

VIRTUAL WORLDS & SOCIAL INTERACTION DESIGN

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Title

Virtual worlds and social interaction design

Abstract

This dissertation is a study of social interaction in virtual worlds and virtual world design. A virtual world is a synchronous, multi-user system that offers a persistent spatial environment for iconically represented participants. Together, these form an example of *social interaction design*. I have applied an *arena perspective* on my object of study, meaning that I focus on these socio-technical systems as places.

I have investigated the persistent qualities of social interaction in virtual worlds. What I have found is that virtual worlds are as real as the physical world. They are filled with real people interacting with each other evoking real emotions and leading to real consequences. There are no fixed boundaries between the virtual and physical arenas that make up a participant's lifeworld.

I have found that participants in virtual worlds are not anonymous and bodiless actors on a level playing field. Participants construct everything needed to create social structures such as identities and status symbols. The qualities of social interaction in virtual worlds cannot be measured against physical interaction. Doing so conceals the qualities of virtual interaction. Through the concepts of *levity* and *proximity*, I offer an alternative measure that better captures the unique properties of the medium. Levity is related to the use of avatars and the displacement into a virtual context and manifests itself as a kind of lightness in the way participants approach the interaction. Proximity is my term for the transformation of social distances that takes place in virtual worlds. While participants perceive that they are in the same place despite being physically separated, the technology can also create barriers separating participants from their physical surroundings. The gap between the participant and her avatar is also of social significance.

As a theoretical foundation for design, I have used Michael Heim's writings and practices as a base for a phenomenologically grounded approach, which provides an alternative to the dominating perspectives of architecture and engineering. Based on an explorative design project and the earlier mentioned findings regarding social interaction, I have formulated a model for virtual world design called *interacture*. This model takes the interaction between participants as the fundamental building material and the starting point of the design process. From there, layers of function and structure are added, all the time balancing the design between fantasy and realism.

I have explored the possibilities of using ethnographic studies as the foundation for a participant centered design approach. I have aimed for an *inside view* of my object of study both as an ethnographer and as a designer. One outcome of this approach is that I have come to understand virtual worlds not just as places but also as processes where the experience of participating can change drastically over time as the participant reaches new stages in the process.

In conclusion, the method of integrating ethnography with design and the understanding of social interaction as the fundamental building material is woven into a general approach to the study and design of socio-technical systems called *social interaction design*.

Keywords

Interaction design, virtual worlds, massively multiplayer online games, internet studies, computer mediated communication, virtual reality, virtual ethnography, human-computer interaction, interacture, social interaction design

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Let me start with a quote from sociologist Erving Goffman: “You’re empathetic enough—because you’ve been taking the same crap they’ve been taking—to sense what it is that they’re responding to. To me, that’s the core of observation. If you don’t get yourself in that situation, I don’t think you can do a piece of serious work.” After having spent ten years in virtual worlds working on this dissertation, I feel that I have met Goffman’s requirements. I also feel deeply in debt to all the virtual world participants out there that have been *taking the crap* together with me, and in the process made this work possible. Privacy concerns prevent me from naming anyone, and you are too many to mention anyway but you know who you are. Thanks!

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PROLOGUE

BILL'S STORY

One morning when I entered my own virtual world – a very small world basically consisting of one building known as The Virtual MIT House (see figure 1) – I found to my astonishment that it had been severely vandalized. Someone had apparently gotten hold of the wizard password and used his or her ill-gotten wizard powers to delete parts of the house, alter other parts, and to top it all off, write some very unflattering remarks on the walls. The bar was one of the rooms that had been deleted, and since the script and graphics that constituted Bill – my bartender bot¹ – were tied to this room, he was gone as well. Thus I had a potential virtual murder case on my hands.



Figure 1. The entrance of The Virtual MIT House.

Realizing that Bill was gone really upset me. After all, I had invested a considerable amount of time on programming him. But above all I felt curious. What had happened and why had it happened? I decided to initiate a little investigation into the incident beginning with a look at the server log.

The system keeps track of some of the activities in the world such as when someone enters or leaves the world or tries to attain god or wizard privileges by entering a password. It also registers when someone tries to add,

¹ The term *bot* comes from the word robot and refers to an automated character that can interact with other characters by following a set of programmed instructions known as a script.

extract or change something in the world. These activities are recorded in the server log together with nickname, internet protocol (IP) address, and a timestamp. By examining the log I could see that there had been two unwanted visitors on the night in question. As one might expect, the two perpetrators had not used their ordinary nicknames, but the log still held the key to their *Palace* identities.² The break-in had been committed by returning visitors so all I had to do was to match the IP addresses from the break-in with the rest of the server log to find the names they ordinarily used.

Judging by these names they were probably a boy and a girl. I will refer to them as Bart and Lisa. I vaguely remembered having met Bart at a treasure hunt that my wizards had arranged in the Virtual MIT House. This had been one of the occasions when I had used video to record the interaction, so I even had him on tape. To see myself happily chatting with the person I now suspected of vandalizing my world was an unsettling sensation. It felt a bit like seeing a bank robber caught by a surveillance camera while scouting out a bank office before a hit. Although I had talked to him on several occasions and had him on video, I did not have his e-mail address or any other direct way of contacting him.

As for the other perpetrator, there were no exact matches to the rest of the log. Apparently this person was connecting through an internet service provider that dynamically assigns the client computer a new IP address every time the computer connects to the net. The assigned IP address is, however, always within the same set of addresses, so I could narrow down the list of suspects to those using that particular internet service provider. There were two frequent visitors fitting the description, one was a character with a female nickname who I could not recall having met, the other was Neo – one of my two wizards! Could it be that my wizard sometimes logged on as a female character, and that he was in fact Lisa?

That would explain how the vandals had been able to log on as wizards, but there was something that did not quite fit. Why would Neo sometimes log on as a female? It also seemed odd that Neo, who had engaged in making The Virtual MIT House a popular hang-out, would turn on me and destroy

² The Virtual MIT House was one of many worlds using in the virtual world system *The Palace*. More information on *The Palace* will follow in chapter two.

it without any apparent motive. Furthermore, the log gave the impression of a person that was inexperienced in the role as wizard, requiring repeated attempts to get the commands right, while Neo was a true expert.

All of this could of course be clever tricks from Neo devised to throw me off the trail, so I emailed him to tell him what had happened and that he was my prime suspect. I figured that if he was not Lisa, he should at least have some information as to who she was. I also told him that I was going to put their whole domain on the ban list, thereby denying all users of that internet service provider entrance to The Virtual MIT House unless the situation could be resolved in some other way. He answered that he was sorry about what had happened but that he knew absolutely nothing about it.

My investigation had reached a dead end, but just like in the fiction detective stories, that was when I got help from an unexpected source. I received a mysterious email that read:

Hi Mjson [my nickname] I am [Fred], [Neo's] father. He uses my e-mail, so I have decided to become involved in this issue. I met [Trinity] the day before [Neo] did and she was going around offering a lot of people the prospect of wizardship at V MIT [The Virtual MIT House]. One of those people was [Bart]!!!³

This event took place in a time (1990's) when not every teenager had their own email account. Neo had been using his father's email address in his communication with me, and apparently his dad had kept an eye on our correspondence. Fred was himself an avid *Palace* participant and I had met him on a few occasions so I knew he was of the right age to be Neo's father and the IP-address was also a match. It seemed from the email that Bart had become angry at me and my wizard Trinity for not being taken on as a wizard in my world. Although Fred had not gotten all the details right, his information was crucial to cracking the case, especially the email I received three minutes after the one quoted above. It simply read: "One more note. [Lisa] is [Neo's] sister."

³ Trinity was the first wizard I had taken on to help run The Virtual MIT House and make my world attractive by arranging different types of social activities so I would have some social interaction to study. She had in turn suggested that we should take on the more tech savvy Neo. They were both American teenagers.

Fred later mentioned that it was when I threatened to cut off the access to The Virtual MIT House for the whole family, that he decided it was time to step in. He explained that Lisa was actually Neo's eleven-year-old little sister. How she had come in possession of the wizard password was never made clear but a reasonable guess is that Neo simply had written it down on a piece of paper and kept it by the family computer. What was clear was that Lisa had not been fully aware of the severe consequences of her actions. What I initially had believed to be a murder turned out to be more of an involuntary bot-slaughter. I made a deal with Fred to let him take care of Lisa's sentencing. He cyber-grounded her for one month and asked me in return to refrain from banning the whole family. According to Fred, Lisa had more or less just participated in the break-in for the excitement. The brain of the operation and the key to this mystery was Bart.

In order to satisfyingly solve this investigation I needed to get hold of Bart and I knew it was not going to be easy. Whenever I saw him he discreetly poofed out of whichever world we were currently in. Once again I needed help, but this time I had a better idea about where to get it. I started with a meeting with one of the wizards of the main world of the *Palace* universe. He promised to help me organize a multi-world ban of Bart if he did not turn himself in. While Bart surely could stand not being able to visit The Virtual MIT House, a ban that would in effect keep him from meeting any of his Palace friends would be a very potent punishment. The next step was to spread the word about the impending punishment among my and Bart's mutual *Palace* friends. The plan worked beautifully. It did not take long before he came to see me.

Bart's explanation for his actions was that Trinity had promised him to become a wizard in The Virtual MIT House. When he told me this I remembered that Trinity at one point actually had suggested that we should take on a third wizard, a suggestion I had summarily dismissed with the motivation that we already had two wizards active in the US time zones and that if we should get any more, they should be Europeans. When Bart found out that Trinity's offer had been an empty promise he had become very disappointed and wanted revenge. When he then, through Lisa, came in possession of the wizard password, he knew how. His plan had initially been

to only destroy things that Trinity had made, but things had gotten a bit out of hand and some additional property had been damaged.

Bart seemed absolutely terrified by the risk of getting banned in all the main *Palace* worlds. He said that he preferred to be grounded physically to getting locked out of *The Palace*. After all, the virtual worlds were where he had most of his friends and where he spent a considerable part of his free time. My feelings towards Bart had up to this meeting been annoyance rather than anger, but when I met him, I realized for the first time that I was not completely without blame in this affair myself.

