then we found each other in “Whoa!”.

J: And the other way around?

67. E: Yes... there was one person... We started talking on “Whoa!”, and then we met...

J: How come did that happened? Was there any special purpose?

68. E: Yes, because I was going to buy records for him.

G: So... Before you buy records, you wanted to meet him right?

69. E: Yeah...

J: What if he wants you to send the money instead of meeting?

70. E: I would have said no.

J: So you really need to meet the person before you buy anything...

71. E: Yeah... And that's why, for example, I don't buy stuff from people who are living in another city... This person was living in Malmo. And it was less trouble for him... He said "we can meet at this place and I'll bring the records and you bring the money".

J: Did you establish the price of the records and everything before you met?

72. E: Yeah, he already had a list of the records he was selling and the prices.

G: How long have you been in contact with that person you bought records? How long you knew him?

73. E: Before buying?

G: Yes.

74. E: Nothing... like a week or two. We spoke a couple of times then I said "I want this records, we can we meet?"... That's how we met.

G: You didn't know anything else about him... what he was doing or...

75. E: No. Just what he had written on his profile on "Whoa!".

G: Anything to add about trust in Virtual Communities? How do you think technology can encourage trust?

76. E: I mean, I think it's better now compare to before. There is more control over the persons nowadays in Virtual Communities... I mean, compare on how was before... I have a lot more trust

J: What things have change that make trust more?

77. E: Usually... it is in a more controlled form. I mean... If someone is acting false... you can find out... and that person can get excluded from the community

G: How can you find out?

78. E: Usually you can find out because unfortunately someone has had bad experiences with this person.

J: But you said before that you can make a new name in "Whoa!" and join again...

79. E: Yeah... But that was before... I don't really know how it is now with those new IP tracking systems...

[Brief pause]

G: What do you think it could improve virtual communities in reference to trust. What can be done so you can do transactions.. for instance buying records without seeing people?

80. *E: I don't know if it is possible in those kinds of communities... The only... I don't know if I should call it community... I mean "eBay"...*

J: You can't consider that as a community.

81. *E: Yeah... ok... But I mean that the only way to feel more safe in buying stuff from person that you don't know is in that way, because it is another type of security. If a person turns out to be false... You have it all like in logs... and you can use it against him if you want to go to the police. You have to write down name, address and everything... That's why I feel more secure there instead of "Whoa!"... where you don't have to do it. So the only thing would be if you have to write your real name, your real address... I mean... you don't have to show it in the community or in your profile, but it's still there.*

J: I think that was all Eduardo, thank you very very much for your help.

82. *E: No problem.*

-----2nd INTERVIEW: TRANSCRIPTION-----

Information: *Second Interview*

Id: Int 2

Interviewer: *Gytis Burauskas and Jon I. Aldama*

Interviewee: *Taif Al-Mobarek*

Date: *September 24th 2007*

Time: *14:00 PM*

Environmental Information (Place, context, etc): *Taif's apartment. Malmo.*

Additional Data: *We considered Taif's place as the best place available to carry out the interview, due to the fact that there he will feel comfortable and, in case it's needed, he can use his desktop computer to show us some kind of information.*

G: Before we start, let me give you some idea of what I'd like to cover in the next hour. First, we want to give you some information about our purpose, what we want to research, as well as answer any questions you may have. Then, the main objective of this interview is to review your experience in virtual communities so we can analyze it and use it in our work. I'd like to hear about your experience, stories and anything else you'd like to tell me. And after we've covered the interview, I would like to give you the chance to add anything you want about it, and answer any questions you may have. Ok?

1. T: Yes.

G: The purpose of our research is to explore the phenomenon of trust in virtual settings Any question?

2. T: I don't think so.

G: Ok... So... Which Virtual Communities do you belong to?

3. T: Quite a lot, actually. Starting with SecondLife... Some different groups regarding my interests... eh... networking... economical issues of... how do you finance money in SecondLife and Marketing channels and different media groups.

G: Yeah...

4. T: My role in SecondLife was to be a journalist or news reporter... So I use that and attached new connections and network for different media channels to broadcast... so... my basic groups regard journalism and media.

G: Could you tell us more about how the Virtual Community of journalists works?

5. T: Well... SecondLife is a virtual on line game and... Our main object was to broadcast news and... we have scouts looking out for different news... So we reported the news and... Collected the data... and through the groups... everyone had each different tasks, different roles... and my job was to gather the data... and then... to collect it and... to give it to the publisher inside that group. And we had different meetings in the group... different kind of meetings at different times and places... to get informed and updated about the newspapers.

G: Does the group have any financial benefit out of it?

6. T: Well... the big contract are the newspapers inside SecondLife... and we are just one part of the chain value that provides the readers the info they need to read... So it's all up to the customers, the readers, what kind of info they are looking for... collecting. So, we actually got an amount of money for each task or every project that we went through.

G: Could you tell us more about the roles? You are a journalist... and others... How do they interact and everything?...

7. T: Of course. Well... As you know, all the people in the group belong to many other different groups and different roles that they play, and... every member has their own professional area or expertise and our job was to take advantage of each individuals expertise... For instance one is really good at writing, essay writing... another is really good at collecting data, another is really good in finding scouts... and we were compensated by the big newspapers for a job... And the publisher had also other groups that were competing with ours, so we were just one team among other teams. That's about it.

G: How did it start? I mean, how did you find out about this Virtual Community? How did you join SecondLife?

8. T: I was influenced by some friends in my surroundings...

G: Real ones... or virtual ones?

9. T: Real friends... yeah... in real life. And I thought it was a cool idea to try it out and... the first stage was to explore the environment and try to get a hang of it... understand it. And when my curiosity started to be less... I try to find my role inside the community. It's actually based on my personal references of what liked and what enjoyed to do... so me personally... I'm a very outgoing person so I thought journalism and just being around people is a really cool thing, so... I started to look around.

G: What do you think in general about trust in Virtual Communities?

10. T: My own opinion?

G: Yes, your opinion about trust...

11. T: I think it's a really cool idea, I mean, it's pretty new and my own opinion is that it's not that much around time and space because it all gets deleted... I mean... when we have meetings, it

doesn't matter where you live or what time it is... we just set a virtual time and date and everybody can be there... so it's really really flexible... and it's a whole virtual network and it gives the freedom and opportunities to create a whole... your imagination is the only limit.

G: As I understood you quite often deal with trust issues like... to trust your employers... your scouts... and other members... Do you find it somehow difficult to trust people you don't physically meet? What's your opinion about trust in virtual communities?

12. T: Of course, we had a couple of issues. Always when you work with people in both real and second life, you're dealing with people... and they have their own motivations... their own needs... their own personal goals... and it doesn't always match what the group wants... and it can regard lots of issues, security issues such as how much they are getting paid... someone wants to get more paid afterwards... conflicts and disagreements... and also regarding personal information. One personal rule we had among the team is that we never publish personal names... If a virtual person in SecondLife has great news or story to publish... and of course everyone in the game has nicknames, they can also freely publish their real names if they'd like to, but we as a team had the rule that we don't give up personal information.

G: Do you have some kind of experience where you trusted somehow and everything went wrong? Or... you trusted the wrong person... or you were cheated or something like that...

13. T: You mean bad experiences?

G: Yeah... some kind of...

14. T: Well... of course. It's harder when you are not meeting the person... you never get that first impression. The first impression is really important in real life, and in Virtual Communities you often share to begin with interest... and you start negotiating about knowledge, just how much insight do they have about the subject how much do they know... and the trust comes automatically when you start doing small tasks... And bad experiences is where people often pretend to be something in that virtual game that is really hard to see, for instance, someone who is claiming to be CEO, and that they have staff... and then it turns out that they don't have any resources at all... And you kind of learn from that... and be much more careful... I'd say there is, of course, there is a lot of cheating going on... but if we have a common goal and everyone knows their part and play it all goes smooth.

G: Do you have any direct experience with cheating?

15. T: Well... you can earn real money in the game... and that's always an issue... because the new players always try to find easy ways to make money... And when they try to do that, they understand that... It actually... I mean... For the task and the work we do it's nothing... It's actually not even a couple of USD, but is more of having the belongingness, the role of having responsibility in the game, I mean, just like a real job. So, there are some bad experiences, but nothing really serious... No.

G: Ok... And... How much knowledge about the people you work with in Virtual world do you know in advance? Do you know about their... let's say... their families, social status, anything?

16. T: I'd say that... while you work in a project, you kind of get to know people better than others... some people like to keep it very professional, they don't wanna share any personal

information at all, they just stick to the subject, task and goal... other people are very open, very friendly, they like to share about their family, show some pictures, give up their real names... it's very very individual, and it depends on what kind of personal preferences you are having as a person... are you afraid of showing information, are you very open... So it's very personal.

G: How do you judge about the competence of other members?

17. T: That's a difficult question because you can't actually set any standards or criteria, you just have to feel as you go along. So to speak... you tend to try them out with different small tasks and if that work... you kinda build some trust and you keep building on it.

G: So... If the work goes smoothly... you put more trust on these people. And... How is it with reputation? Do you get some kind of reputation in your team?

18. T: Oh yeah! Well.. You know... SecondLife is a social game. I think the two most important aspects of the game are recognition and fame... because when people are respected and are recognized by others... they're often paid more.. they often much more... just like in real life, I mean, they have a very broad social network... Same thing with money... because it's so real and... fame is really something that almost everyone there strives for... And that also arises some conflicts...

G: Could tell more about these conflicts?

19. T: Of course, I mean, different groups like musicians for instance, one of my other roles was to be a promoter or an agent of an artist inside SecondLife... and my job was to market this artist or to advertise her talent... and spread her talent in different newspapers... and the whole idea of the whole recognition and fame... because this was her job, I mean, being a musician and she had to earn some money, she saw SecondLife as a channel to reach out to a new audience, and she realized that she could do that by being recognized and being famous... so that was something we worked on.

G: Ok... For example... If somebody with quite impressive reputation says something about other member who is a newbie... how does it affect you? How do you deal with this? Do you get influenced at all?

