

Trust in Shared Virtual Environments: The Example of Activeworlds

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Abstract

This paper examines how relations of trust are established and maintained in shared virtual environments (VE's). The paper deals mainly with Activeworlds, an online multi-user desktop virtual reality (VR) system that has attracted many hundreds of thousands of users. We argue that the nature of trust depends on the social setting – in this case, a shared VE that is mainly used for entertainment or as a 'hangout'. Despite the fact that Activeworlds users are mainly interacting with strangers and that relationships tend to be short-lived, there seem to be relatively few problems around trust in this VE. This trustworthiness among participants is discussed in relation to a number of examples. Finally, we consider some of the implications of this finding for the study of trust in other types of shared VE's and for making comparisons between social interactions in VE's and in the 'real' world.

Summary

- Previous research on trust in Computer-Mediated-Communication
- Previous research on social conventions in Multi-User Virtual Environments
- How trust is created and maintained in Multi-User Virtual Environments: Social categories, conventions, and safe systems; interdependence, sacrifice, and identity.

Introduction

With the rapid development of systems for computer-mediated-communication, it is widely thought that questions surrounding social interaction or collaboration in online or shared VE's will be of central importance. So, for example, the prospect of widespread internet commerce has raised the issue whether online shoppers regard the purchases they have made as secure or trustworthy (Kollock n.d.). Or again, the proliferation of interpersonal relationships that are maintained via internet chatworlds and MUD's (Multi-User-Dungeons) has led to discussions about the authenticity of these relationships and of the identity of participants (Turkle 1996). From the side of research on multi-user VE's, the question has arisen whether collaboration in shared VE's is subject to similar patterns of collaboration as in the 'real' world (Slater, Sagadic, Usoh and Schroeder 1998) and whether the same social conventions apply as in the 'real' world (Becker and Mark 1998).

In this paper we will examine social interaction in VE's in relation to 'trust' among participants. We will focus here on Activeworlds (AW), a desktop online multi-user VR system that has attracted several hundred thousand users and developed fairly complex patterns of social interaction (Schroeder 1997). There are a number of reasons for choosing AW from among a number of such online VR systems (access to the main ones can be found at the website <http://www.ccon.org>). One is that AW has been operating for a comparatively long time (since 1996) and has had a sizeable and stable population. Another is that AW by now consists of several hundred separate worlds, some of which have developed relatively sophisticated social norms and institutions. And finally, AW is the only one among these online multi-user that allows participants to build their own houses and other features of the environment, which has meant that the population of AW has been quite active in shaping its own social world.

Before we examine some examples of trust in AW, it may be useful first to describe some research on trust in text-based online interaction, on social conventions in VE's, and on trust in sociology generally.

Trust in Computer-Mediated-Communication

Previous research on computer-mediated-communication (CMC) suggests that people cope with the new conditions or the uncertainties of the new medium by adapting the conventions of face-to-face interaction or of 'real' world social behaviour to this new medium. As illustrations, we can briefly look at Kollock's (n.d.) work on online auction houses and Jarvenpaa and Leidner's (1998) study of online virtual teams - we will do this during our presentation because of a lack of space here. It is worth noting before we do so that it remains to be seen how close the parallels are between the online text-based multi-user systems that Kollock and Jarvenpaa and Leidner have studied and AW (although AW does, of course, also rely on communication via text).

Social Conventions in Multi-User Virtual Environments

We can now turn from studies of 'trust' in CMC to some studies of the social norms and behaviour in virtual environments generally (if we include LambdaMOO, a text-only MUD, in the category of virtual environments for the moment). One of the main findings that is of interest

here (which has briefly been mentioned above) is that people prefer to maintain a consistent identity and adapt some of the conventions of the 'real world' in relation to greetings, intimacy, sanctions, privacy and group membership to the 'virtual world'. Becker and Mark's participant observation study comparing Activeworlds, Onlive Traveller (with voice communication) and LambdaMOO (a text-only world), for example, found for all three systems that 'a variety of conventions [in this case, greeting and acknowledging, leaving, establishing group membership and indicating privacy, verbal and non-verbal expression and conversation flow, social positioning and intimacy, and sanctions on behaviour] exist and many reflect those used in the physical environment' (1998: 54). Similarly, Schiano and White conclude, in relation to a study of LambdaMOO which used both empirical measures (logging user behaviour) and interviews, that 'major patterns of behavior in this text-based virtual world do not depart radically from those in "real life"' (1998: 359). In Schiano and White's case, the behaviour investigated was usage patterns, identity or self-representation, sociability and sense of place.

Negatively expressed, the ideas put forward by Turkle (1996) that users adopt multiple identities in MUD's and more widely held views about the contravention of 'real' world norms in virtual worlds are not supported by this research. The importance of Becker and Mark's and Schiano and White's findings for analyzing trust in VE's is that participants in multi-user VE's such as AW may have a lot more real world conventions and norms to rely on than is often thought.