I had taken on my wizards in a rather random fashion and had probably not bothered to be very clear about the fact that I did not have any intention of bringing on any more. This was in stark contrast to the big *Palace* worlds where wizard recruitment was a concern of the wizards, not the god of the world. To me the wizard appointments had never been a big thing, but to some of the people out there it had obviously been seen as an important career opportunity.

All I had done to become a god was to install and execute the server software and therefore I looked at the responsibilities of being a god as mainly technical in nature; making sure the server was running, making the necessary updates and so on. But being a god also automatically meant that I had the power to appoint people to important positions within the little community that had emerged. I also had to decide what constituted appropriate behavior and how to punish those who did not follow the rules. By controlling the technical system I had also been given responsibility for the community that had emerged within it. Since I had underestimated the social responsibility of being a god, I decided to go easy on Bart and only ban him from The Virtual MIT House for one month. We were both very satisfied with the conclusion of the whole affair and parted as friends.

CHAPTER ONE

WORLDS THROUGH TECHNOLOGY

OF KEYBOARDS, WOMEN, MICE AND MEN

In a world full of computers connected to each other, one of the primary modes of social interaction is more than likely going to be through information technology. This development is as new as it is profound and we are struggling to grasp where the potential and limitations of the technology lies. Visionaries talk of promising new worlds while skeptics see endless possibilities for disaster.

This book presents an approach to understanding this development through the people actively participating in it. Whether the question is what constitutes good design or understanding how the technology is experienced, I propose that the answer lies with the everyday practices of the people giving life to these complex socio-technical systems. The participants are not only the most important component; they also actively influence what the systems become. *Social interaction design* puts the focus on the participants by applying a perspective where the social interaction is seen as most important and fundamental building material at the interaction designer's disposal.

Rather than attempting to understand an issue as large and complicated as this through adopting a bird's eye view, I have deliberately engaged as closely as possible with selected particulars. The dissertation is comprised of several different projects, all revolving around virtual worlds and all concerning direct participation over extended periods of time in the practices I have studied. For nearly ten years I have engaged with these socio-technical systems as designer, researcher and participant. They have been central to my teaching and my research as well as being my number one pastime. I have lived these worlds as well as studied them. I will argue that there is a kind of understanding of these systems that only can be achieved through first-hand, long term encounters with these environments and that this knowledge can play an important role in understanding how to design them.

In this chapter I will start things off by giving a background to my choice of theories, methods and objects of study, I will also try to formulate the problem I intend to investigate, thereby giving the reader a hint about the direction I am heading and where I intend to end up.

THROUGH THE FREE INTERACTION SMOKE SCREEN

I first came in contact with virtual worlds in 1996. At the time I was conducting research in the area of human-computer interaction and worked on a project where we tried to increase the engagement of the students in a simulated practice case by making a game-like multimedia application (Jakobsson 1996; Söderström, Klingvall, and Söderström 1996). My role in the project was to construct the actual software application based on theories about pedagogy and learning provided by the other project members through an iterative process of testing and discussing prototypes. This gave me the opportunity to try out some ideas about how to support engagement from the students through the use of Laurel's (1993) dramaturgical theory of human-computer activity in the design of the application.

The project was a success in the sense that the students and the teachers were happy with the application and I managed to show that an increase in contextual cues in the form of sounds and background textures increased the students' feeling of engagement. But personally I felt that there was something inherently unsatisfying with the application. The task the students were given was to try to solve a cooperation problem among the staff at a workplace. The computer application was used in the part of the task where the students were gathering empirical material through observations, interviews and questionnaires in the work environment and at related locations. If a student for some reason would choose the same question for the same character twice, they would get the exact same answer both times since all the available questions had their answers hard coded into the application's database.

This would never happen in a real-life situation and would, in Laurel's terminology, constitute a breakdown of the students' *direct engagement* with the interaction (Laurel 1993). Of course, the application could be improved with more advanced scripts for the computer driven characters and a larger database of possible answers, but that would only postpone the inevitable breakdown. What I really needed was some intelligence embedded in the system that could creatively construct answers to whatever question the student would want to ask. Unfortunately this sounds dangerously close to saying that I would have to anticipate all possible actions of the student in advance (cf. Suchman 1987). It seemed that any feasible improvements to

the interaction between the user and the characters within the simulation would just be adding to a smoke screen covering up for the inherently static nature of the system.

I had already established a strong interest in the internet at this time which made it natural to look in the direction of MUD⁴ systems for a possible solution to the free interaction smoke screen problem. But since a result of my study was that the engagement of more sensory modalities – through the use of sound and graphics – increased the students' perceived engagement in the task, it felt like a step in the wrong direction to make a text-based system like the MUDs that I was familiar with at the time. That was when I found an article in *Wired Magazine* (Rossney, 1996) about virtual worlds.⁵ This type of system struck me as something along the lines of what I was looking for. After having read the article I immediately downloaded my first virtual world software client in the hope of finding a suitable system for taking educational multimedia applications to the net.

STEPPING OUT

In the text-based chat systems, mainly IRC,⁶ that I had tried earlier, I usually remained silent for a while after entering a channel. I wanted to get a feel for what was being discussed before *jumping in*, but the longer I waited, the harder it got to enter the conversation. I would start feeling like a *lurker*, someone who listens in to the conversation of others without making their own presence known, which in turn made me feel slightly uncomfortable using this type of systems.

When I first entered The Mansion – the main world in the *Palace* universe – I found myself automatically greeting the other avatars present. At least to me, this was something qualitatively different than the text-based systems. Although the system I was using seemed very similar to a text-based MUD in all aspects except the addition of graphics and sound, it did not *feel* the same. I felt that I *was there* even before I had uttered a word. Through

⁴ Multi-User Dungeons. Primarily text-based multi-user environments based on a spatial metaphor.

⁵ In the article they were referred to as *metaworlds*.

⁶ Internet Relay Chat. Early real-time chat system where participant choose conversation partners by joining channels.

my avatar I experienced an intuitive sense of presence in the same virtual environment as the other participants. I could see them and they could see me which made engaging in the interaction feel more natural.



Figure 2. Guests and members in Harry's Bar, a popular hangout in The Mansion, the main world in the *Palace* universe.

The way this place combined the possibility of meeting with people from other parts of the world under relaxed, even whimsical, conditions known from text-based chat systems (Reid 1991; Curtis 1992; Turkle 1995; Pargman, 2000) with an intuitive feeling of presence intrigued me both personally and as a researcher. From that day on I regularly visited the Mansion and spent a considerable amount of time there. I always went to the same place, a virtual watering hole called Harry's Bar (see figure 2).

After having spent some time there it became clear to me that The Mansion was a popular hangout for many people. Harry's Bar was often filled to capacity (sixteen participants) and the rest of The Mansion was also bustling with activity most of the time. I also noticed that it was more or less the same people who showed up day after day in Harry's Bar. Although I

spent a considerable amount of time there myself, I was surprised by the commitment people showed.

I had come to *The Palace* searching for a development platform where it would be possible to combine automated script-driven informants with characters played by actual people, but what I found was not simulations, it was another piece of reality. The participants were not there to perform a specific task. They had discovered a new social arena and decided to inhabit it. I had stumbled on a complex social system where most outsiders – even including many researchers – would expect to find an interaction medium that severely constrained the possibilities of communication. Clearly there were issues here that were in need of closer scrutiny. I decided to switch research focus to the study of virtual worlds and social interaction design.

GRADUATING FROM THE SCANDINAVIAN SCHOOL

Social interaction design is the term I use to try to frame this work, thus placing myself within the emergent field of interaction design. Löwgren and Stolterman define interaction design as “the shaping of use-oriented qualities of a digital artifact for one or more clients” (2002, 2). The field is, however, shaped by different actors with varying focal points. In an attempt to describe my own theoretical homestead, I will briefly mention some of them. One significant trend can be exemplified by the Interaction Design Institute Ivrea in Italy and the Department of Interaction Design at Royal College of Art, London, England. There, the emphasis has been on the deployment of information technology at the meeting point between art and design, often discarding the traditional desktop computer as the physical manifestation of the designs and applying a practice based research methodology (Crampton Smith et al., 2003).⁷ A different take on the field is presented in *Interaction design: Beyond human computer interaction* (Preece, Rogers, and Sharp 2002) where the heritage from human-computer interaction is emphasized. According to them, interaction design is based on the same theories and methods but pays more attention to aspects of IT-applications that fall outside the traditional frames for usability such as creating enjoyable, pleasing and motivating applications.

⁷ Ivrea was closed in 2005 and merged with Domus Academy.

Alongside these currents, a third school of thought in interaction design has emerged in Scandinavia at places like the School of Arts and Communication (K3), Malmö University.⁸ This perspective has its historical roots in the Scandinavian school of systems development including the field of participatory design (Löwgren and Stolterman 2004). Other important influences are the Bauhaus movement and the work of Donald Schön (Ehn and Löwgren 2003). The similarities probably outweigh the differences between these three approaches. Just like at Ivrea, the preferred mode of investigation at K3 is practice based, and in a similar fashion to Preece, Rogers, and Sharp (2002) much time and effort is spent on exploring non-productivity related aspects of IT-applications with an outlook towards art, games and entertainment. The eagerness to escape the traditional physical manifestation of the desktop computer is also shared among all three camps. But there are some differences. In Malmö we see interaction design as an important break away from traditional human-computer interaction and question the traditional theories and methods of this field to a greater degree than Preece, Rogers, and Sharp. Compared to Ivrea, the most tangible difference is probably our focus on design as something situated within a specific context and shared between users or participants and designers.

In participatory design, this view was connected to work contexts, and user participation often meant engaging the trade unions in the development of computerized work tools (Ehn 1998). Today, the context might be very different, a virtual chat room or a game café, but the principles are the same. Design remains “a process of mutual learning, where designers and users learn from and about each other” (Löwgren and Stolterman 2004, 152).