20. T: In every group in SecondLife everyone has a title, and in that title says different ranks: agent, CEO, advertiser, publisher... And just by the role name you can almost understand what kind of influence they have on the group... for instance if you're just a writer, and on top of the hierarchy you have the publisher which is higher, it also makes it easier for person outside the group to see what person has most influence, I he wants to talk directly to a publisher he can do that. So it's basically on the ranks, on how much influence you have. A publisher has much more influence than a writer. So it's all the labels in the game, but when it comes to knowledge and competence... and experience... that's only learning by doing, to get to know the people.

G: So mentioned these ranks. Is there any other sources to get to know information about their status in the game, except the labels?

21. T: Except the labels... Every person in SecondLife has his own diary or description, who they are claiming to be, in the game and outside the game. They describe their avatar or person inside the game, for instance... if you take a look of my personal information it says: "I'm a student, I'm

studying marketing... this is my things, this is what I'm good at... and this is my personality". It's a quick introduction for other people who might need my expertise or help. So almost everyone has that opportunity to do that quick presentation of what they do or who they're trying to be... and what's so interesting of SecondLife is that a lot of people is using their knowledge in the real world and importing it to this virtual world, into the Virtual Communities into the groups, for instance, a real publisher from a newspaper that is quite big in England, he actually took his expertise, his knowledge and started this groups inside this community ... so it's kind of interesting... I mean they're really professional and they really good at what they do because they know this is what they are meant to do.

G: So, this first impression from these profiles... if we can call them like that...

22. T: Yeah...

G: Is it somehow influencing your trust? For example... If you see this CEO label... do you feel more secure doing some kind of business with him?

23. T: Of course... When you start playing a game,, the only thing you have is this first impression, and somehow you have to form this first impression of a person, whether it's virtual or not, and people tend to have different methods of forming that first impression, for me in the beginning it was to look at this personal profiles, and see what kind of person they are... and just like you mentioned... does it say CEO? I feel naturally... the natural trust that I'm trusting what this person says and I have completely confident at what he is saying or what he is claiming. But... as we go along... people tend to be not who they described as... so you start to have a more careful approach... you need to know and see if they really have that knowledge or competence.

G: So you do it by talking with them directly or you look for other opinions on those people? How do you create that image of those people? Except profiles... is it usually by direct communication? Or there is something else?

24. T: Well... If you want the method of how to... I mean you just see what groups he belongs to, and what status he has... And also what's interesting is what he's accomplished during his time in SecondLife... Did he start his own business? Is he writing somewhere? Is he a CEO? Does he lead some people? Just by seeing that you can actually understand what kind of influence this person has... So the personal information you see about the person is not always what it represents... but there are some different methods like... checking out the labels... see what groups they belong to... And their past achievements or results... so there are some ways... yes.

G: Do you tend to trust people in general? I mean... If you see quite a good profile and lots of tasks accomplished successfully... and then you communicate with him... and... is that first impression...

25. T: Essential?

G: Yes!

26. T: You mean if the first impression really is that important?

G: Yes...

27. T: The funny thing is that... let's take one famous person that is in SecondLife and is... very very widely recognized. She started a firm, that actually sells sexual services in the game and she made a lot of money and she was really high-known among the newspapers. And one day, she expose herself... her real person... and it turned out she lived in South Korea in a really really small house with no or little money to get her days by... and her main income was from SecondLife. So when you trust a person it's all about personal values, I mean, what kind of person you are, are you outgoing? are you open? Do you see people as honest... as friendly...

G: Yes, exactly...

28. T: Yeah... I tend to see that because those are values that I carry with me in my real life.

G: So it's kind of the same way of judging people or making "trust decisions" in Real Life and in second Life...

29. T: Well... yes and no, because you have different methods in SecondLife. I mean in Real Life we are used to meeting the person, having a face to face conversation... you can judge by the character and values... And in game... you have exactly the same information, maybe it's hidden somewhere, you don't know, but you have different ways to find it out... just like I said, you have the labels, the groups... eh... different contacts, so it's different information in different kind of ways. When it comes to trust... you have search beneath the labels... so to speak... you have to dig in more...

G: Do you think SecondLife provides enough information to make such decisions?

30. T: Well... it's up to the person. It's up to the kind of individual that you are trying to establish a connection with. Maybe he is very outgoing and friendly and he's providing you with all the information you need about what he is doing what kind of role he plays inside the game and how he can help you achieve your goals, etc... Other people are very personal; they tend to see security or personal integrity as something really important... so they keep it personally... So I'd say it's really different from person to person.

G: What about you?

31. T: Me, personally? Eh... I have never revealed my personal name or a photo... but I've carried with me my values, knowledge and what I'm good at...and tried to find my role in the game

G: You said there are many money transactions...

32. T: Exactly.

G: Have you had any risky situations when you had to put some big amount of money and do some transaction... when you have to trust somebody and he will provide you some services but without previous background, I mean, without previous communication... well you just have this avatar and other information but haven't had much communication with that person... Have you dealt with this kind of situation?

33. T: Of course, just what I mentioned earlier about working for a big newspaper... You never know when you are getting paid... You are only judged by your results... so we had to write or contract or a letter that the newspapers sends to us: "by this result you have to accomplish this to receive this money"... and sometimes we didn't get any money at all... and that means ... the

financial trust we had with the partner we were working with... you never actually know who you are dealing with... that's a problem when it comes to money... so I'd say... when it comes to financial risks... there're a lot of risks, and you have to trust the people fully... to really jump into conclusions and high risks. My decisions where based on close people around me that I could trusted in real life... some friends from my environment... people that I knew were trustworthy... Because I know were he lives and I can trust him, and we had a face to face contact.

G: Do you think "face to face" contact is essential to really trust someone?

34. T: I think it's a vital step, yes... but it's not actually the only way... I think it's just one way among other communication styles.

G: But you prefer to work with friends that you really know when it comes to risky situations...

35. T: When it comes to financial risks, yes. I know other people that I jumped into successful projects, they donate money and they expect that project to succeed... and for them it worked out just perfectly, I mean it all comes back, once again, to what kind of person you are, I mean, does it matter if you donate or you put financial risks to other people? For me personally, it was "safety first" always.

G: I see. So once again... If you have to compare trust in Virtual Communities and in real ones, could you point out some main differences?

36. T: Let's see one good example actually. I live in a dorm-room in a corridor and I'm responsible for the things to buy for the corridor. We have a system, that every semester, the students who live in the corridor donate 250kr to the person that is responsible and with that money we buy common stuff for the corridor. You can actually see some differences, every beginning of a semester when I have to collect the money, I can meet the people, I can interact, I can remind them... and I can do exactly the same thing in SecondLife (I can remind them, I can send a message) but there is one thing missing... they live close to me, next door to door, and I've grown to know them during the semesters, and you kind of respect or know what kind of persons they are... you form that first impression really fast... that is one of the downsides in second life, you can't really do a first impression when you can trust your instinct of this person is really who he claims to be... you just have to take his word for it.

G: So you think that Virtual Communities in SecondLife lack this instinctual level of interaction?

37. T: Yeah, if we go back to that example, let's say I have exactly the same group in SecondLife, and I have to collect that money from this people... I mean, it's all about different moral and values, you are working with people from different countries who leave in different places.... And when you remind them about money transactions, they don't feel obligated, because it's just a game, here is the main problem, some people see it as just a game, other people see it as a great opportunity to make money and to be successful... and for those people who think it's just a game or as a business opportunity there's a thin line. A lot of it's considered just a game, but for those that are very professional about it, it's always conflicts about different roles is it just a game or is it real life community where you actually have real life people you're dealing with.

G: and... the ones you were working with in SecondLife... How long do you know them in the Virtual World? For how long?

38. T: Ok... If we are talking about a project, maybe an article... an article takes one week or two to form, and during this two weeks kind of work with different types of people. How do you get to know them? By... first... establishing some kind of a connection, like discussing some hobbies just to get to know them better... but I'd say practically two weeks... two to three weeks per person, and during that time you try to establish some sort of trust and connection. If that doesn't work you try to spend your time with another person who is more trustworthy. So it's more like a "try an error" thing in the game.

G: What would you like to improve in SecondLife in order to be able to trust people more and feel more secure about trusting them? What would you change?

39. T: Lots of things actually. One thing is that second life is a community it's not a society, that's one big difference, because in a society in the real world you have some common values or common morals, for instance, you should not steal, you should not kill another person, all that, that a lot of people respect in the real world. When you go in the second life, there is not other upper hierarchy or someone controlling the whole community, so people tend to form their own values in different groups, so when you're working in a group and you switch to another group, it's different set of values and different set of morals, and that is all that can rise some conflicts. One example is when we worked with the contractor we had to form a contract, with different demands, so that we had a proof that say we had established a contract. So we had to make up our own rules and own values, and it must be shared by everyone in the group, if no one shares it then the whole group will fail. We couldn't achieve any results at all. One thing to improve is maybe to have some more common values I mean the whole overall community. Or someone an administrator, to maybe, I wouldn't say supervise, but at least to give some tips or hints on how to on what to do and what not to do.

G: Do you have anything to add on this topic?

40. T: I've share some of my experiences, but what I can say is that the whole moral and value perspective of having a society in real life where we respect each other as human beings, just like I mentioned earlier, seeing it as a game, taking advantage of other players inside a game, maybe is more acceptable then in real world, because you never had that bond or share with people, because the whole community or the groups are moving so fast, you switch groups really really fast, so you don't have that connection with the people, not that very strong connection. And I think its kind of downside, because maybe some people take advantage of that, I mean seeing it as just a game.

G: And do you have a group where you have longer relationship than just a project.

41. T: Of course, the singer I mentioned, we were actually more like friends then just an agent or promoter of her music. And just like friends do they stand for each other they help each other out, and if she needed some financial help, I was there.

G: But you don't know her in real life do you?

42. T: I know quite a lot actually. I know where she's from, that she has two kids, she is very open she is very outgoing, she was really good friend.

G: But you haven't met her have you?

43. T: No, but she's thinking of having concerts here in Scandinavia, so you never know.

G: Ok. I think this is it. Thank you very much.