How trust is created in Multi-User Virtual Environments...

When getting acquainted in face-to-face encounters people tend to consider certain aspects of a person's appearance such as looks, body-language and other external signals which can tell them more about whom they are getting familiar with, and if the person in question is trustworthy or not. This first step in an interpersonal relationship towards a certain and trustworthy contact, according to John G. Holmes and John K. Rempel, is taken in pure hope. We don't know the other person and have no experiences of him or her to fall back on. We lack the so-called hard evidence that this person is trustworthy and are simply thrown upon our optimistic hope that the person's appearance will correspond to our expectations. (Holmes and Rempel, 1989, p. 192) Even though Holmes and Rempel have primarily been studying close or romantic relationships, we could easily also apply their account to friendship relations and even to work relations. Starting to get acquainted to a person, if not to marry him or her, we hope to become friends or at least to have a nice and frictionless interchange over a short time. Humans are social beings and our interest in other people will continuously attract us to new acquaintances. And in this case social interaction in virtual environments does not differ from interaction face-to-face. People gather together in groups in central places in Activeworlds (Schroeder, 1997, 4.7), visit one another's homes in MUD's (Schiano and White, 1998, p. 358) and occupy themselves with multi-threaded cocktail party conversations via IRC (Bechar-Israeli, 1995). Sometimes the fragile hope about a deepened relation gets strengthened after this first examination and sometimes it expires entirely.

Social categories, conventions, and safe systems

What features are people then interested in when examining and estimating a new acquaintance? What factors exactly, on this stage, support or counteract trust? What features are central in face-to-face interaction? Do they play the same important role in computer mediated communication or are other features of greater importance? And what about virtual graphical environments like Activeworlds, compared to text based communication - are the same features/factors important or do the graphics add something to the interaction and change the conditions?

As Martin Lea and Russell Spears have pointed out primarily with reference to social psychological studies, people's first steps towards one another face-to-face is chiefly based on physical appearance, which is, they argue, naturally not the case in computer mediated communication. Instead of observing and judging a person's physical appearance and individual features, social features play a more significant role (Lea and Spears, 1995). In the non-visual and non-audible text centered environment, social categories like sex, profession and group adherence play a more important role than appearance, voice, body language and the like for attraction and subsequently for trust and friendship. A frightening appearance, an unnatural body language or an annoying voice consequently does not influence the progress negatively, as it probably would in FTF interaction.

But what about interaction in virtual graphical environments like AW where you actually see other people (or at least graphical representations of them) - what matters most when forming an opinion of a new acquaintance and estimating how trustworthy or reliable a person is: physical appearance or social adherence?

According to our observations in AW we would argue that both matter, but differently. Physical appearance plays an important role in the often playful conversations where a lot of remarks relate to the 'physical' appearance of the person, the avatar. Common remarks between AW users are: "Nice avatar", "Aren't you cold in that short dress...?", "Wow, you must have been into body building, with muscles like that...!", and so forth.

People also tend to pay attention to other avatar's movements and positioning in the virtual space. As Becker and Mark noticed, people in AW get provoked if another avatar comes too close (Becker and Mark, 1998, p. 52) and we have also noticed that people frequently make a comment if an avatar moves around with great speed and remarkably sweeping gestures. But as Becker and Mark rightly notice (p. 51), body gestures are seldom used in AW, while emotions in general are communicated with text. So, when forming an opinion of a new acquaintance and estimating how trustworthy or reliable a person is, the physical appearance is, we would argue, of lesser importance when most AW users presumably know that it has little to do with the person's identity and trustworthiness.

On the other hand, social categories, we would argue, play a more important role when estimating how trustworthy other people are in graphical settings like AW, at least in the first instance. Ethnic background for example is an important factor. For example people have not infrequently made comments in AW about my allegedly trustworthy Swedish nationality:

"I trust you...you're a Swede...LOL"

(Comment from a male avatar when he let me have his privileges, which means that I would be able to build in his name but also vandalize his buildings.)

There is also a tendency that people get together in national worlds within AW (Russia, Denmark, England and the like), where fellow-countrymen gather and communicate in their national language, which we would interpret as a tendency that people would rather interact with and trust people from the same background than with people from a different one.

...and maintained

As time passes and first impressions of a person is established - primarily on the basis of a combination of optimistic hopes and a stereotypical picture of the person founded on social categories - the relationship will, if the persons get on well, grow into a closer one in which interdependence plays a prominent role. Holmes and Rempel call this the 'accomodation stage' in a close relationship (p. 197). We would argue, that this stage has analogies in more shallow FTF acquaintances and in computer-mediated relationships like in AW.