Löwgren and Stolterman (2004) clearly place themselves within the Scandinavia school by emphasizing “the responsibility [of the interaction designer] for ethical and aesthetical (as well as functional) [note the parenthesis] qualities of digital artifacts” (xi). This way of understanding interaction design as collaborative construction and re-structuring of lived environments gives the designer a new role. Sometimes the attempts to give the participants, be they workers, gamers or casual visitors, a stronger voice in the design process is misinterpreted as claiming that the designer has

⁸ The School of Arts and Communication somewhat cryptically translates into “Konst Kultur & Kommunikation” in Swedish, which is the origin of the K3 acronym.

become superfluous. Nothing could be more wrong. The Scandinavian school of interaction design locates the designer at the core of any design process. Instead, it is the way a designer approaches a task and which skills the designer needs in order to do a good job that has been re-envisioned and this work is one attempt at exploring these visions.

APPROACHING VIRTUAL WORLD STUDIES

Virtual worlds offer an opportunity to think about many of the core issues in interaction design. Instead of being tools for production, they constitute part of the participants' life-worlds. The interaction between human and computer only constitutes a small part of an emergent socio-technical system. Of special interest to a scholar of the Scandinavian school of interaction design is the role of the participants as crucial contributors in making these systems into what they are. How do we understand the design of socio-technical systems as something more than the design of any IT-applications? What happens to the role of the designer in these systems and is it possible to formulate design methods based on an in-depth understanding of the social aspects of virtual worlds?

In the description of the *New Arenas for Social Interaction* project we specified the aim of the project as studying the meaning of virtual worlds from a cultural and social perspective and to formulate design principles based on this knowledge (Stolterman and Jakobsson 1997). My approach has been exploratory in nature which implies that the research process is allowed to generate new questions. As a starting point I simply wanted to know what it was that made the virtual worlds tick. I wanted an explanation to why all these people chose to spend all this time there and the existing computer mediated communication theories did not supply one.

From the general question of what constitutes the attraction of virtual worlds, I came to involve myself in questions about what the more stable properties of social interaction in virtual world are and their relation to social interaction in the physical world. This part of my work is mainly presented and discussed in chapter four and is of course returned to in the conclusions. It is also the source of the prologue and interludes two and three. The prologue, interludes, and epilogue are used as means to present empirical

material in a way that allows the reader to at least get a taste of what kind of experiences long-term engagement in virtual worlds can bring, something that is easily lost if the presentation of the empirical material is too fragmented. A similar approach applied to the study of MUDs can be found in Schaap (2002) and to some extent in Dibbell (1998), Markham (1998), and Kendall (2002).

Throughout this work, I have been involved in designing and constructing worlds as well as studying the social interaction in them. In chapter five I look at the existing theory contributions on virtual world design. Through Michael Heim's phenomenologically grounded theoretical and practical framework, I try to formulate an alternative to the dominating engineering and architectural perspectives in my *interacture* model for virtual world design. Chapter five builds on the conclusions of chapter four and is meant as a continuation rather than a separate part of my work. It is only in the way that I have grounded my design studies in an empirical understanding of the social interaction that I believe I can make a contribution to the field of virtual world design. In chapter six I collect the main points I make throughout the book, and based on these I try to formulate a description of *social interaction design*.

In conclusion, the aim of this book is the following:

- a) To explore the possibilities of using ethnographic studies as the foundation for a participant centered design approach.
- b) To investigate the persistent qualities of social interaction in virtual worlds.
- c) To formulate a model for virtual world design based on social interaction as the fundamental building material.
- d) To merge the findings from *a-c* into a general approach to the study and design of socio-technical systems.

INTERLUDE ONE

VIRTUAL BIRTH

When entering a virtual world for the first time, people normally feel disorientated and constricted, not to say lost and helpless. This can be seen as a vague reverberation of what it felt like to enter the physical world as a newborn baby. The infant does not know how to see, move, or even that it has a body of its own. To enter a virtual world is to experience some of the same challenges but on a different scale.

Benny can you come here Anne-Frid?
Anne-Frid am a little confused about where I am
Benny but you're here
Benny wherever that is?

The first question asked is often: Where am I? This can be interpreted geographically, as we normally do, but in this situation it can also mean: Where and what is my 'I'? The question then becomes an attempt to establish what 'I' constitutes. Do the participants each have their own points of view and do they have separate bodies? This uncertainty is normally resolved by seeing other bodies moving around. The next issue then becomes to move ones own body and through the unfolding of the dormant possibilities of the technology, slowly easing into the ontology of the virtual world.

Benny look in the same direction as me
Benny a big white thing sprawls out in front of me
Agneta How do I know in which direction you're looking
Benny well, you'll have to check which direction my head is facing
Agneta Ahaaa

Just as we can never fully grasp the ontology of the physical world, the virtual worlds also elude a clean and clear-cut understanding. As a consequence of this I have found that the participants tend to construct what I would like to call personal cosmologies. These cosmologies do not exist as all-encompassing systems of belief, but surface in fragments when participants are questioned about their conceptual view of the world. The cosmologies are constantly redefined as the participants make new experiences and vary substantially between different individuals. Even within the fairly homogenous group of IT researchers these examples originate from, there were no two cosmologies that matched.

To understand the place of the personal cosmologies, one must understand the importance of the act of interpretation in virtual worlds. Laurel (1993) and Matsuba (1999) both point out that our experiences with virtual environments are not mainly about perception but about cognition. In the following extract Agneta tries to link her virtual existence to different components of the system.

Agneta if my client crashes, I will disappear
Agneta if the server crashes, the world will disappear
Benny sometimes you are looking at your watch, is that something that you can control from the client?
Agneta to some extent, I can't control that particular thing right now...

Agneta is right in assuming that there is a connection between the software client and the avatar as well as between the server application and the virtual world. But she is not sure where the limits for her control over the personal avatar lies. This influences her in several ways. It affects her perceived possibilities of acting in the world. It also has an impact on her perceived possibilities of designing her self-representation. Finally, it can also influence her perception of others.

Another participant, Anne-Frid, mentioned that she felt uncomfortable when Benny waved his fist at her when she was unable to answer a question. She was unsure if the action was the result of Benny pushing his angry button or if it was part of an automatic movement script. The actual reason for this behavior was that Benny's avatar used a script for automatic movements that originally was created for another avatar. When it was applied to Benny's (rather chubby) avatar body it sometimes looked like he was waving his fist when he was supposed to be scratching his head.

Except for having an impact on being in virtual worlds, the personal cosmologies also show how much this activity actually is about *being*, and how far it is from a traditional mode of *using* software tools. Compare Agneta's multi-layered and subjective picture of the system with the cosmology of the Maya culture.

Benny If you change your name, where do you think that registers?
Agneta in the world, the server computer
Benny then, maybe I (who control the server) can change your name?
Agneta No, there is a meta-server that controls the universe. In this case

Eduverse

Benny Are we in Eduverse now?

Agneta oops, that's right, no we aren't

Agneta There are several universes...

The Maya believed that 13 heavens were arranged in layers above the earth, which itself rested on the back of a huge crocodile or reptilian monster floating on the ocean.⁹

As we can see, the personal cosmologies sometimes bear a close resemblance to traditional cosmologies. One reason for this match is that the designers of the system have decided to use worlds and universes as their guiding metaphor. The match does, however, stretch beyond structure to also incorporate function. The virtual worlds have no pre-defined function or specific meaning or goal. In this way they resemble the physical world. It is open to the participants to bring meaning to these places through whatever practices they choose to conduct. Their behavior cannot be described as users using tools. This becomes most obvious in our logs when Anne-Frid suddenly gets unsure if the world might not be a tool after all. The *being* breaks down to *using* through a gap in the personal cosmology, but she is assured by Agneta that she can rely on the world really behaving like a world rather than like a tool.

Anne-Frid I get a little nervous

Anne-Frid can we just shut down?

Agneta yes

Anne-Frid will it get saved?

Agneta let's hope so!

Anne-Frid yes, I'm such a slow builder...

Agneta I hope it's here when we meet here again

Anne-Frid Me too!!!

The participants made insights into the possibilities of virtual worlds, not only based on their understanding of the worlds, but also based on their personal desires. The virtual world technology is very potent and multi-faceted, and different people coming in contact with the technology perceive different possibilities depending on their own pre-dispositions.

⁹ Encyclopædia Britannica Online <<http://www.britannica.com/>> (9 March 2006).

The notion of technology as a mode of revealing (Heidegger 1977) brings new light to these encounters with technology. Participants coming in contact with virtual worlds can see something previously hidden, which can have a strong impact on them as exemplified in the following quote from Heim: “[It] is the spine-tingling chill that comes from the realization of how small our finite perceptions are in the face of the infinity of possible, virtual worlds we may settle into and inhabit” (Heim 1993, 137).

CHAPTER TWO

VIRTUAL WORLDS DEFINED

STAND BY FOR THE ESTABLISHING SHOT

Up to this point I have referred to virtual worlds as my object of study without attempting to describe what a virtual world is. Before I go any further I need to provide a definition in order to be clear about what I am, as well as what I am not, talking about. This section is structured like an onion. In a process of filling the concept with certain attributes, I will be peeling off layer after layer of what a virtual world is not, until I eventually reach a core consisting of my definition of the term.

Once we have reached a definition of what a virtual world is, I will describe the three virtual world systems I have engaged with throughout the course of this study in some more detail. My aim here is to situate the reader in the context of my work by establishing a common frame of reference in terms of definitions, terminology, and technology. I want to make sure that the reader has at least a rudimentary understanding of how the technological framework for virtual worlds functions. I also want the reader to know what I am referring to when I use certain terminology.

The chapter concludes with a run-through of the different projects that together make up the source material that this book is built on. This is included to help the reader see what I have done as opposed to what I have found out, which will be the focus for the rest of the chapters where observations from the different projects are interleaved in driving my arguments forward. In other words, if this book was a sitcom scene, this chapter would be the establishing shot, the short clip showing the exterior of an apartment building before we are taken inside and the action proper begins.

WHAT IS A VIRTUAL WORLD?