44. T: My pleasure.

-----3rd INTERVIEW: TRANSCRIPTION-----

Information: *Third Interview*

Id: Int 3

Interviewer: *Gytis Burauskas*

Interviewee: *Oskar*

Date: *September 24th 2007*

Time: *19:00 PM*

Environmental Information (Place, context, etc): Cafeteria, Lund

Additional Data: Oskar met us before his training session. Due to this fact the most appropriate place for an interview was a near by cafeteria.

G: Before we start, let me give you some idea of what I'd like to cover in the next hour. First, we want to give you some information about our purpose, what we want to research, as well as answer any questions you may have. Then, the main objective of this interview is to review your experience in virtual communities so we can analyze it and use it in our work. I'd like to hear about your experience, stories and anything else you'd like to tell me. And after we've covered the interview, I would like to give you the chance to add anything you want about it, and answer any questions you may have. Ok?

1. O: Absolutely.

G: The purpose of our research is explore the phenomenon of trust in virtual settings. Any question?

2. O: No.

G: Ok so... Could you tell me which Virtual Communities do you belong to?

3. O: Which ones I belong to? Mostly... Martial Arts communities... Do you want the names?

G: Yeah...

*4. O: Ok, there is one called **sherdog.net** which I'm involved a lot and a few Swedish ones too, **fightermag** for example and a couple of knife forums, one called **bladeforums.com** and a Swedish one called **www.utrustning.se**. And... there few regular forums... there is also a Swedish place called "**passagen**", for example, where you can discuss all things, they have like topics, there are forums for everything.*

G: But which community do you feel that you are involved the most?

5. O: Sure, sherdog mostly.

G: So... could you tell me how it works?

6. O: First of all in order to be a member of the forum and to be able to start posting, you have to fill in some information like your name and your address. And also your e-mail address... and in order to be active on the forum you have to answer an e-mail that comes to that e-mail address, so they know that is your real e-mail address.

G: How do people communicate? only forums or some other ways?

7. O: For me it's mostly forums... There is chatting as well... But I don't usually do that so much.

G: Can you buy or sell anything?

8. O: Hmm... I guess so... Yeah... In the knife forums I belong to, you can buy yourself stuff.

G: What is the purpose of these communities? Let's talk about this knives forum where you can sell and the other one that you are involved most...

9. O: Yeah...

G: So what are their purposes?

10. O: Well... discussing and spreading information in general, about stuff you like, I guess. Hmm... And you can sell and buy stuff too... like knives.

G: So what is your role in it?

11. O: Well... I do it mostly to find out information... And for fun of course... To talk to a lot of people who have the same interests... And to find out information about my interests specially... Which is Martial Arts mostly and also knives as well..

G: How did you hear about this communities and how did you join?

12. O: At sherdog I got member for a long time... It was 2000 or something. When I was really into Martial Arts.... Well... When you have an interest, of course, you have a lot of friends who have the same interests, I guess... You hear things from people and you buy magazines and stuff... There are a lot of sources of information so you find out about these forums...and I surf around on the internet, that's of course a way to find them.

G: What do you think in general about trust in Virtual Communities?

13. O: Well... I don't know... I've never had any problems with it. For example the knife site that I am a member of, you can buy stuff as I said... That's forum is not so small... it's a pretty personal forum... because I'm sure there are many many members... but for example the Swedish one... there are so many members... so they like to know more about the people who post there... For example you can't start buying things or selling things until you've been on the forum for a while

and they know a little about you... and you can send them a mail and you tell a little about yourself and then they decide if you can start buying and selling stuff on the forum. If they think you are an idiot, you can't do that for example.

G: Have you had some kind of experience where you have to put trust on somebody, like transactions, buying... or some other things?

14. O: Yeah, I was gonna buy a knife from a guy... He was gonna get a knife from the USA and... I was a little curious about how we were supposed to do with the money... If I put money in his account first or he sends me the knife first... But, he seemed like a really reasonable guy so I thought... It doesn't matter...

G: How did you make this impression that he is reasonable guy?

15. O: Well... of course people can lie... I mean... He said in the home page that he was 35 years old... and he had been in the military for a long time... He was a psychologist who worked with retarded people... He did the military service abroad... So... All those things... His age and his profession... Stuff about him generally told me that he was a reliable person.

G: Where did you check this information? In his home site?

16. O: I mean... Of course he could have lied about this things, but I also looked up a lot of other things, like other posts that he has been discussing, how other people react to him and to what he is saying... He seems to be a reasonable person... and other people trusted him as well... So out of that I make the judgment.

G: So, did you buy a knife eventually?

17. O: Well... I found out today actually... He sent me a message saying that it was actually the wrong knife that he got from USA... And he didn't know that of course... So he apologized... So... I will probably not be buying the knife...

G: Did you make a transaction to his account?

18. O: No , no, no.

G: Oh, so you didn't...

19. O: No, of course not.

G: How much previous experience did you have with that member? How long did you know him?

20. O: Not long at all... and that's why I was really curious. As I said, I looked up all the posts he wrote all the discussions he had, and I looked up information and everything but... I don't know.. I made a judgment, I guess.

G: How do you judge about other members motivation, competence or other issues?

21. O: What do you mean?

G: How do you judge other members of the community? if they are competence in the subject and stuff like that...

22. O: Of course I hard to know who they are... specially in some forums... But, as I said, in that forum for example, the control is very high and that's pretty obvious, so it's easier to judge, I guess. But I guess... form what they say, and how they act, I guess. Because you can't see the person... It might be a lunatic or something... From the way the act... and how they behave...

G: You said there is a lot of control in that forum, what kind of control is there?

23. O: As I said, they don't accept anyone... You have to tell some stuff about yourself... You can't just apply and then they don't know about it...

G: This is about the "knife community"?

24. O: Yes, exactly.

G: For example, is there any kind of reputation system or rating in the forum?

25. O: I think so... I'm pretty new in that format... It depends on how long you have been there and how many posts you have made how many comments you put there and stuff... And some people are like moderators... so they have a little more responsibility of the site... They moderate and make sure that everything works fine...

G: If you put it in general, how do you deal with trust in Virtual Communities? How do you feel about it? Do you usually trust people?

26. O: It depends very much, it depends very much... It depends on what forum you are... In that forum for instance I trust people, because most of the people have same interests... I mean, most of them anyway... But I mean, there are other forums, for example, which are, first of all, they are bigger, because there are more people there, and not so much control and you know that the people who post there can be just any people. The other one I was talking about... Passagen... where you can just talk about everything, that forum is enormous, they have forum for all the topics you can think of, and lots of different kind of people post there, and you have no idea of who the people are, you know? And you discover there so many idiots who are there just... so, I mean, I would never put any trust in any of those people unless I know exactly who it is.

G: So.... What kind of information do you get... you know... Do you have avatars, profiles...

27. O: Yeah, profile, yeah... where you write a little about yourself... And sometimes it seems like you can believe that stuff, and sometimes... you don't.

G: Have you dealt with any risky situations?

28. O: Not me but... I know people who have ended up in weird situations...

G: Could you tell about that?

29. O: Eh... Yeah... There was a girl for example... Who... I don't know... She was a finish girl I think... And she was just posting all over this forum, and she would just write everything what she

feels, she just doesn't care about things... She just writes exactly what she feels... And what happened was that people started to get annoyed by her, and some people start basically to harass her over the internet... She was like, little naive almost, for example, and she put a lot of information about herself on the forums, like her e-mail address and messenger address and everything... and people started to mail-bombed her, because they were annoyed by her. They send virus to her as well... so her computer crashed down, I think...

G: How could you compare trust in Virtual Communities and real ones?

30. O: Well... It's another thing, I guess... People usually have like... an unconscious sense of knowing people, like when you look a person in the eye, and see how the person looks and everything, I mean... it's easier to... just... make a judgment of how the person is, at least more than just seeing the text of what that person is writing on the computer... As I said, when you are on the internet, the person you are talking with, those could be any people... you have no idea of how much they people are lying usually, I mean, as I said, it might be a convict sitting in the prison, who has access to the internet, or like a person in a mental hospital.. or I don't know... So it's not the same thing at all, of course.

G: Have you ever meet the persons you have put trust on Virtual Communities? I mean, have you met them in real life?

31. O: Well... I met one guy on the internet... Because it was a guy who was moving to Sweden from the USA to study and he wanted to know about the kickboxing clubs... And I showed him... and then he came club and stuff... so... but eh... In general I haven't met the people that I have been chatting with.

G: How long you know the people you keep relationship in Virtual Communities?

32. O: Hmm... Not long usually, there are so many people, and they change all the time... Some people became members... and then they are there for a while and then they don't attend the forum anymore... There is no deep relationship usually.

G: Do you have any... the people you consider friends in Virtual Communities? Or you don't have relationships at all?

33. O: No... not so much.

G: But the people you usually communicate with... What do you know about them? Social status... personal information?...

34. O: Not so much... Most of them have the same interest as I do... Martial Arts...

G: What would you like to change in these Virtual Communities in order to encourage trust?

35. O: Well... It depends... one thing would be like... as I said... the Swedish knife forum that I'm a part of... What they've done is that they have control and if there is someone of the forum who doesn't behave properly, they just throw him right up to. So they have a lot of control of people in the forum and how they are behaving in the way they're supposed to... So that might be one way to... make it so it's easy to trust the people who are part of the community... But sometimes you don't want that, sometimes you just want a big forum with not much control where everybody can

be... you know? That can be ok, but then you gotta be careful that everybody who apply for the forum are aware that you shouldn't post that much information about yourself because everybody can be a part of this forum and everybody can see information about you... so you should be really careful with that... The people who make the forum should get people that information, and warn them.

G: One more thing... To compare your trust behavior in Virtual Communities and real ones... How does it differ? How could you compare? When it comes to trusting people...Are you more cautious in real one?

36. O: As I said, you gotta be more careful in Virtual Communities. Usually, I keep my relationships with the people from the Virtual Communities in a very superficial level, I never run any risk or get in trouble with none of those people so... As I said you never know who you are dealing with... so you gotta be really careful.

G: Ok, anything to add?