As we proceed from a high degree of uncertainty and a small amount of trust in the beginning of a relationship to reduced uncertainty and a larger amount of trust, we become more and more focused on the actual behavior of the other partner, which gives an indication of what the person really intends, expects and is willing to sacrifice in the relation. The encounters become more diagnostic, in line with Holmes and Rempel's analysis, while each person discloses and clarifies the true nature of the other person and of the relationship (Holmes and Rempel, 1989, p. 198).

Interdependence, sacrifice, and identity

One factor which, according to Holmes and Rempel, particularly tends to strengthen trust during the accomodation period is when partners are responsive in ways that acknowledge individuals' particular needs and affirm their sense of worth. This responsiveness, they argue, is most clearly revealed when they are required to sacrifice their own interests. (Holmes and Rempel, 1989, p. 199)

Responsiveness and especially sacrifice, we would argue, are also important components in relationships in virtual environments like AW, where actions are more obvious and effective than other, more subtle gestures for showing affection, reliability, and trustworthiness. Spending time with a newcomer showing him or her around, spending time teaching a novice to build, giving out private e-mail addresses or ICQ-numbers, inviting another person home and thereby risking material vandalism or personal harassment, and sharing building privileges with another person - these are some of the actions we have observed in AW which can be interpreted as sacrificing and trust-developing actions.

In other CMC settings like IRC, MUDs and Use-groups, people have, according to user interviews, acted in far more sacrificing ways, such as providing needy people with money, visiting them at the bedside, and spending hours of comforting them in difficult situations (Rheingold, 1994; Turkle, 1995). Some indication of this kind of mutual support can also be found in AW, where the main evidence of this type of behavior are private messages between users.

Another aspect which plays a significant role during the accomodation period is a consistent behavior and an integrated personality. Imagine that you have been seeing a person for some time and have formed an opinion about that person's motives and behavior through intense interaction - and suddenly this person would start behaving in a completely different way. Presumably you would feel - once again, like in the very beginning of the relationship - uncertain of what to expect from your friend in the future. The trust you have started to have in your friend has doubtlessly been disturbed.

To avoid interruptions and retrogressions like these and to facilitate trust in relations with people, people try to present consistent behavior. And this, we would argue, applies to on-line relations as well as to face-to-face relations, even if many people would hold the opposite view. Sherry Turkle is an advocate of the multiple-selves perspective (e.g. Turkle, 1995, chapter 7) which holds that a person is not one single self but consists of a multiplicity of different selves. Turkle connects this idea to the possibility of changing identity and upholding a number of simultaneous identities in on-line settings like MUD's and IRC, and argues that it is common that people in these settings give expression to their multiple selves by constantly changing identities and upholding a number of them at the same time. If this were the case, as other on-line researchers also argue (e.g. Reid, 1998, p. 35), there would be little chance that close relations and trust between people on-line would ever come to pass. People would have severe problems knowing if a person was the same from one day to the next or if they would act in the same or in a completely unpredictable way. This does not seem to be the case - at least not in AW. People there act as if they expect others to keep their stable identities over time, saying things like:

- I haven't seen you before, are you new here?
- See you tomorrow then!
- Come and visit me when I've finished building my house!

Conclusion

AW is a virtual world in which there is not much at stake; participants can easily leave or 'exit' from the system. The fact that AW is mainly used for socialising for its own sake, as opposed to work, commerce, or other 'serious' purposes, means that the uncertainties which trust can overcome in this case are not very consequential. But it is important to underline that this does not mean that trust is inconsequential in this case: trust, as we have argued, is related to context, and the trust that is sustained in AW is of a type that is suited to the easygoing relations that predominate.

In AW, as we have seen, the trust that can be observed operates on one side through the assignment of social categories and conventions, which works to reduce uncertainties, and subsequently through growing personal interdependence. It remains to be shown - and we will do this in the course of our presentation - how this interdependence can also be found within the institutions - usegroups, societies, churches, special interest groups, rule enforcement mechanism, and the like - which have come to built up throughout AW.

It is important to draw attention to the fact that the observations made here about trust are preliminary, as are the findings reported above about trust in computer-mediated-communication and about social conventions in multi-user virtual environments. We do not yet have enough data about online behaviour for robust generalisations, and online behaviour and behaviour in virtual environments is too novel for

stable patterns of interaction. The other side of the coin is that it is particularly important to find out about the early uses of new technologies since these may prove to be crucial for the technology's social implications.

Our observations may be relevant both to the study of ongoing and large-scale online 'communities' (Kollock and Smith, 1999) and to the experimental study of small group behaviour in VE's (Slater, Sagadic, Usoh and Schroeder, 1998). In both cases, the issues of leadership, collaboration, and norm-following are closely related to trust in the sense that we have discussed it here. An important avenue for future research will be a) to compare trust in a number of different VE's of the AW type and b) to investigate trust in VE's in experimental small group studies in order to produce more predictive indicators.

[Note: This paper is based on more than 100 hours of participant observation in Activeworlds on Schroeder's part and 20 hours by Axelsson]

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