Let us start out with the concept of cyberspace. It was coined by the science fiction author William Gibson in the novel *Neuromancer* (1984). The idea for the name came from a line of supercomputers called Cyber that were manufactured by Control Data Corporation. In the novel it was used as a metaphor for conceptualizing the non-physical realm of information flows. This is how Gibson describes it in an often quoted passage:

A conceptual hallucination experienced daily by billions of legitimate operators, in every nation, by children being taught mathematical concepts. ... A graphical representation of data abstracted from the bank of every computer in the human system. Unthinkable complexity. Lines of light ranged in the nonspace of the mind, clusters and constellations of data. Like city lights receding. (Gibson 1984, 51)

According to Sterling (1993) it was John Perry Barlow who first adopted Gibson's concept for use of all kinds of perceived technological spaces. Barlow stated that cyberspace "is where you are when you're talking on the telephone" (Rucker, Sirius, and Queen 1993). Featherstone and Burrows (1995) differentiate between Gibsonian cyberspace and Barlowian cyberspace but, as is evident in the following quote, Gibson himself seems to have adopted Barlow's definition. "I think in a very real sense cyberspace is the place where a long distance telephone call takes place" (Josefsson 1995).

With this definition, cyberspace works as a very broad term incorporating a large number of different technologies. But to belong to the subset of cyberspace that I call virtual worlds the system has to support synchronous multi-user interaction, which for instance rules out e-mail since it is asynchronous and instant messaging which is one-to-one communication rather than the many-to-many communication implied by the term multi-user. It also rules out all kinds of non-interpersonal interaction technology from ftp to single-player computer games.

Further, a virtual world has to offer a persistent spatial environment with some kind of iconic representations of the participants. Network computer games like *Quake* and *Unreal* have many of the characteristics of a virtual world but since the environments only exist for the duration of the gaming session, they lack the persistence of a virtual world. In a persistent world, you can expect changes and developments to still be there the next time you log on. The world is never resets.

There are games that offer persistence, like *Everquest* and *World of Warcraft*, and thus fit the definitions of a virtual world. This genre of games goes by the acronym MMOG which stands for massively-multiplayer online

games.¹⁰ As we will see later on, MMOGs share many socially emergent characteristics with the general-purpose worlds which leads me to think that it makes sense to cluster these systems together analytically although they are created and designed for different purposes.



Figure 3. Two of my avatars. The one on the left comes from the MMOG *Everquest* and the one on the right is the homemade avatar I used in *The Palace*.

The *iconic* representation of a player can be anything from a simple name tag to very elaborate graphical avatars (see figure 3). The representation does not have to take the form of a body. The yellow puck in Pac Man is an iconic representation of the player in that game.¹¹ The reason I use the word

¹⁰ This kind of game is sometimes referred to as MMORPGs where RP stands for role-playing, but since the role-playing element often is of minor importance, the RP part of the acronym is less appropriate.

¹¹ The game was originally called Puck Man but on its US release as an coin operated arcade game it proved too easy to alter that name into something completely inappropriate with the help of a black marker, so the name was changed to Pac Man. <<http://nintendoencyclopedia.moonfruit.com/puckman>> (9 March 2006).

iconic is that I do not see video conferencing systems and other systems where there is a captured rather than constructed mediation of the participants to each other as virtual worlds. Iconic representations of characters have particular properties – some of which have been analyzed by McCloud (1999) in reference to comic book characters. He makes a strong case for what he calls amplification through simplification. By focusing on the significant details, an artist can amplify meaning in a way that realistic art cannot. Concepts are prioritized over detail to enhance the function of the representation. The line between captured and constructed mediations is very hard to draw. A system that makes use of still images of the participants' faces or that transmits the spoken words of the participants still falls within my definition, but I do believe that it is when the actual voice, face and body is replaced with an iconic representation that some of the typical virtual world characteristics become most evident.

A chat room is not a virtual world because it does not fulfill the criteria of spatiality. Although a chat room could be seen as spatial in that it is described as a room, it does not fit my definition of a virtual world because there is no possibility to navigate the space as a participant. So even if the participants have a representation of themselves in the form of a handle, a nickname, that is present in the chat room, the spatial metaphor is very weak. If several chat rooms are tied together to form a building, then the spatiality is strengthened and especially if there is a structure that keeps the rooms connected to each other in a certain way, so that leaving one room in one direction will result in entering a specific other room, the system is well on its way to fit my description. Consequently, MUDs are virtual worlds according to my definition. There are, however, important differences between the graphical, and the text-based worlds – not least when it comes to designing them – and the studies I have based this dissertation on are all done in graphical virtual worlds. While I have made extensive use of research from text-based systems made by other researchers, my own contribution is limited to graphical virtual worlds. When I say *virtual worlds*, the graphical variation is implied.

Definition: A virtual world is a synchronous, multi-user system that offers a persistent spatial environment for iconically represented participants.

I have chosen to use the term virtual worlds mostly because it is reasonably well established and because it is less often used for other similar things. Other suggestions include avatar-based online shared virtual environments (Rossney 1996) and online multi-user virtual reality (Schroeder, Heather, and Lee 1998). Heim (1993) has noted that the choice of terminology in the United States seems to be connected to different research institutions where, for instance, NASA and MIT prefer *virtual environments* and the universities of Washington and North Carolina use *virtual worlds*. Others tend to go with names based on *virtual reality*, a term coined by California based Jaron Lanier. My preference does not, however, mean that I find the words themselves unproblematic. The word ‘virtual’ is often understood as an antonym to real and, as I will argue later, I believe virtual worlds to be perfectly real. Here, the word virtual should only be understood as the antonym to physical. The word ‘world’ seems to imply something vast but there is nothing in my definition about the required size of a virtual world. In fact, many virtual worlds are quite small, often more or less the size of a house.

The term *world* can also evoke a sense of separation from *the real world*. Again, this is misleading. Participants in virtual worlds tend to weave their participation in the physical and virtual worlds together in a seamless manner. Instead we can think of *world* as suggesting a certain open-endedness. Even if a virtual world has a very specific theme or purpose, it is also a social space where we live our everyday lives.

I believe that the visual properties of virtual worlds are important for the experience they provide. Likewise, I find the step from two-dimensional to three-dimensional graphics to be a qualitative rather than a quantitative leap. Since I think there is a strong correlation between having experienced virtual worlds first-hand and being able to understand them, I have had my doubts about how well the experience can be mediated through a book. I know from experience that people (students and faculty members alike) who only have read about virtual worlds often are left harboring grave misunderstandings about the actual workings of the systems discussed. Images are a good way of dissolving many of these misunderstandings so I have tried to use them extensively throughout the book. They can, however, not replace the

experience of actual interaction in virtual worlds so I strongly recommend anyone reading this that yet has not set foot in a virtual world to do so.

SYNCHRONOUS OR MICRO-ASYNCHRONOUS?

I began my definition of virtual worlds by pointing out that the interaction is synchronous. This is true in the technical sense of the term, but in the systems that I have studied where the participants communicate by typing messages on their keyboards, a phenomenon occurs that I believe to be of significance to the nature of the interaction. While the communication often is quite rapid and people who lack good typing skills, or try to express themselves in longer passages of text, often feel crushed by the multi-threaded often slightly chaotic conversation, there still is a difference compared to spoken interaction.

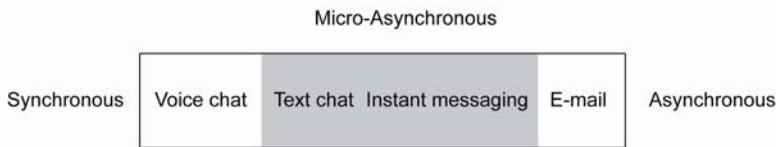


Figure 4. Micro-asynchronous forms of communication. Developed from Sveningsson (2001).

When you type your messages, you can spend an extra moment thinking over what to say, how to formulate it, even spell check a word or perhaps decide not to say it at all. The text-based chat introduces a delay in the system that does not exist in face-to-face communication. The system is actually micro asynchronous rather than synchronous (see figure 4). This difference is often overlooked, but I believe it to be central to the experience of being in virtual worlds. Just as with the iconic representation of the participants, I look at the text-based communication as having more of a constructed, versus mediated, quality than vocal communication. I also believe that there are certain qualities attached to making use of low bandwidth solutions such as text chat instead of voice chat or avatars instead of streaming video.

THE SYSTEMS

My empirical studies have mainly revolved around three different virtual world systems: *The Palace*, *Active Worlds*, and *Everquest*. These systems can be seen as representing three stages in the evolution of graphical virtual worlds, the two-dimensional worlds, the three-dimensional worlds and the massively multi-player online game worlds. Other worlds belonging to the first stage include *Habitat* and *Worlds Away*, the second stage also includes *Blaxxun's Cybertown* and *Onlive Traveler* and the third stage includes *World of Warcraft* and *Star Wars Galaxies* among many others.

While I have at least tried all of the above mentioned systems (except for *Habitat*) I have consciously opted for depth over breadth and spent significant amounts of time in the three systems I chose to focus on. I will now give a basic description of these systems. Rather than including similar information in the description of each system, I will focus on the aspects of the systems that make them special and are of particular interest in the context of this dissertation.

The Palace

The Palace was originally opened for the public on November 15, 1995. It is a two-dimensional graphical virtual world system where each world is built by a number of interconnected rooms. The participants communicate by typing text messages in the box located in the bottom left corner of the user interface (see figure 5). The utterances are shown to the other participants inside comic book style bubbles emanating from the avatar that is speaking. By using a text-to-speech module it is also possible to make the avatars speak the messages in a synthetic voice.



Figure 5. The interface of *The Palace* with the briefcase and log window open on a high-resolution screen.

Each room consists of a gif image backdrop. The avatars are best described as digital paper dolls that are superimposed on top of the backdrop. Each participant also has a suitcase filled with body parts and other small graphical components called props that can be worn, placed in rooms or given to other participants. An unregistered participant can only use the default set of props while registered participants can make props and avatars from any digital image. Registered participants also get to choose their own nickname instead of being called *Guest* followed by a random number generated when logging in. A script language enables participants to partially automate the behavior of their avatar. A certain word can, for instance, trigger a reply, a movement, or some kind of graphical effect. The rooms can also be fitted with scripts that for instance make a coffee cup prop appear if someone click on the coffee maker.