37. O: I don't think so.

G: Ok, thank you very much!

APPENDIX III: OBSERVATIONAL PROTOCOL

STUDY OF ISTE VIRTUAL COMMUNITY – OBSERVATIONAL PROTOCOL

1. Introduction

This kind of research usually involves a range of methods, informal interviews, direct observation, participation in the life of the group, collective discussions, analyses of personal documents produced within the group, self-analysis, and life-histories [DeWalt, K. M., DeWalt, B. R., & Wayland, C. B. (1998). "Participant observation." In H. R. Bernard (Ed.), *Handbook of methods in cultural anthropology*. Pp: 259-299. Walnut Creek, CA: AltaMira Press.] In order to settle the way this research process should be carried out, here we introduce standards of behavior and a set of rules as a observational protocol.

2. Background information

a. The community: ISTE

The International Society for Technology in Education (ISTE) is the trusted source for professional development, knowledge generation, advocacy, and leadership for innovation. A nonprofit membership organization, ISTE provides leadership and service to improve teaching, learning, and school leadership by advancing the effective use of technology. (www.iste.org)

b. Environment: MUVE, Second Life

MUVE refers to online, multi-user virtual environments, sometimes called virtual worlds. Today's MUVEs have 3D isometric/third-person graphics, are accessed over the Internet, allow for some dozens of simultaneous users to interact, and represent persistent virtual world. (www.wikipedia.org)

In 2003, one of the most famous MUVEs nowadays called Second Life was developed by Linden Research Inc (commonly known as Linden Lab). In it, its users, interact with each other through motional avatars, providing an advanced level of a social network service combined with general aspects of a metaverse. Residents can explore, meet other Residents, socialize, participate in individual and group activities, create and trade items (virtual property) and services from one another. (www.wikipedia.org)

c. ISTE as Virtual Community in Second Life

In September of 2006, an actual employee of ISTE behind the virtual name of Kittygloom Cassady creates the Virtual Community in Second Life ISTE: Educational Technology Association. Few days after, she, together with other actual ISTE employees who decided to join Second Life, buys the first piece of land at EduIsland, a community of 19 educational organizations and institutions. There the Virtual Community starts to grow.

Few months later, the community is big enough to acquire its own Island, ISTE Island. Nowadays, ISTE Island is the environment that provides a venue for educators to network and learn from each other about real-life education opportunities and best practices in Second Life.

The purpose of ISTE Island is to foster learning, networking, and educational exploration among ISTE's membership base and the wider educator community. In the spirit of this open exploration, the group sponsors presentations and other educational activities, social networking occasions, and resource sharing. A robust volunteer corps supports these activities, introduces new ideas and initiatives to the community, and welcomes new and returning visitors to the island. (<http://secondlife.iste.wikispaces.net>)

d. Education in Virtual environments

In 1995 libraries with stretched staff and shrinking budgets were suddenly required to put up websites. Now libraries need to consider multi-user virtual environments. Academic institutions are looking at virtual worlds like Second Life, Active Worlds and There.com as new platforms for distance learning and to engage people who have grown up with computers, online gaming and the Internet. (*1 . Digital Libraries on the MUVE: A Virtual Adventure Authors: Bell Lori; Pope Kitty; Peters Tom Journal: Bulletin of the American Society for Information Science and Technology Year: 2007 Volume: 33 Issue: 4 Pages: 29*)

Second Life is experiencing rapidly increasing use by higher education and businesses. In the 11 months between April 2006 and February 2007 participation has grown from 180,000 to over 3,000,000 registered users. Harvard University Law, Central Missouri State, Bradley University and an estimated 60-80 other education institutions such as ISTE have moved into Second Life to test and use it as a distance education tool. (*1 . Digital Libraries on the MUVE: A Virtual Adventure Authors: Bell Lori; Pope Kitty; Peters Tom Journal: Bulletin of the American Society for Information Science and Technology Year: 2007 Volume: 33 Issue: 4 Pages: 29*)

3. Research purpose

At an early level of the research process, we realize how important is for us to understand how a virtual community works. This knowledge is essential and forms a baseline which must be solid right before entering the concept of trust.

Thus, we decided to gain a close and intimate familiarity with a particular virtual community and its practices through an intensive involvement with people in their natural environment. Such objective is reached carrying out participant observation as qualitative research method. (DeWalt & Wayland, 1998)

4. Method for carrying out the participant observation

The method consists on a participant observation by an user who is familiar to the specific virtual environment during the period of one month (August-September 2007). Every single session lasts for two hours (more or less). Around two sessions were carried out each week.

The user of the virtual environment happens to be one of us, who has been in touch with this virtual world for several months before starting the observation process. Such experience has been possible through the use of an avatar in this Virtual World, created by us and called Nebo Deakins. After participating actively in Second Life for more than half a year, Nebo Deakins became a high skilled constructor who owns a profitable business of furniture design.

The method used to record data consists of filing cards. During each session, a filing card will save relevant information as well as researcher's notes (actual filing cards are attached as appendix).

APPENDIX IV: FILLING CARDS

-----FILLING CARD-----

Information:

Id: *FC01*

Observer: *Nebo Deakins*

Involved people: *Victoria Gloucester and Angela Troell*

Time (Real life): *10 AM GMT*

Time (Virtual World): *19:00 PM PDT*

Environmental Information (Place and context of the virtual world): *ISTE headquarters at EduIsland*

Detailed experience:

Some time ago I met this member of ISTE, Victoria Gloucester, through my Second Life friend Angela Troell who works as writer in a Second Life Magazine. During the period of time I was chatting with Victoria, I found out that she is an educator as well as school administrator for ISTE community in SL; and also an educator from USA in RL.

Virtual Communities in SL conform official SL groups in order to keep all issues related to the community under control. These groups contain information such as Member names and roles (different roles give different privileges), community events, internal rules, business information or land ownership data depending on the group's property and possessions.

Thanks to my experience in this Virtual World I know that there are different ways to join groups in SL. Some groups allow residents to join without any kind of application or control, just carrying out a simple search with the SL's search engine in "groups" section to find the desired group and accepting terms pressing the specific button. Some times you need to pay a small amount of SL money, the Linden Dollars (270 Linden Dollars is equivalent to 1 USD Dollar) but not often. And the most common thing is to join a group thanks to a previous acceptance. In this case, you need to get in touch with some member who has the privilege of adding other people. Usually, group owners and officers can do so. The way to contact them is either meeting them in world (chatting in the same virtual location) or using SL's search engine to find the specific resident and starting a private chatting window which doesn't force to be in the same virtual location.

Thus, considering that ISTE VC's group doesn't allow to join without previous acceptance, we need a contact, and hopefully, Victoria Gloucester would serve as contact to join the ISTE VC.

This first day, I explained to her my wish of finding out more about ISTE's Virtual Community and she appear to be really interested on helping me. After a long conversation, she promised to talk to someone with member-adding privileges this evening, so I will hopefully become a member soon.

Being a member of a group might give you some privileges like entering permission in group's land. Anyway, I decided to take a look of ISTE headquarters at EduIsland.

Fortunately, the virtual place is open to anyone. It looks nice. It is a two floor building with offices and meeting rooms in the second floor and a big hall full of information banners in the first one. Green areas around the building gives the place a relaxing touch. This reminds me of a typical serious location in SL. I have seen many of these ones already, like IBM headquarters or Reebok store. You can realize easily that is a place with serious purposes. Unfortunately, you commonly find yourself in SL at ugly lands full of newbies creations (SL has a 3D tool, and anybody can create anything and leave it on their lands or some public lands). These lands are always divided in too many plots, with different owners from different countries who don't even speak same languages. Thanks to that, lands are usually messed up with huge sex banners, half done buildings floating on the air, etc...

Additional Data:

No additional data.

-----FILING CARD-----

Information:

Id: *FC02*

Observer: *Nebo Deakins*

Involved people: *Victoria Gloucester*

Time (Real life): *14 PM GMT*

Time (Virtual World): *23:00 PM PDT*

Environmental Information (Place and context of the virtual world): *ISTE headquarters at EduIsland*

Detailed experience:

Today I logged in to SL and the first thing I checked was If I was already a member of ISTE community. I was not. And Victoria was not online either. This is not what I expected, I am kind of disappointed. I have been preparing today's session but I won't be able to carry out what I wanted. Anyway, I don't want to lose today's whole session so I am going to investigate more about ISTE Headquarters.

Everytime you log in to SL, you appear at the location you were the last time you logged off. So, right now, I am already at EduIsland, ISTE Headquarters. Walking around the ISTE building I found this teleporter. Using it I can access different parts at ISTE. Let's check them all out:

- § *ISTE HQ Front Steps or ISTE HQ Second Floor: Here is were I was yesterday.*
- § *ISTE Sky Park: This is a big park floating in the air, I guess we are some where above the ISTE building. Grass ground, couple of trees and benches on one side and a docen of cubes to sit down and a big screen on the other. This really looks like an utopic outside classroom. Close to the screen I can see that it has been used not long time ago because there is still some kind of image of origami on it. I also see a table with a laptop which says "Kittygloom Cassady's Powerpoint Presenter V1.0 Corrected for Sky Box". Such name is really familiar, she is the ISTE VC creator. And obviously, she has giving classes here today, origami classes.*
- § *EduIsland Auditorium: This belongs to EduIsland, not just ISTE, although any organization from EduIsland is allow to use it. I looks like a big inside classroom. Many cubes to sit down, some kind of a scenario and a small "news dispenser" (I believe is the best way to call such thing). Here I found a bunch of education news. From all of it, I definitely emphasize this article called "Professor Avatar" which is extremely interesting in my point of view. I consider this paper a great way to introduce ourselves in the educational aspects*

of Second Life, the pro-s and con-s of carrying out education processes in SL. I will definitely add it as additional information.

- § *EduIsland Sandbox: Another floating place where newbies without their own land can try to build something.*
- § *EduIsland Commons: Some sofas with a fire place. Nothing else. This is quite a nice place to hang out.*

I still need to visit ISTE Island in detail. But that will be another session.

Last thing I would like to mention for today's session is that I got a text document touching a big ISTE banner in the entrance of ISTE building which says mainly the same information about ISTE SL community that I have already read before somewhere, but I found something I didn't expect:

"ISTE is the registered trademark of International Society for Technology in Education. Join us in Second Life (group name: ISTE: Educational Technology Assoc) and in Real Life (www.iste.org/join). Contact Kittygloom Cassady in Second Life for more information."

This helps me understanding how serious they are taking this, you can even join the actual Real Life organization through Second Life. Amazing.

Additional Data:

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Persistent link: <http://chronicle.com/weekly/v54/i04/04a02401.htm>

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PROFESSOR AVATAR

In the digital universe of Second Life, classroom instruction also takes on a new personality

By ANDREA L. FOSTER

Despite its image as an all-American city, downtown Peoria, Ill., home of Bradley University, is also a place of strip clubs and violent crime. For undergraduates, it's a risky environment in which to conduct field research. Edward L. Lamoureux, an associate professor in Bradley's multimedia program, saw a better place in the virtual world Second Life.

This fall he is teaching his second ethnography class online in a computer-created environment featuring buildings, lakes, and avatars — digital characters who fly from place to place, chat, and form communities. The program is Bradley's first foray into using Second Life as a platform for education. Students have analyzed, among other topics, online hackers (known as "griefers" in Second Life) and avatar fans of musicians who perform in Second Life.

"This is clearly the most culturally diverse area I've ever been to," Mr. Lamoureux says of Second Life. "Anytime I'm in-world, I'm almost always talking with somebody" outside the United States.

Flying avatars, virtual fan clubs, and computer-drawn lakes seem, at first glance, to be of little educational value.

But ever since Linden Lab, a San Francisco-based company, unveiled Second Life in 2003, professors and college students have flocked to it.

People can visit Second Life free by logging in to its Web site and creating an avatar, but educators usually spend about \$1,000 to own virtual "land," and many shell out hundreds of dollars more buying virtual goods like furniture and clothing.

Professors use Second Life to hold distance-education classes, saying that communication among students actually gets livelier when they assume digital personae. Anthropologists and sociologists see the virtual world as a laboratory for studying human behavior. University architects use it as a canvas on which to explore design. Business professors see it as a testing ground for budding entrepreneurs. Although their pursuits are serious, scholars often have fancifully named avatars, such as Radar Radio and Intellagirl Tully, to reflect their personalities and interests.

More than 150 colleges in the United States and 13 other countries have a presence in Second Life. Although some faculty and staff members are skeptical of the digital world's value (see related article, Page A25), the number of virtual campuses keeps growing. Often it's just one person at a college — a faculty member, librarian, or technology guru — who prods officials to consider Second Life's educational possibilities and inspires others on campus to enter the virtual world.

Here are six of their stories.

The Ethnographer

The trickiest part to starting his ethnography class in Second Life, says Mr. Lamoureux, was getting the nod from Bradley's human-subjects-protection committee. Initially, the committee asked students to submit a lengthy proposal for each research project since the real people behind the avatars observed by the students could be identified. After prodding from Mr. Lamoureux, though, the committee allowed him to file just one application for the class.

The New Media Consortium, a nonprofit higher-education technology group, has been providing the technical support and space in Second Life for Bradley, as it does for many colleges. Mr. Lamoureux's students, represented by their avatars, regularly meet in a boardroom in the sky. Bradley is now in the process of building its own digital campus, or "island," as many college installations are called in Second Life. And Bradley's library director is on the board of a group working to build a library in Second Life.

Mr. Lamoureux has become so enthusiastic about Second Life that every Saturday night for an hour he strums the guitar and sings folk and rock songs before an online audience as the avatar Professor Beliveau.

The Writing Coach

Perhaps one of the most recognizable avatars in Second Life is Intellagirl. Her pink hair and outgoing personality mirror the person behind the digital character: Sarah B. Robbins, a 32-year-old doctoral student in rhetoric and composition at Ball State University.

Since the fall of 2006 she has led a freshman English-composition class on the university's Second Life campus, Middletown Island. Drawing from her teaching experience, she encourages other educators to use the virtual world for instruction, arguing that the platform makes many students more enthusiastic about learning. Just as Netscape brought the Internet to a wide audience, she says, so Second Life introduces virtual worlds to people who might otherwise never have explored them.

Professors preparing to teach in Second Life for the first time should be ready to cede some control over their courses to students, allowing them to, for example, build and design digital classroom spaces, Ms. Robbins suggests.

"If we let the students create the space, then they make the space that's best for them," she says. "And that gives us insight into how they learn and makes them more engaged and more responsible for their learning."

Her students' writings are based on their research and observations in Second Life. Composition topics have included how avatars form communities and online identities versus real-life identities.

Ms. Robbins designed the buildings and open spaces on Middletown Island herself. Convincing Ball State colleagues that she could actually teach a class there was more difficult. The key was to impress on them that she could achieve the goals of the university's core composition class in the virtual world.

She let other professors, whether at Ball State or not, sit in on the class and offer feedback, and she invited students to make suggestions to improve the class as it progressed. The owners of digital land in Second Life can limit access to their islands.

"There was an agreement that we would be constantly aware of how it was going, and that we would make adjustments accordingly," she says.

To those in academe who tell her that Second Life only entertains, she responds: "This method works well for me. And it might not work for you, and it won't work for every student, either. But neither does a learning-management system or a lecture class."

The Architect

Summer at Vassar College, just as at many higher-education institutions, is a lazy season. But since June, when Steve Taylor unveiled his re-creation of the Sistine Chapel on Second Life's Vassar Island, the online buzz it generated has been growing.

Mr. Taylor, who is Vassar's director of academic computing services, digitally duplicated the ornate interior of the famed cathedral, from the barrel-vaulted ceiling, adorned with

Michelangelo's frescoes, to the Renaissance pilasters. He completed the project in about eight weeks.

Unlike visitors to the real chapel, in Vatican City, those to the digital version can fly to the ceiling to inspect the depiction of nine stories from the Book of Genesis. And they can view tapestries that Pope Leo X commissioned Raphael to design for the walls in the early 16th century.

Mr. Taylor, who has never visited the actual 15th-century chapel, says he put it online to inspire other professors to build educationally in Second Life. Perhaps an environmental-studies scholar will consider creating an outdoor environment to teach ecology, or a scholar of Gothic architecture will recreate a notable Gothic building, he says.

To build the digital chapel, he used mostly electronic images already available on the Internet. He found it nearly impossible, however, to get images of the chapel's floor.

"No books about the Sistine Chapel feature pictures of the floor," says Mr. Taylor, whose avatar is Stan Frangible. "It would be hard to even get a camera in a good place for that, so I just had to take lots of pictures that had a little bit of floor in them and piece them together."

Vassar keeps track of visitors to the site because they must agree to conduct themselves in a respectful manner — this is a church, after all — before proceeding into the building. To date, about 1,000 avatars have agreed and gone inside.

The Literature Scholar

If the students of Beth L. Ritter-Guth are racked by nightmares about burning in hell, they can be excused. They immersed themselves in Dante's Inferno by exploring a three-dimensional model of the abyss.

Ms. Ritter-Guth, an English instructor at Lehigh Carbon Community College and an adjunct at DeSales University, both in Pennsylvania, is the creator of Literature Alive, a Second Life project that engages students and other visitors in reading by guiding their avatars on tours of pixilated versions of famous literary spots.

She created the locations with help from a seasoned British builder in Second Life and Laura M. Nicosia, an assistant professor of English at Montclair State University. Various colleges play host to different literary scenes on their virtual campuses.

The Inferno, from The Divine Comedy, is stored on a computer and is presently in search of a permanent home. But when the New Media Consortium played host to it for 10 days on its digital island, hell was hugely popular.

Ms. Ritter-Guth depicted the Inferno as a half-fiery, half-frozen pit lined with steps. In a contemporary-fiction class this summer at DeSales, she had students place photographs of well-known figures on the Inferno steps based on what level of hell they thought the figures represented. President Bush, Saddam Hussein, and Donald Trump were among those whose photographs the students posted.

"Dante's version of the Inferno is very politically drawn," she explains, "and the students did the same thing, where they picked political figures for the different layers."

She also had students compare the Inferno with another novel, Linden Hills, which imagines Dante's Inferno as a middle-class neighborhood. Her students built in Second Life their renditions of hellish houses on a virtual Linden Hills.

The Literature Alive project relies on donations and volunteers, and Ms. Ritter-Guth pays for many of the digital objects herself. In Second Life she is known as Desideria Stockton, a brainy, sexy blonde.

The Campus Planner

Meander around the Second Life island of Montclair State University, created largely by AJ Kelton, and experience how he imagines the ideal college campus. Mr. Kelton is director of technology services at Montclair State's College of Humanities and Social Sciences.

Faculty members can sunbathe on chaises lounges by a lake and listen to birds chirping. Or they can head over to an adjacent covered deck, sit on some cushions, and have an intimate conversation around a fire.

The side of a mountain is embedded with stones that describe the syllabus of a freshman course about getting acclimated to university life that Mr. Kelton teaches. Nearby spheres describe the deadlines for each week of the course.

Visitors can also immerse themselves in literature at some Literature Alive spots.

They can walk around the island of Willow Springs, ancestral home of the protagonist in Gloria Naylor's novel Mama Day, or take a stroll along the forest trail where the title character confronts evil in Young Goodman Brown, a short story by Nathaniel Hawthorne. Mr. Kelton encouraged the professors who designed the environments to include them in Montclair's island.

"The thing about these learning areas is that the knowledge is already there," he says "In a traditional classroom, it's an empty classroom with students in it until the teacher walks in."

Mr. Kelton, who runs a blog about educational sites in Second Life, also uses the virtual world to teach a course in beginning writing. He says several faculty members plan to use the island in their classes.

He has two avatars: AJ Brooks, who can be found piloting a helicopter around Montclair State's island, and Wealthy Mizser, who runs a gallery and invests in real estate elsewhere in the virtual world.