The worlds are hosted locally by the world owners. A world owner is by definition the god of that server. A participant logging in to the world with the god password is granted full permission to use all the functions in the client and server software including the shutdown command which terminates the server program and kills the world. The god can grant other participants

permission to use a number of construction and law enforcement functions by giving them the wizard password.

A wizard has access to all the functions needed to create new rooms and delete existing ones. Wizards can also lock participants in place with the `pin` command, silence them by issuing the `mute` command. A participant that behaves very badly can be thrown off the server with the `kill` command and kept from re-entering with the `ban` command. Although the *Palace* system is highly distributed with autonomous world servers, there is a central server that controls all the participants logging in to any palace against a database to check if the participant is a registered palace member. This feature can be used to ban a person not only from one specific *Palace* world, but from the whole *Palace* universe.

After having tried out different business models to make *The Palace* profitable including membership fees and banner commercials, the owners of the technology, *Communities.com* shut down their servers in January 2001.¹² This did, however, not mean the end of *The Palace* because a group of enthusiasts took over the maintenance of the system as a non-profit endeavor and as of this writing there are numerous prospering *Palace* worlds still up and running.

Active Worlds

Active Worlds started out as a single world – Alpha World – which was made publicly accessible June 28, 1995. At the time, the existing IT infrastructure was not on par with the requirements of this system. While Alpha World still exists and is the largest world in the *Active Worlds* universe, it is now one of over a thousand different worlds in the main universe. Added to this are more than a hundred worlds in a special universe dedicated to educational activities called Eduverse. In 1997 the original owners of the system *Worlds Inc.* sold it to *Circle of Fire*, a group partially consisting of the original developers of the system. In 1999 the system was again sold to a company

¹² The company information was taken from Avatar Teleport: The Palace web page <<http://www.digitalspace.com/avatars/palace.html>> (23 October 2003).

that in connection to the acquisition changed its name to *Activeworlds.com*.¹³

Active Worlds is a three-dimensional graphics system where objects and avatars have height, width, depth and a position in the three-dimensional space that makes up the world. Instead of being made up of separate rooms as *The Palace*, each world is a continuous space. In order to limit the amount of information that needs to be sent between servers and clients, each avatar has a limited visibility range which can be adjusted by the user but is limited to a maximum of two hundred meters. The environment is downloaded and rendered based on what is within view.

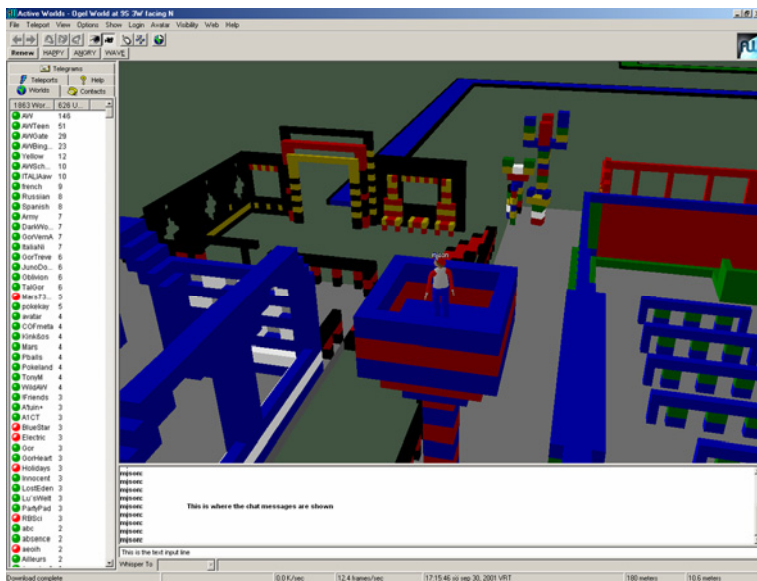


Figure 6. The user interface of the *Active Worlds* client.

The client software has a window showing a first- or third-person view of the world, a chat interface, an integrated web browser and tabs with, among other things, a list of the worlds, a contact list, and saved teleportation spots

¹³ Information taken from Mauz's *Active Worlds* Pages: History <<http://mauz.info/awhistory.html>> (24 October 2003) and the official *Active Worlds* website <<http://www.activeworlds.com>> (24 October 2003).

(see figure 6). The user navigates through the environment using the arrow keys. If the world has a ground plane it also has gravity. It is, however, possible to fly and move through objects unless this feature has been turned off by the world owner. Participants can travel through space by teleporting or selecting an avatar in the contacts list and select the join command. When participants enter text in the chat window it is shown in the chat window of the other participants as well as displayed above the head of the avatar. Participants can also communicate privately by whispering or sending telegrams.

On the first visit to *Active Worlds* you start out as a tourist and have restricted possibilities regarding building, communication and choice of avatar. To become a citizen you must register and pay an annual fee.¹⁴ You can also buy your own world. As a world owner you can control some of the properties of the world and what other participants can do in the world.

What separates *Active Worlds* from similar systems is the ease in which participants can build things. Building is done interactively by using the mouse to select, move, duplicate, or delete objects while being in the world. Each world has a limited number of objects to choose from. To create an instance of any of these objects you make a copy of an existing object and rename it to the name of the object you want. New objects and avatars can be constructed and made available in the world by the world owner.

The vastness of the *Active Worlds* universe is not matched in terms of population. The number of simultaneous participants varies depending on the time of day but would normally stay between a hundred and a couple of hundred participants at the time of this study. While *Active Worlds* in many ways is much more advanced than *The Palace*, the increased complexity also leads to restrictions in content creation. While learning to make props, avatars and even rooms in *The Palace* is fairly easy, developing content for three-dimensional environments is much more demanding. There are also functions in *The Palace* that are lacking in *Active Worlds* such as the briefcase that is used to carry around props in *The Palace*.

¹⁴ This was later changed into a monthly subscription fee.

Everquest

When *Everquest* went live on March 16, 1999, it set a new standard for the scale and complexity of virtual world based games (see figure 7). It was originally developed by *Verant Interactive* which later was bought by *Sony Online Entertainment*. It is a game in which players battle a variety of characters and creatures in the virtual world of Norrath. The game is built on a client/server architecture with a real-time three-dimensional graphics system similar to *Active Worlds* but with a closed graphics library.¹⁵ *Everquest* took the role-playing genre of computer games to a new level of technological sophistication. The response from the gaming community was overwhelming, and a flood of similar games has followed establishing a new genre of computer games, the massively multiplayer online game (MMOG).



Figure 7. The *Everquest* interface.

¹⁵ In contrast to *The Palace* and *Active Worlds*, there is no way for players to add objects, rooms or buildings to the world.

Everquest is one of the first and most successful massively multi-player online games taking place in a fully three-dimensional world with over 2.5 million copies of the game sold. At the peak of its popularity, around half a million players were paying the monthly subscription fee and at times, over 100,000 players were logged in simultaneously.

At the release of the competitors *Everquest 2* and *World of Warcraft* in 2004, the number of players dropped drastically and many of the servers were merged with other servers to maintain a critical mass of players. *Sony* no longer reveals their subscriber numbers, but based on estimates, the number of subscribers has stabilized at roughly two thirds of the peak numbers.¹⁶ The players are distributed over twenty-four servers including special servers for player versus player and dedicated role-playing.

While there is limited demographic information about who is playing this genre of games, studies indicate that it is not simply the stereotype gamer (male adolescent) but actually a much broader segment of the population. Women are purported to make up twenty to thirty percent of the player base and the average age seems to be in the mid to upper twenties. (Laber 2001; Yee 2003)

Much like old-style tabletop role-playing games, players create a character by distributing ability points between characteristics such as strength and intelligence. They also choose *race* such as human, halfling or troll, a class such as warrior, shaman or wizard, a deity, and set a few other parameters defining the appearance of their character such as sex and facial features.

The participants wander a vast terrain covering a number of continents which are divided into a large number of zones. When a player hits a zone-line there is a delay while the next zone is loaded. Monsters cannot follow players across zone-lines. The objective of the game is to advance the character by increasing its experience and skills by killing beasts and performing quests, and to equip the character with increasingly better weapons, clothes and other items.

¹⁶ Numbers taken from the official *Everquest* website <<http://www.everquest.com>> (25 October 2003), MMOG Chart <<http://www.mmogchart.com/>> (2 November 2005), and Persisten Online Worlds List <<http://hem.passagen.se/ulkis/onlineworlds/index.html>> (24 October 2003).

Players cannot kill each other except for on the dedicated *player versus player* server. Instead, the game is designed in a way that requires players to cooperate to be able to advance and prosper. A defining characteristic of the game is that the character always can be developed further; there is no way of winning the game. Experience is measured in levels and currently the highest level is seventy, which typically takes over a year of playing to reach, but even after that there are still many other ways to advance the character and there is also the option of starting more characters. Many, if not most, of the participants making up the current player-base have been playing the game for several years.

Sony is continuously expanding the world through expansions – currently there are eleven of them – which not only bring new continents to the world, but also new races, classes and abilities. Old zones are continuously revamped with changes both to the look and content.

THE PROJECTS

This dissertation is based on work in several different projects. As part of the establishing framework I am attempting to create in this chapter, I will give a short outline of the different projects in chronological order to help the reader understand where the empirical material I use throughout the book comes from.

New Arenas for Social Interaction

The first project was started in 1996 under the title New Arenas for Social Interaction (NAFSI). This dissertation marks the end point of this project. My advisor Erik Stolterman, and I are the only project participants but most project activities have been carried out in cooperation with other researchers and virtual world participants, most notably Vicki Popdan and T.L. Taylor. The goal of the project as formulated in the project mission statement was:

We foresee a continued increase of the importance of virtual worlds as arenas for social interaction and are therefore interested in studying social consequences of design decisions on the technological level. We have chosen an active explorative method where we participate in the ongoing development and design of these new societies to first of

all increase our understanding of the phenomena, and then also try to give some advice on how to design virtual worlds that fit into, and offer something positive to, our existing societal structures.¹⁷

NAFSI has functioned as an umbrella project for later studies. When I first started out, my focus was on *The Palace*. That part of the project ended in 1999 but while I took on new design related projects in *Active Worlds* (presented below) I kept on conducting studies of social interaction in different virtual worlds. In 2002 I took up playing the game *Everquest* and immediately found that the scale and longevity of this system offered interesting opportunities to extend the work started out in *The Palace* and later continued in *Active Worlds*.