The Technologist

Campuses created by many colleges in Second Life mirror their real campuses. But Phillip D. Long, associate director of the Office of Educational Innovation and Technology at the Massachusetts Institute of Technology, envisions the virtual campus as a student-led laboratory.

Only about one-quarter of MIT'S island resembles the university's actual campus. The rest is dedicated to student projects. Mr. Long designed the space, and the New Media Consortium did the construction.

MIT "wants to do this in strong collaboration with students," he says. "And we don't want to get ahead of them or project whatever idealized notions we might have, as people who work here, onto what we think the cultural practices and interaction styles of our students might be."

In one part of the island, speakers can mount a dais and address a crowd through a megaphone. When a speaker talks, listeners move to the right or left of a line that divides the platform, depending on whether they agree or disagree.

The placement of the line represents the average viewpoint of all of the avatars within earshot. Drew Harry, an MIT graduate student who studies how virtual environments can help consensus building, established the platform.

The island also includes dormitories. Incoming students might get a better sense of what dormitory is best for them — be it the one for jocks, indie-rock fans, or computer geeks — by touring three-dimensional models of the dormitories' interiors, Mr. Long says. MIT sponsored a contest for students to design the exteriors.

MIT officials plan to ask some students in residence halls to decorate the interiors of the virtual dorms to see if the project has traction. "Maybe we'll learn that the idea is out to lunch," says Mr. Long, whose avatar is Radar Radio.

In the part of the island that resembles the real campus, a theater opens onto a grassy quad, and a movie screen stands on the roof of a nearby building; both can be retracted to appear invisible. They are for classes and other gatherings. In virtual worlds, "outside spaces are much more comfortable than interiors," says Mr. Long, because viewing a classroom on a computer screen can feel claustrophobic.

Not every educator who has explored Second Life has come away impressed. Many complain that the virtual world is beset by technical problems, is a waste of time, or is largely a playground for sexual experimentation.

Mark Y. Herring, dean of library services at Winthrop University, in South Carolina, asked younger, tech-savvy librarians to immerse themselves in Second Life for three months to see if they could discover new ways to serve the library's clientele. They came up empty-handed, says Mr. Herring, who wrote an article for the May 15 issue of Library Journal describing his disillusionment with the virtual world.

The academic-library sites he has seen in Second Life generally accomplish nothing more than regular Web sites do, he says, adding that the three-dimensional environment is much harder to use. Some educators leave the virtual world frustrated that they cannot easily move around, communicate, or find regions populated with avatars. Second Life has several million members, but

only about 430,000 of them log into the site over a given week. So at any one time, many regions are deserted.

"We would all be better served by working in the world we live in," says Mr. Herring.

Even those who believe Second Life has great educational potential worry that it is being used in the wrong way. Nicholas Adams, an art historian at Vassar College, says the re-creation of the Sistine Chapel on Vassar's virtual campus looks cartoonish because the frescoes' colors and textures are off. "Art historians can't take this seriously," he says.

Michael Stoner, a Chicago-based consultant who advises colleges on Internet strategy and Web design, counsels them against using Second Life for student recruitment and alumni relations, arguing that the effort and money spent to understand the virtual world may not be worth it.

Colleges have enough trouble just creating and maintaining a Web presence, he says, without the added challenge of becoming fluent in a virtual world.

Some professors are wary of promoting Second Life to their students, noting that sexually oriented regions, such as a nude beach and "free sex-orgy room," are among the most popular places in Second Life.

"Second Life is primarily a platform for adults to explore their sexual identity," wrote Sylvia K. Martinez in a July posting to the blog of Generation YES, an organization that helps schools use new technology. Ms. Martinez is the group's president. "Ignoring the overtly sexual nature of Second Life," she wrote, "is like going to a strip club and then wondering why there are naked people there,"

She and other critics also complain that the virtual world's software frequently crashes, and that it requires a lot of bandwidth. Indeed, technical problems are so frequent that Linden Lab, operator of Second Life, maintains a blog with almost daily warnings about snafus. The posts often close with "Thank you for your patience." For many users, patience is wearing thin.

-----FILING CARD-----

Information:

Id: *FC03*

Observer: *Nebo Deakins*

Involved people: *Victoria Gloucester and Kittygloom Cassady*

Time (Real life): *12 AM GMT*

Time (Virtual World): *21:00 PM PDT*

Environmental Information (Place and context of the virtual world): *ISTE headquarters at EduIsland*

Detailed experience:

Great! First thing I saw today when I logged in was this pop up saying wellcome to ISTE community. I read my messages, one is from Victoria, she says that she already talked to her friend and that I will hopefully become ISTE member in the next hours.

Together with ISTE welcome message it comes some more information:

§ A TP that teleports you to ISTE's locations.

ISTE Headquarters at EduIsland and ISTE Island.

§ And the info related to the next ISTE event that says:

ISTE typically hosts in world events twice weekly: every Thursday at 6 PM SLT (that's US pacific time), we host a social event for educators to meet and network. We also host a twice monthly speaker series, a monthly Educator Show and Tell session, and additional chats and discussions, typically on Tuesday evenings at 6 PM SLT.

§ An editable document of ISTE SL Community Code of Conduct:

We'd like to come up with some general guidelines about community conduct for ISTE Island. Please use the space below to make suggestions and comments.

DRAFT

These are our fundamental rules for anyone visiting the island:

- Respect: It is expected that group members and visitors will be respectful of differing opinions and backgrounds. Healthy disagreement is encouraged. However, anyone making

insulting or personally disrespectful comments will be asked to leave.

- Selling: The purpose of ISTE Island is for the generous exchange of information among members. Culturally, hard selling is discouraged by the group. Visitors who would like to leave information about a product or who would like to schedule a time to talk to interested group members about a product must first make arrangements with an island manager. Visitors who fail to do so may be asked to leave.

- Building and placing objects: In keeping with the spirit of ISTE Island's collaborative intent, the island allows building by visitors provided it is not of an inappropriate or destructive nature. This means that you may share a resource with a group or practice your building skills. Please be aware that all objects are auto returned after 90 minutes. Types of objects that are considered destructive or inappropriate would include distracting or noisy scripted objects, objects that do harm to other avatars (weapons or pushing tools), anything that is mature/adult/sexual in nature, or any type of object that causes the sim to become extremely laggy due to the object's memory demands, etc.

- Appropriate behavior: ISTE Island is a PG island, meaning that all mature/sexual behavior is prohibited. Avatars that proposition or make suggestive remarks to other avatars on ISTE Island will be banned. Please also use good judgment when unpacking freebies as many free items in SL contain mature attachments, clothing, etc.

Apart from all this info, now we are also allowed to access group information. To do so, I have to check my profile information and select ISTE from a list of the groups I belong to. There we can find out about ISTE's last and next events. There seem to be many events going on, so perhaps it is better to contact Kittygloom Cassady (ISTE VC founder) explain our purposes and ask her for help deciding where to go.

Kittygloom is not online, of course, she is American and now its night in most of the states. I checked her profile (every resident has a profile where anybody can access and read a short introduction of the person, online status, the groups he/she belongs to, info about RL, etc...). There I can read that she is "Interested in meeting new people, particularly SLers involved in education or nonprofit work in RL/SL", so she will hopefully help us. About RL, she claims "I Work for ISTE (International Society for Technology in Education) and would like to connect with members and others working to advance education using technology. Come join our SL group, ISTE: Educational Technoloy Assoc, or visit us at www.iste.org."

I leave a message for her, and she what we find out tomorrow.

Additional Data:

The message I left for Kittygloom Cassady:

"Hello Kittygloom, this is Nebo, I am a Master Student from Sweden writing a thesis about trust in Virtual Communities. I have decided to run a participant observation in a ISTE event and I wonder if you could help me out selecting an interesting event, and perhaps gathering some more info about ISTE VC, thanks in advance".

Id: FC04

Observer: Nebo Deakins

Involved people: Scottmerrick Oh and Giannina Rossini

Time (Real life):

Time (Virtual World): 15:00 AM PDT

Environmental Information (Place and context of the virtual world): *ISTE headquarters at EduIsland and ISTE Island.*

Detailed experience:

It is late night here in Europe but day in most states of USA. I connected for a while to see if I can talk to Kittygloom Cassady. I left a message for her some hours ago and now I might have an answer already. I am afraid nobody answered. Anyway, considering that americans are awake now, I am going to take a look at ISTE HQ and see if I can talk to some ISTE members.

Nobody at ISTE HQ in EduIsland, let's take a look of ISTE Island.

I see two people there talking, let's get in the conversation.

...

[15:47] Nebo Deakins smiles

[15:47] Giannina Rossini: hi Nebo

[15:47] You: Hi Giannina and Scottmerrik

[15:48] Scottmerrick Oh: Hey, Nebo

[15:48] Scottmerrick Oh: nice meeting you

[15:48] You: I am a Master student from Sweden and I am writing a thesis about Trust in Virtual Communities, so I came to take a look of the island and see if I can talk to someone and get some info.

...

We had a long conversation (couple of hours). They seem to be really nice people; Scottmerrick is an ISTE Docent and Giannina an experienced member. Considering that they both are very familiar to the community, I decided to make them some questions about the Virtual Community and some trust issues as well.

It is quite confusing to read the whole conversation because some parts of it weren't related to the topic. So, in order to organize it all, I took the liberty of editing and summarizing the whole conversation into a single interview to Scottmerrick because he was the most participative one (saved as "Additional Data").

...

[17:35] Scottmerrick Oh: see ya'll!

[17:35] Giannina Rossini: bye everyone

[17:36] You: bye Scoot!

[17:36] You: bye Gia!

...

*Now it's really late but it was worth it to stay half night at ISTE Island. I got lots of information.
Now time to sleep.*

Additional Data:

---- interview Scott -----

1. *What is your role in ISTE SL community?*

I am a Docent...I welcome people to the island and show them around, answer questions...

2. *What do you use the community for?*

Mainly for networking and getting new ideas for using technology.

3. *Why did you decide to join ISTE Virtual Community?*

For the networking...I am in a small community (in RL) and this has been a great way to meet people and keep in touch with those I meet at NECC.

4. *What do you think of trust in virtual communities? Do you often deal with trust issues in virtual communities?*

Hmmm...I've found most people to be quite friendly but haven't been in a situation where I would have to trust anyone with anything, really.

5. *Have you ever had to deal with risky situations that required to put trust in someone?*

I've only had the opportunity to buy directly from vendor machines. I've not found any problems with it at all. Although you do find some things that are given away free will show up in a store being sold.

6. *Finally, do you recommend me any ISTE event to carry out a participant observation? Thursday socials...there is a lot of good conversation and learning!*

-----FILING CARD-----

Information:

Id: *FC05*

Observer: *Nebo Deakins*

Involved people: *Victoria Gloucester*

Time (Real life):

Time (Virtual World): *9:00 AM PDT*

Environmental Information (Place and context of the virtual world): *ISTE headquarters at EduIsland and Victoria's place.*

Detailed experience:

Today I got a message from my friend Victoria. She invited me to take a walk around ISTE Headquarters at EduIsland so she can explain to me a little deeper what this is all about.

[We talked through world chatting and the system that gathered our conversation, also recorded some part of conversation of others that were around us. So, I decided not to add the transcription because it would be pretty confusing.]

After having a long conversation with Victoria Gloucester, I got an overview of what ISTE SL members do. Once you are a member, you will be invited to weekly events and will be among the first members to find out about new ISTE SL programs, in world merchandise, and volunteering opportunities. ISTE Members can also send group IMs and notices (an example of Group Notice is attached as additional information).

This is a non-profit organization, so obviously people who work here are all volunteers. Any member who is interested in volunteering just needs to fill up a volunteer application. Those applications are in world, I mean, you have to go physically (well, virtually...) to the ISTE Headquarters at EduIsland (ISTE Building) and get it from the wall behind the reception desk.

There are always opportunities for variety of volunteering positions for ISTE's Second Life Project: serving as an ISTE docent or new member greeter (there is usually one member greeter helping out newbies at ISTE's building), giving educational tours, building resources for the group, and serving as a presenter or panelist during one of ISTE's events. [The web-based docent schedule is accessible in the following address:

<http://www.google.com/calendar/embed?src=f6abl6vj4qn1ueh3e0s24qifgo%40group.calendar.google.com>.

Victoria is a ISTE docent and member greeter and she gives classes at her own place. She invited me to see her place and I accepted. Her place is what we called in SL a skybox, a big house floating

high up in the air, usually in order to avoid lag, which is a smart thing because probably many students attend to her classes and that might cause lag problems. There she has a small house with a big garden, where the outside class is located. Another nice and relaxing place to attend class, definitely. Lots of flowers, trees, and a lake in the middle.

After the quick visit to her house she continued explaining me more about ISTE SL community, the discussion list. Apparently, ISTE hosts a Second Life discussion e-mail list for the purposes of sharing SL best practices and resources and communicating about educational uses of SL. As I said before, a ISTE SL members can send group IMs and notices, but the best way for capturing threaded, lengthier discussions is the discussion list.

Additional Data:

ISTE's SL group notice:

"Stressing over back-to-school?? Wish you could just take a flying leap? YOU CAN!!! This week, we will suspend our structured discussions for an evening of high-flying FUN! Parachutes and hang gliders will be provided for those who don't already have them! A dance floor will be available for those who either can't do the air time, or flyers who just want to take a break from the heights! Mark your calendars for Thursday, August 23 at 6pm SLT!!! See you in the air!!!"

-----FILING CARD-----

Information:

Id: *FC06*

Observer: *Nebo Deakins*

Involved people: *Rush Hastings*

Time (Real life):

Time (Virtual World): *5:00 AM PDT*

Environmental Information (Place and context of the virtual world): *ISTE Island*

Detailed experience:

Today, I am going to visit deeper the whole ISTE Island. Wow! This is huge. And today, there is a guy with big black wings here. His tag says "ISTE SL member". He is coming closer...

...

[5:56] *Rush Hastings: with that earring you look a little like Mr. T*

[5:56] *You: LOL*

[5:56] *Rush Hastings: need some help?*

[5:58] *You: well to be honest I have a couple of questions... and it would be great if you could help me out*

[5:58] *Rush Hastings: ask away*

[5:58] *You: first let me introduce myself*

[5:58] *You: I am a Master Program Student from Sweden*

[5:59] *Rush Hastings: i am a teacher from united states*

[5:59] *You: and I am writing a thesis about Trust in Virtual Communities*

[5:59] *You: Nice to meet you Rush*

[5:59] *Rush Hastings: there's some trust but look at us we are all buffy lol*

[5:59] *Rush Hastings: nice to meet u nebo*

[6:00] *You: I decided to run a participant observation here in SL within ISTE community*

[6:00] *Rush Hastings: cool*

[6:00] *You: so... I am gonna ask you some questions if you have time*

[6:00] *Rush Hastings: yes go right ahead*

[6:01] *Rush Hastings: love surveys*

...

I found this teleportation board and it says: ISTE Island Headquarters, Docent Lounge, ISTE Auditorium, Band Shell, Faculty Lounge Café, HQ Rooftop Reception Hall, Special Interest Group Pavillion, Affiliates' Pavillion, NECC Pavillion, Recognition Rotunda, Exploration Sandbox, Treehouse 1 (Group), Treehouse 2 (Couple), Treehouse 3 (Meditation), Campfire Ring, Breakout

Groups (Coming Soon!), Discussion SkyPark, and Aquarium. I was taking a look of all the places and asking Rush about the purpose of each one. He was really polite and helpful:

- § *ISTE Island Headquarters: There is the teleportation board. Here is the place where everything starts. Anywhere you wanna go, first you have to come here. Big hall with lots of banner and information about ISTE everywhere.*
- § *ISTE Auditorium: ISTE's Auditorium serves as a place for ISTE SL members to show off their ingenious creations.*
- § *Band Shell: Another formal meeting area, the Band Shell has housed live concerts.*
- § *Faculty Lounge Café: The place to meet other ISTE SL members and have a virtual cup of tea.*
- § *HQ Rooftop Reception Hall: ISTE's rooftop doubles as a large meeting area. Good place for a rooftop party, with the docent lounge. Great view.*
- § *Special Interest Group Pavillion: For Special Interest Group members to check out the latest SIG offerings. A place to pull up a chair and read an issue of the SIG News or hold a committee meeting with other SIG members.*
- § *Affiliates' Pavillion: Still under development. This will be where you can get more information about what it means to be an ISTE Affiliate.*
- § *NECC Pavillion: Another pavillion. This time is for NECC conferences (NECC info in additional data).*
- § *Recognition Rotunda: This is where ISTE will post information about all the open awards and their past winners.*
- § *Exploration Sandbox: Literally nothing, I guess they haven't build this yet.*
- § *Treehouse 1 (Group): ISTE's 3 treehouses each have different purposes. Treehouse 1 serves as a place for groups to meet informally when all those ground-based meetings have got you down.*
- § *Treehouse 2 (Couple): This treehouse allows for a more intimate chat, or for some alone time if you prefer it. Take in the view and ruminate about laptops and podcasting.*
- § *Treehouse 3 (Meditation): Use ISTE's Meditation Treehouse to get away from the daily stresses of life.*
- § *Campfire Ring: Meeting areas for ISTE Social Discussions, informal chats and gatherings.*
- § *Breakout Groups: The same as the exploration sandbox.*
- § *Discussion SkyPark: Looking like the other ISTE skypark at EduIsland.*
- § *Aquarium: This is definitely a cool attraction, a virtual aquarium. Never seen anything like this before in SL.*

Once the tour was finished, I thought he would be another good interviewee. It would be good to get a point of view of an ISTE SL member instead of a ISTE Docent. He was obviously really familiar with ISTE SL, so I asked him the same questions I did to the SL Docents the other day (the edited questions and answers are in additional data)

...

[5:56] You: Thank you so much for your help Rush, I appreciate it.

[6:15] Rush Hastings: u r welcome it was nice meeting you nebo and good luck

...

Additional Data:

NECC (National Educational Computing Conference):

For almost three decades, NECC has been the premier forum in which to learn, exchange, and survey the field of educational technology. This annual conference—presented by ISTE and keyed to the National Educational Technology Standards (NETS)—features hands-on workshops, lecture-format and interactive concurrent sessions, discussions with key industry leaders, and the largest educational technology exhibit in the nation.(http://center.uoregon.edu/ISTE/NECC2008/about_us/)

Rush Hastings questions and answers:

1. *What is your role in ISTE SL community?*

I am just a friendly guy looking for new tip and to share knowledge

2. *What do you use the community for?*

Share ideas and thoughts

3. *Why did you decide to join ISTE Virtual Community?*

Because I am a teacher in RL and I think anything we can do to better our selves is a good thing

4. *What do you think of trust in virtual communities? Do you often deal with trust issues in virtual communities?*

No I haven't yet because I am not looking for anything that deals with trust I am looking for simple information. I am not looking for love or a relationship

5. *Have you ever had to deal with risky situations that required to put trust in someone?*

No not really not yet but I am looking to buy land soon so I will in the future

6. *How could you compare trust in virtual communities and in real ones? Could you tell some examples?*

I think in here people want to be something else its a way to escape from RL . Plus you lose the body language aspect of talking in person body language give a way lies.

7. *Finally, do you recommend me any ISTE event to carry out a participant observation?*

I would say Thursday night socials they are tons of fun only been to one but it was nice.

8. *Why did you chose this particular VC?*

I would say I chose ISTE SL because I feel the safest here these folks are teachers for the most part they are trusting and caring. To this point I have met many nice folks and not one person I have been afraid to deal with here. In fact, I have gotten more help here then any other place.

-----FILING CARD-----

Information:

Id: *FC07*

Observer: *Nebo Deakins*

Involved people: *Kittygloom Casady*

Time (Real life):

Time (Virtual World): *23:00 PM PDT*

Environmental Information (Place and context of the virtual world): *ISTE headquarters at EduIsland*

Detailed experience:

Today I got in touch with Kittygloom Cassady finally. We had a long conversation. I consider it as a short interview, and that's why I made some kind of transcription. The following text represents our conversation (some parts of the real conversation were deleted because they weren't related to the topic; and others were summarized):

Nebo: So... tell me a little more about this. For instance, what does ISTE membership mean for you?