Shaping Cyber Reality

The Shaping Cyber Reality project never came past the pre-study stage due to lack of time and money to carry it through. It was nevertheless very valuable for me in the development of this dissertation. The goal of the project was to study the impact – or lack thereof – of decisions made by the system designers, on the social level of the experience of the participants. By *social level* I mean that we were interested in the impact of particular design decisions not only on aspects such as ease of navigation, but wanted to know what kind of role they played in, for instance how social networks are established.

Our approach to studying this issue was to take two different worlds – *Blaxxun's Cyber Town* and Alpha World in *Active Worlds* – and try to identify key features of the systems and interview the designers about the rationale behind the implementation of these features. The next step was to approach the system from the perspective of the participants and try to identify which aspects of the world that were most influential on their experience of the world.

The final step was meant to be a comparison of the two worlds that on one level are very similar – both being three-dimensional graphical virtual worlds constructed with the aim of attracting as many participants as

¹⁷ From the mission statement on the New Arenas For Social Interaction website <<http://www.informatik.umu.se/nlrg/nafsi.html>> (19 November 2005).

possible – but where the designers have chosen distinctly different ways of reaching this goal.

The pre-study was conducted in 2000 by myself and Michele Dickey (see figure 8) and consisted of talking to the designers of the two worlds and listing key features. We also spent a significant amount of time in the two worlds taking notes and pictures. Interlude four is a product of this pre-study.

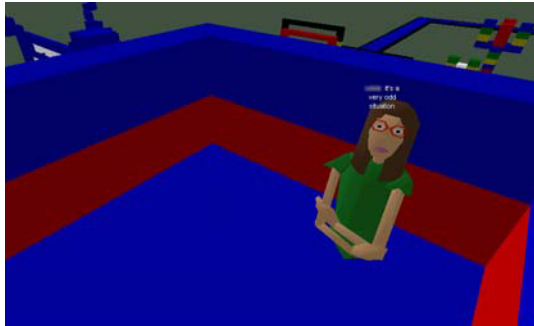


Figure 8. Planning meeting with Michele Dickey from the Shaping Cyber Reality pre-study.

ACCD Virtual World Design Team

In the fall of 1998 I participated in an online seminar series called Deep Cyberspace led by Michael Heim, Art Centre College of Design (ACCD), Pasadena.¹⁸ The participants were located all over the world and all meetings and communication took place on-line on a message board and in different virtual worlds. The seminar combined discussions and reflections on virtuality using his books *The Metaphysics of virtual reality* (1993) and *Virtual realism* (1998b) as starting points, with practical lessons in virtual world design and construction.

¹⁸ A visual report is available at: < <http://www.informatik.umu.se/~mjson/godeep/godeep.html>> (12 March 2006).



Figure 9. Aerial view of ACCD World.

After the seminar series was completed I stayed on as a remote participant in the Virtual World Design Team consisting of Michael Heim, Simon Niedenthal, Tom Mancuso, Tobey Crockett and other students and faculty at ACCD.¹⁹ While most of the work was made before I joined, I participated in building ACCD World (see figure 9), an artistic experimental world built to explore the properties of virtual worlds in a search for alternatives to worlds built with the physical world as their blueprint. The first rule of ACCD World was: *You have to dream it before you build it.*

During the following three years I participated in numerous activities together with the design team, most notably the *CyberForum* seminar series with invited participants such as William Mitchell, Brenda Laurel, Peter Lunenfeld, Lev Manovich and Katherine Hayles (see figure 10).²⁰ The collaboration also resulted in several visits to Los Angeles, in addition to Michael Heim and Simon Niedenthal visiting both Umeå and Malmö.

¹⁹ More details available at: <<http://www.mheim.com/html/worlds.htm>> (19 November 2005).

²⁰ CyberForum <<http://www.mheim.com/cyberforum/>> (19 November 2005).



Figure 10. A *CyberForum* meeting in ACCD World.

Confuse

The first idea for the Confuse project came to me when I was attending the virtual conference Avatars 98.²¹ While the content of the conference was interesting, I felt that the way organizers had modelled the conference world after a physical conference site introduced some problems. One example was a lecture hall looking very much like a physical lecture hall down to details such as a podium with a (non-functional) microphone. One presenter who was unfamiliar with the constant stream of text-based chat conversations and how people utilize avatars in virtual worlds became increasingly frustrated waiting for people to stop talking and facing him. Perhaps he was even hoping for them to sit down, not knowing that sitting was not even in the avatar's repertoire of possible movements. Despite the assurances from the organizers that people *were* paying attention and that he could go ahead with his presentation, his frustration continued to build until he finally logged off without delivering his talk.

It seemed clear to me that the creation of an environment that on the surface resembled its physical counterpart but in fact worked very differently was problematic. At the same time as it created false expectations on what was possible and not possible to do in the environment, it also put unnecessary constraints on what a virtual conference could be. I was sure that this activity could work better if it was supported by a different

²¹ The Confuse project website is available at <<http://www.informatik.umu.se/nlrg/confuse.html>> (19 November 2005). The Avatars 98 website is available at <<http://www.ccon.org/conf98/>> (12 March 2006).

architecture, one that was less focused on visually resembling a physical conference environment and more aimed at supporting academic interaction based on the properties of social interaction in virtual worlds.

In the spring of 1999, the Swedish Polygon Company, a group of PhD-students assembled exclusively for this project was commissioned by the Department of Informatics at Umeå University to design a virtual conference centre for presentations, discussions and meetings of academic nature. Previously, the department had used *The Palace* in teaching and for meetings with researchers situated around the world, but wanted to see if a three-dimensional environment could extend the possibilities and add to the experience of being together.

We set our course for somewhere in-between the free-form fantasy of ACCD World and the realism of the Avatars 98 conference world, hoping that the answer to good virtual world architecture would lie in striking a balance between these extremes. This was, however, uncharted territory leading us to employ an explorative design method where design suggestions are rapidly modeled, discussed and iterated collaboratively within the group. During the project we collected empirical material in the form of documents, pictures and chat logs. We also conducted interviews with all the design group participants, both in physical and virtual settings.

The result of our efforts was the *Active Worlds* world Confuse where we among other things built a conference center. It was not used much once it was finalized – a fate shared with many worlds in the *Active Worlds* universe. Its sister world Ogel, however, became more popular.²² While Confuse was built in the Eduverse universe where access was restricted to other Eduverse participants, Ogel existed in the main *Active Worlds* universe. It was simply a clone of the Confuse world but with the building authorization lifted, meaning that building was free for everyone. We pitched it as a free-for-all building world for everyone who enjoy playing with *Lego* but wish that they could be immersed in their and others' creations and that they would never have to run out of pieces to build with. We also used Ogel to run courses for staff and students at Umeå University in virtual world design (see figure 11).

²² Ogel <<http://www.informatik.umu.se/nlrg/ogel/>> (last visited 19 nov 2005).

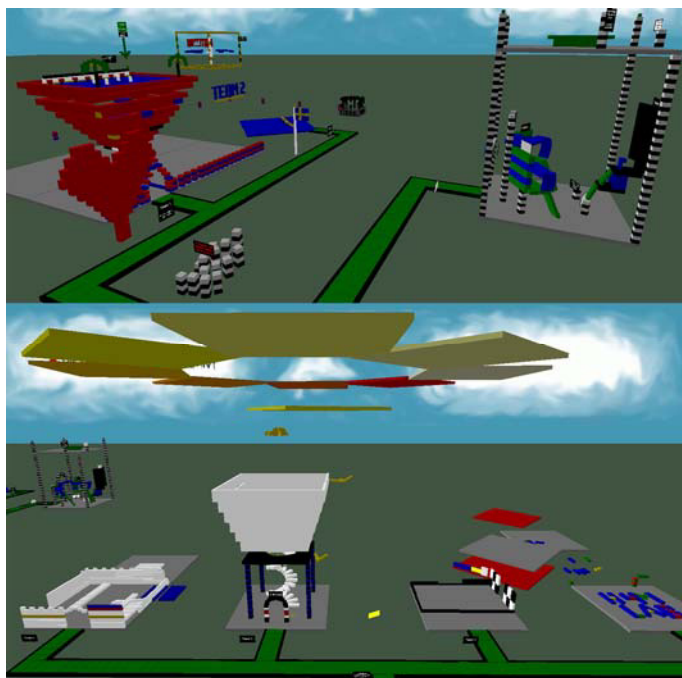


Figure 11. Some examples of student creations from the Ogel world.

Apart from the actual development activities, the participants also investigated research questions connected to the project. The issues we focused our attention on were the use of models in the development process (Holmström and Jakobsson 2001), exploring an alternative to recreation of physical structures in virtual environments (Jakobsson and Skog 2001), and the experiential aspects of the project from a phenomenological perspective (Croon and Jakobsson 2002).²³

CONCLUSIONS

To establish a context for the continuing discussion, I have offered a technical definition of a virtual world as a synchronous, multi-user system that offers a persistent spatial environment with iconically represented

²³ A web-based presentation of Jakobsson and Skog (2001) is available at <<http://www.informatik.umu.se/nlrg/ijdc/>> (19 November 2005).

participants. Although the system is synchronous, text-based chat has a small gap built into the interaction structure which actually makes it micro-asynchronous. I have also introduced the systems and projects constituting the basis for this book. Next step will be to look at some of the methodological and theoretical considerations of this study.

INTERLUDE TWO

VICKI'S STORY

I first met Vicki at a seminar series called *Deep Cyberspace* in 1998. It took place entirely online and included participants from Europe, Australia and the United States. During the virtual meetings we conducted excursions to different worlds, but we spent most of the time in ACCD World, a world designed and created by the Virtual World Design Team at Art Center College of Design.



Figure 12. The *Deep Cyberspace* class of '98 in ACCD World. (Screenshot by Michael Heim.)