...

Additional Data:

QUESTIONS:

1. *What is your role in ISTE SL community?*

I'm the director of general membership for ISTE and initially set up our group and project in Second Life as a way to connect our members together and build community virtually.

2. *What do you use the community for?*

We use the community as a way to foster discussion, collaboration, and knowledge-sharing among our international community of 15,000 members.

3. *Why did you decide to create ISTE Virtual Community?*

A challenge facing any large international membership association is how to create a sense of community when most members will never, or very infrequently, meet face to face. Virtual

community-building is so vital in these cases, and Second Life presented us with a unique opportunity to do this in a synchronous, more personal manner than the typical virtual tools.

4. What do you think of trust in virtual communities? Do you often deal with trust issues in virtual communities?

Trust is absolutely vital. Without it, the community becomes a sort of wild west. We have had few problems with this so far, but the ones we have had have been dealt with swiftly. The community had developed its own sense of group decision-making and methods of dealing with inappropriate behavior by visitors. We recently came up with some community standards to solidify how we expect participants to engage with each other while on group land.

6. What decisions did you take and which aspects did you consider?

I'm not sure I understand the question, but I'll take a shot. One major decision point for us was how open to leave permissions (to encourage creativity and easy collaboration) vs. how controlled we wanted the community to be (for maximum safety and security). I think we've struck a good balance between the two.

7. Have you ever had to deal with risky situations that required putting trust in someone? Like buying something from someone?

Of course. Every transaction in SL is risky in some way. Vendors break and sometimes items aren't delivered. Paying an unknown builder to help with a project when you've never met or even heard his voice can be daunting, but I've had few problems in SL so far. I attribute this primarily to the fact that I'm working in educator circles and not as much in the public sphere. Your reputation here is everything so typically people are very careful to protect their image and behave well in smaller sub cultures like the educational community. There are always exceptions of course.

9. How could you compare trust in virtual communities and in real ones? Could you tell some examples?

The similarities are many--you build trust slowly by demonstrating your integrity with each interaction. There are some special challenges with SL, of course. I read recently that they did a study that lying came much more easily when lying through an avatar--heart rate didn't even increase as typically does when one lies. I can understand that if you are in the general public within SL and you aren't part of a formal community, or at least one in which people know who are behind the avatars. Our community is pretty unique, though, in that most people know each other's real names, and there are opportunities for face to face meetings.

10. Finally, do you recommend me any ISTE event to carry out a participant observation?

We have socials every Thursday evening at 6 PM SLT. Stop by!

-----FILING CARD-----

Information:

Id: *FC08*

Observer: *Nebo Deakins*

Involved people: *Rush Hastings, Scottmerrick Oh, Giannina Rossini and Duality Kiness*

Time (Real life):

Time (Virtual World): *3:00 AM PDT*

Environmental Information (Place and context of the virtual world): *ISTE headquarters at EduIsland*

Detailed experience:

Today I decided to find out more about the e-mail discussion list. As I said in a previous session “ISTE hosts a Second Life discussion e-mail list for the purposes of sharing SL best practices and resources and communicating about educational uses of SL”.

During all the previous sessions, the e-mail discussion list did not pass unnoticed. I have asked many people about it but nobody could tell me much. Rush Hastings (ISTE SL Member), for instance, hadn’t even heard of it.

...

[6:15] You: oh, I would need to know a little more about the discussion list for instance

[6:16] You: how do you join it?

[6:16] Rush Hastings: how do u join what?

[6:18] You: have you heard of it?

[6:18] Rush Hastings: no I haven’t

...

Scottmerrik Oh (ISTE SL Docent) and Giannina Rossini (ISTE SL Member) didn’t either

...

[5:52] You: another thing... how do I join the discussion list?

[5:53] Scottmerrick Oh: hmmm let me look

[5:53] You: ok

[5:53] Scottmerrick Oh: do you know, Gia?

[5:53] Giannina Rossini: which discussion thing is that?

[5:53] Scottmerrick Oh: i think the only list I’m on is the docent one

...

Finally I managed to join the discussion list filling out a ISTE’s SL Discussion List Subscribe Form from www.iste.org. Then I checked my e-mail for a confirmation message and I confirmed my membership. Nothing else happened since that, so I decided to ask Duality for some more help:

...

[11:36] Nebo Deakins: what is the Discussion List for and how does it work?

[11:36] Nebo Deakins: just joined it... but nothing happens

[11:36] Nebo Deakins smiles

[11:36] Duality Kiness: Its just a standard discussion list where people ask for tips or ask about a particular technique or piece of technology they are considering.

[11:36] Duality Kiness: Some days are quiet.

[11:37] Nebo Deakins: but how do I use it for instance?

[11:37] Duality Kiness: OH! You should get a welcome message with the proper address to send emails to. Then you just send in a message and everyone gets it.

[11:37] Nebo Deakins: oh.. ok

[11:38] Nebo Deakins: just like a normal e-mail list then

[11:38] Nebo Deakins: nothing else, right?

[11:38] Duality Kiness: Yes

[11:38] Nebo Deakins: good

[11:38] Nebo Deakins: understood

[11:38] Nebo Deakins: thanks again for your help

[11:38] Duality Kiness: NP!

...

As Duality just told me, it's nothing else than a typical e-mail list for ISTE Members.

Additional Data:

No additional data.

-----FILING CARD-----

Information:

Id: *FC09*

Observer: *Nebo Deakins*

Involved people: *Rissa Maidstone, and everybody from the lecture.*

Time (Real life): *0:30 AM GMT*

Time (Virtual World): *9:30 AM PDT*

Environmental Information (Place and context of the virtual world): *ISTE headquarters at EduIsland*

Detailed experience:

Today I have attended a virtual lecture about software developing (from Sun Microsystems).

An ISTE SL member, Rissa Maidstone, sent a group IM (messages that all online members can read) about a virtual lecture:

“Rissa Maidstone: Morning everyone! Today's Dr. Dobb's Life2.0 Summit features keynote by David Intersimone, Sr. VP, Borland Codegear at 9:30 PM PST/SLT, followed by a line up of Corey Bridges (CMO, Multiverse), Rafael Cedeno (CTO, Multiverse), Cherub Spectre on Web3.0 to Workplace, David Orban on Metaverse Metrics. Tours include Intel and Cisco. Kim Seifert will sing live for us at 5:30 PM SLT--Hope to see you all here! and thank you to Sun and IBM for sponsoring the show! <http://slurl.com/secondlife/CMP%202/17/113/25>”

Considering that I have never attended any ISTE event, I think this is a perfect occasion to do it. So clicked the group IM's attached teleportation address and I appeared at a big auditorium.

Immediately I saw in the right hand corner of my screen that sound was available, so I turned on and I took a sit.

This guy, Spazz Zenovka, was talking about software developing. I am not going to go into details about lecture's contents, but I must say that it was really interesting, and I wasn't the only one who thought so, more than 30 avatars were there, quietly listening to him.

Once he finished, he explained that it was time for questions by using in-world chatting so it would be organized and everybody could read and participate (checking the chat history is also a good not to repeat themselves). I added this chatting as additional conversation.

It was a great experience in my point of view. Attending class from home. But not any class... I was listening to real American developers from Sun Microsystems!! That was awesome. And everything from my home desktop drinking coffee with my pyjamas on!

Additional Data:

The ending of the lecture:

- ...
- [9:58] Jeffronius Batra: That was good.
- [9:58] Babette Zenovka: thank you
- [9:58] John Zhaoying: Now ... some Q&A?
- [9:58] Dalamar Taurog: It was good in Boston AND here
- [9:58] EdDereDdE Laval: interesting thx
- [9:58] John Zhaoying: Well, yay!
- [9:59] John Zhaoying: It's good when mixed-reality works.
- [9:59] Rissa Maidstone: No doubt
- [9:59] John Zhaoying: David -- someone asked, earlier ...
- [9:59] Rissa Maidstone: Very good presentation David...
- [9:59] Lyr Lobo claps
- [9:59] John Zhaoying: ... if you could specify which Intel C++ libraries were being opensourced?
- [9:59] Spazz Zenovka: Intel Threaded Building BLocks (TBB)
- [9:59] Fantazmical Chemistry: I have JBuilderX, Borland is not developing that anymore? do you anticipate any future Borland Eclipse Java?
- [10:00] Jeffronius Batra: Was good to hear you mention CoherentFT. By chance I was visiting with them here in London earlier this week. What do you like best about their product?
- [10:01] Spazz Zenovka: We are still developing JBuilder. We are up to JBuilder 2007 now - built on top of eclipse.
- [10:01] Spazz Zenovka: CohesiveFT - working with different middleware and application stacks
- [10:01] karol McCarey is Online
- [10:01] Jeffronius Batra: So kind of upper middleware?
- [10:01] Spazz Zenovka: large companies have many different systems. being able to build and provision different stacks from parts is great
- [10:01] Limkopi Davis: arr
- [10:01] Fantazmical Chemistry: oh, I thought JBuilder projects were transferred over to NetBeans
- [10:02] Burhop Piccard: So how will virtual worlds be used to help with software development?
- [10:02] Spazz Zenovka: JBuilder 2007 is in release 2 now.
- [10:02] Jeffronius Batra: Yes, I saw that part, very cool stuff.

...it continues for 6 more minutes of lots of questions and answers...

- [10:08] Spazz Zenovka: I will add the links to the notes on the images/slides
- [10:09] John Zhaoying: Thanks again, David! And thanks to everyone at SD Best, to Borland, and to Dr Dobbs Journal!
- [10:09] Spazz Zenovka: and yes, I normally wear tie-dye t-shirts to work :)
- [10:09] Spazz Zenovka: thank you everyone
- [10:10] Grace McDunnough: Thank you
- [10:10] claudia Rennahan is Online
- [10:10] Rissa Maidstone: Thank you David!
- [10:10] John Zhaoying: Folks -- we're now going to take a break until 11:30 AM SLT
- ...