Most of the participants were completely new to virtual worlds and did not know each other from before. So while we were getting to know the system, we were also getting to know each other. In this process, I and Vicki gravitated towards each other thanks to a fit between our online identities. We both used a similar language full of abbreviations, acronyms, emoticons, and special expressions. We also kept our utterances short in a manner typical of people used to chatting. We quickly caught on to how to use the client software to navigate and perform different actions within the world. In addition to these similarities we also happened to choose avatars that slightly resembled each other. In figure 12 you can see me and Vicki standing next to each other by the big guy on the air mobile.

The quickness and fluency of Vicki's behavior automatically made me assume that she would be very *mobile* off-line as well. This added to the astonishment I then felt when she told me that a car accident eight years earlier had injured her spine and deprived her of the ability to move any part of her body except for her head. We had known each other for a while when she told me that she was quadriplegic. I then realized that there had been a number of things that indicated her situation all along, like the fact that she

was sitting down in all the photos I had seen of her, that she sometimes used speech recognition software instead of typing, and the way she talked about how she *used to* play soccer.

Despite all the clues I could not believe that she was in the situation she was. My image of her was that she was very lively, quick and energetic and I had unconsciously transferred this into what she would be like physically. It was not until when she described the very special type of mouse that she was using – a head mounted gadget that controls the cursor through head movement and supports *clicking* through blowing into a tube – that I finally realized that she had to be confined to a wheelchair physically.

The fact that I had spent so much time with her without realizing that she was quadriplegic made me excited about net identity. This is great I thought, people who have problems with their physical body can just check out a new fully functional – albeit virtual – one online. I got eager to know more about what having a virtual body meant for Vicki and asked if I could interview her about it. She accepted but began the interview by bringing me back to reality. Being in a virtual world does not mean that we leave the physical world, she reminded me. No matter how much her avatar jumps around on the screen, she will still remain firmly lodged in her wheelchair and very aware of that fact.

After returning from my little excursion into some hyped cyber vision of people leaving their bodies behind to go live on the net, she proceeded to tell me about some of the possibilities of embodiment in virtual worlds that actually are very important to her. Just as for anyone else, the possibility to meet and interact with people that she would not have had access to if it had not been for the technology is a major benefit. The convenience of being able to meet people without leaving the house becomes even more important for someone who is confined to a wheelchair.

The main benefit of having an avatar body is not related to her physical immobility or any change in her perception of her own body; it is the change in the way people perceive her. To her, the major benefit of a virtual body is not that the avatar can jump around in a way she cannot, but that her body does not stick out from the crowd in the way a person in a wheelchair does. To display her avatar instead of her physical body is the only way she can pass through a crowd without heads turning and minds freezing into mind-

sets that get in the way of perceiving her as who she really is. She has told me enough horror stories about how people for some reason assume she is different or even stupid just because she sits in a wheelchair or how misguided attempts to be helpful or understanding can be incredibly annoying, to convince me of the benefit of being able to socialize without having to deal with all these issues.

While I and Vicki had no problems immersing ourselves into the environment of the *Active Worlds* system, there were others, like Prospero who seemed to struggle. While we handled our personal computers as high-power extensions of our bodies, Prospero gave the impression of struggling with the technology like it was an alien prosthetic device sometimes acting completely out of his control. While all participants at some time or another got disconnected from the system and had to re-enter the world, he was constantly fighting a bitter battle for virtual existence with his modem.

Prospero's problems were partly due to the quality of the technology he used to access the virtual world, but his lack of experience of this kind of technology also played a part. On top of this, he could not use his native language, which was also true for me. But unlike me, he had no prior practice in *net speak*. In the ordinary world the man behind Prospero has a Ph.D. in comparative literature and teaches at a university. The roles are to some extent reversed between Vicki and the man behind Prospero. While the technology has a liberating effect for Vicki, it seemed to handicap Prospero.²⁴

At the end of the course we had an informal social meeting in The Virtual MIT House (see figure 13). Vicki and I stayed and talked long after the others had left. We talked about serious and personal things, and felt comfortable in doing so despite the fact that we knew very little about each other.

One time when Vicki was feeling a bit down I gave her a rose in an attempt to cheer her up. On the surface, this transaction might seem fairly insignificant. I took a picture of a rose that someone else had made and placed it on the screen close to Vicki's avatar. She then picked it up with her cursor and placed it in her personal prop depository known as the briefcase.

²⁴ Prospero's problems did not, however, keep him from enjoying the experience just as much as the rest of us, he has assured me.

But when she later described the occurrence in a paper we wrote together, she mentioned how it really had affected her mood. She said “it felt as if he had given [me] a tangible red rose and [I] had sat it atop [my] monitor” (Jakobsson and Popdan 1999).

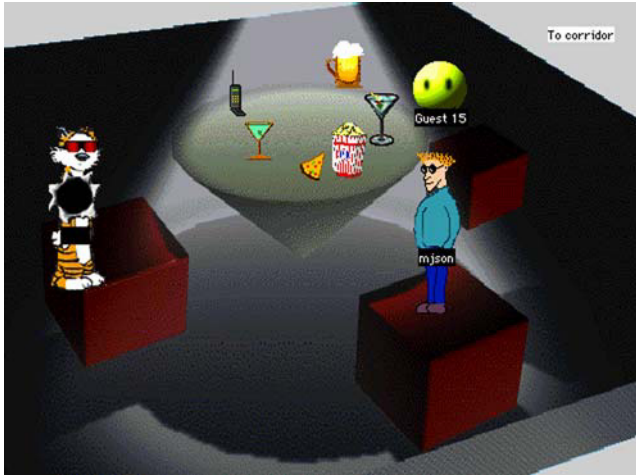


Figure 13. Wrap party for *Deep Cyberspace* in The Virtual MIT House.

Although I was happy that the rose had made an impact, I was also surprised. I would have thought that the fact that no real effort was involved in the transaction on my part would diminish the symbolic value of the gesture. But a physical rose does not carry its symbolic values based on the premise that it is cumbersome to attain. The symbolic value is deeply rooted in our cultural heritage and carries into the virtual worlds.

When I discussed the matter with my girlfriend at the time, I discovered that the significance of the act went even further. Not only had I underestimated the symbolic meaning of giving someone a rose. I had also failed to see the event from her perspective. She was not interested in socializing in virtual worlds and thus had no natural way of getting to know Vicki. Out of that grew – quite understandably – a concern about what exactly it was that we were doing in there, especially since we spent a considerable amount of time in there together. She understood perfectly well

that the rose was intended to cheer up a friend, and that the intention had come across as such and nothing else, but she still felt left out.



Figure 14. Making ourselves comfortable by the fireplace.

Ultimately it was not my relation to Vicki that troubled my girlfriend. It was the fact that she had realized that there was another side of me that was only accessible through certain kinds of technology. A side that she would like to get to know better but which she felt was out of her reach, not due to any shortcomings in our ability to communicate with each other, but due to our differences as computer users. Just as with the Bill story, my friendship with Vicki has taught me not to underestimate the power of social interaction in virtual worlds. Giving Vicki the rose might have been a mistake, but it was a valuable one.

CHAPTER THREE

SOCIAL INTERACTION DESIGN STUDIES

A MODEL FOR SOCIAL INTERACTION DESIGN STUDIES

This chapter concerns the methodological and theoretical approach to my studies. I will concentrate on four issues. The first concerns the particular object of my study, virtual worlds, the second concerns studies of social interaction, and the third deals with interaction design. Finally I will suggest a way of combining studies of social interaction with interaction design studies to form a model for social interaction design studies.

My first goal is to go beyond the technical definition of virtual worlds offered in the previous chapter and start shaping a standpoint where virtual worlds are seen as places, arenas that are part of the collection of venues that makes up our life world. This discussion will lead me into the second point which is to argue for the importance of establishing an inside view of these arenas to see aspects of the phenomenon that otherwise remain hidden and to describe this approach. The inside view consists of two main components; being an active participant engaging in the everyday life activities rather than a passive observer, and favoring dedicated studies of one or a few environments for extended periods of time over snapshot observations of numerous environments. I will use a description of how my understanding of the game *Everquest* changed over three years of participation as an example of the way the inside view can lead to a richer understanding of a virtual world.

My third objective is to give a methodological and theoretical basis for the part of my study involving design projects. The ideas that design processes can be the source of transferable knowledge is in many camps still a highly contested notion. The idea of the role of ethnographer, designer, participant and researcher combined in the same person stands in direct conflict with ideas of the researcher as a detached objective observer. I will offer a brief background to support the fundamental ideas of the emerging field of interaction design as a research discipline.

Finally, I will attempt to merge the social interaction part and the interaction design part into a model for social interaction design studies. This is the model I have used in this study of virtual worlds. The model itself is, however, generally applicable to a wide range of socio-technical systems.

BEING THERE

The studies presented in this dissertation are all based on an interpretive approach to qualitative research (Myers 1997). I have from the very beginning started out with the assumption that access to reality – whether it is given or socially constructed – is only reached through social constructions such as language and shared meanings. According to Myers, the aim of any interpretive research effort is to understand phenomena through the meanings that people assign to them, or as Geertz puts it: “man is an animal suspended in webs of significance he himself has spun, I take culture to be those webs, and the analysis of it to be therefore not an experimental science in search of law but an interpretive one in search of meaning” (1973, 5). My way to meaningful interpretations has started with engaging in everyday participation in virtual world activities – whether it is design activities or other forms of social interaction.

The research for this book started the same day as I first set foot in a virtual world. At that time I did not have a name for this kind of systems and knew very little about them. All I knew was that I instinctively felt that the graphical nature of the system changed my experience as participant compared to similar systems with text-based interfaces. My encounter with virtual worlds was puzzling. I was surprised by the number of participants and by the amount of time they seemed to spend there, so instead of directly focusing on a particular design issue such as how to create practice scenarios for students for instance, I decided that I needed to start at a much more fundamental level.

My first research question became: What makes these worlds tick? Or in other words, why are so many people spending so much time here? This became the start of several years of virtual ethnography studies in different virtual worlds. While I now feel that I am in a much better position to pose more detailed research questions – not only due to my own studies but also due to the progression of the field in general – I still conduct studies with a similar approach and must confess that I still sometimes wonder just what it is that makes the virtual worlds such an potent and pervasive phenomena.

Given this very wide research question, it made sense to adopt a research method that was very open in picking up whatever was out there so I started quite simply by conducting participative observations. As the research

progressed I engaged in more specific issues. As the questions changed, I also gradually altered my methodological approach. I began studying groups of participants engaging in specific activities and, in addition to the participative observations, I started conducting more interviews. In this respect my dissertation process was deliberately shaped in the form of a funnel, starting out very wide with a search for a better understanding of virtual worlds in general and ending up with specifically addressing the issue of virtual world design from a social interaction perspective. This progression echoes the general development of the studies of virtual arenas where much of the earlier work was explorative or speculative and also often viewing the object of study as something mystic and exotic while more recent work tends to focus on more specific issues from a more down-to-earth standpoint.

What probably sets me apart from most qualitative researchers is that throughout the whole process, I have actively engaged in design and construction work. I have continuously iterated a cycle of observation, design and reflection. Although some of the design projects have been conducted as responses to defined needs, the projects have not mainly been aimed at developing artifacts, but to better understand the actors and components involved, by using the process, the materials and the constructs as tools for reflection and analysis.

THE ARENA PERSPECTIVE

To properly ground my choice of research methods for studying virtual worlds, I have to verbalize my own perspective on the object of study. The nature and importance of perspectives in the understanding and design of IT applications has been thoroughly investigated within the systems theory approach to information systems research where Churchman (1971) argues the importance of the ever-present point-of-view using Kant's concept of *a priori*. Here I will treat the concept in a very basic and pragmatic manner. Kammersgaard (1990) suggests that we think of perspectives as pairs of glasses that restrict the aspects we are able to see when we are looking at something. Contrary to glasses, however, different perspectives do not mutually exclude each other so while developments within the field have

opened up for new perspectives, the older ones have not necessarily gone away.

Kammersgaard also offers his suggestion to which the most dominating perspectives have been up until today and discuss the implications of applying them. The oldest of these perspectives is the system perspective which applies a birds-eye view of the network of inter-related components. Automated and human activities make up a system that is connected to a task on the organizational level. This perspective equates the human and the computer components of the system and looks to optimize the efficiency of all components for best system performance.

The system perspective was later challenged by the tool perspective. By looking at computers as tools, the individual user comes into focus. The user should be in control of the computer and the outcome of the work process depends on how well the tool facilitates a skilled worker in her craft (Ehn 1998).

In her book *Life on the Screen*, Turkle brings up how the way we view the computer constrains what it can be and mean to us and how this view changes over time. "The lessons of computing today have little to do with calculation and rules; instead they concern simulation, navigation, and interaction" (Turkle 1995, 19). By contrasting Turkle's view with Kammersgaard we can identify another layer of perspectives. Kammersgaard consistently views computers from a design/use perspective while Turkle puts the emphasis on the culture surrounding the technology. This way she opens up for perspectives on computer use that go beyond the workplace as the only context and efficiency as the most important measure of the quality of computer systems. Turkle strongly emphasizes the simulation aspect of virtual worlds in her research while I will argue for a focus on the interaction. I will return to this difference later in the chapter but for now I will try to establish the importance of the interaction aspect of computers and computer applications by presenting a little thought experiment.

As a kid I used to fantasize about traveling back in time. The purpose of these trips was invariably to impress people of the past with modern inventions. To be able to impress people with such things as pocket lighters or to win sports events thanks to outstanding equipment I had to go back quite some time before my imagined audience could be suitably astounded.

In the case of the computer, however, the development has been so fast that I only would have to go back a few years to reach a time when no-one had ever heard of the world wide web, instant messaging, virtual worlds or massively multi-player online games. The computer seems the perfect gadget to bring on one of these trips, but there is a catch. It would not help that I brought a computer with all the right applications installed on my trip to the past because all these applications are useless if no-one else has them. Unlike the fast car that would make me a top-notch race car driver, the computer would transform into a useless heap of electronics if I took it back in time.

My point here is that the role as a tool is of diminishing importance at the same time as the role as a mediator of interaction between people is taking over. In Kammersgaard's terms the *media perspective* has gained in importance. All these perspectives are potentially applicable to a virtual world system but I believe that they all fail to take into consideration what is a central aspect of virtual worlds – the way that they provide an arena for social interaction (see figure 15).



Figure 15. Perspectives on information technology: System, tool, medium, and arena.

Scholars such as Heim (1993; 1998b), Jones (1999), Schroeder, Heather, and Lee (1998), Stone (1995), Turkle (1995), and Ågren (1998), all talk about a place or space where people can meet. Virtual communities and virtual worlds are some of the concepts used to describe the new forms of social life and the new arenas where they take place. But as we will see later in this chapter, most of them do not consistently adopt an arena perspective in their treatment of these places.

The arena perspective acknowledges that participants in a virtual world to some extent are present inside the virtual environment provided by the technology. The computer is no longer a part of a system that handles a task such as salary payment in a company, a tool for graphic designers to create layouts, or a medium that channels a message from point A to point B. It

creates a place that is nowhere in particular but still can be visited and habituated by people.

The arena perspective can be applied to technologies other than virtual worlds. In a virtual organization, for instance, it could make sense to view the people signed on to the instant messaging system as present in the same arena regardless of whether they are actually exchanging any messages or not. I will, however, use the perspective exclusively as a foundation for my studies of virtual worlds.

Having introduced the arena perspective, we can now look at what the methodological implications are. With the tool perspective followed an increased awareness of the importance of the context of an IT-artifact. If the computer is a tool, then the existing work practice that the tool is placed in must be well understood in order to accommodate the needs and skills of the practitioners (Ehn 1988). Despite problems connected to defining exactly what constitutes the artifact or what the context encompasses, this distinction is present in many research approaches. In the case of virtual worlds, the contours between artifact and context become blurred in a particular way since the environment that the participants perceive themselves habituating could be said to exist inside the artifact.

This means that while the hardware and software required to access a virtual world can be seen as a tool, focusing on this part would leave the whole issue of the emergence of a new type of social arena untouched. It would be a bit like architects focusing on house keys just because the key is needed to get into a house rather than focusing on what being inside the house is like. The technical part of the system should not, however, be neglected. The arena is, after all, based on a technological foundation and specific technical design decisions could have far reaching social implications.

In a broader sense, the tool perspective can be applied to the function of the environment asking questions like: *How well does this virtual world tool provide the function "lecture hall?"* As we will see in chapter five, this perspective runs the risk of not taking the unique characteristics of virtual worlds into account. The tool perspective hides the fact that our conception of the function 'lecture' actually is full of embedded assumption about the properties of the arena where the function is performed.

The way virtual worlds are environments emerging through technological artifacts also challenges us to rethink the traditional methods of contextual research approaches. Unlike most work-place studies there is no pre-existing practice that can be taken as a given starting point for the study. Before the implementation, there simply is no context to study. This creates a bit of a catch twenty-two situation for me as a researcher. There is a risk of limiting the understanding of what virtual worlds are and can be based on existing worlds.

My way of addressing this dilemma is to introduce experimentation and innovation as an important part of the research process. The studies of existing environments, or rather the social interaction in these environments, have been allowed to generate questions like *What if there were no walls?* or *What if the world had no gravity?* These are questions of a kind that cannot be addressed without active design efforts.

The application of the arena perspective on virtual worlds as study object calls for a careful examination of the underlying assumptions in existing research methodologies. As I will argue, failing to do so can lead to making comparisons that are not valid between physical and virtual social contexts or conducting studies in a way that fails to capture the specific properties of the object of study and its context.

ADDRESSING THE OUTSIDE VIEW

In the seventies, experimental psychologists performed a number of studies comparing face-to-face communication with different kinds of mediated communication (see Williams 1977 for an overview). The explicitly stated purpose of these studies was often to look for negative psychological effects from the use of communications media. Face-to-face communication was used as a gold standard that mediated communication had to measure up to or be rejected. The idea that mediated communication could also have social or psychological advantages over face-to-face communication was not even considered in these experiments. Instead, their starting point was to decide which types of meetings could safely be electronically mediated, and which ones had to be performed face-to-face.

These experiments were based on a positivist approach to social science, which meant that the effects of using communications technology had to be tested in staged experiments in order to be controllable and reproducible. This sometimes led to situations bordering on the absurd, such as having research subjects holding conversations wearing cardboard masks to test the importance of nonverbal facial cues (Williams 1977). By taking communication out of its context, these experiments failed to take into consideration that different forms of mediated communication normally require a period of adaptation to the medium before the participants can use it to communicate successfully. Moreover, the experiments were mostly about problem solving, information finding or decision-making and measured quantitatively with speed and efficiency as success factors. This again relates to the preferred research method, but also to the expected context of future use which was assumed to be work-related.

This positivistic, decontextualized, and work-related view was also shared by Daft and Lengel (1986) in their formulation of media richness theory. They argue that the communication richness of a medium is an invariant and objective property of communications media, and they rank face-to-face communication as the richest medium. They also state that their theory was originally formulated to help address issues of information processing in organizations. Media richness theory has had a strong impact on studies of computer-mediated communication and within the field of information systems research during the eighties and early nineties, but its popularity has recently experienced a decline (Ojelanki and Lee 1997).

One of the clearest findings of the studies of mediated communication in the seventies and eighties was that mediated communication might be a good way to conduct formal meetings among people who already know each other, but it is an inadequate way for people to share emotional content, let alone develop meaningful and long-lasting relationships (Williams 1977; Chenault 1988). These studies claim that the lack of non-verbal cues – such as body language and speech intonation – would make it difficult to convey complex emotional content using a system like *The Palace*, for instance. In addition, having to type everything you want to say would make communication inefficiently slow.

Since *The Palace* is a graphical system based on a spatial metaphor with graphical representations of the participants, it is also possible to use it for different types of interaction beyond communication. Widening the scope from communication to interaction, we can note that since our virtual bodies are stiff digital paper dolls in *The Palace*, the gap to the gold standard of physical interaction becomes even wider. It seems clear from this research that this medium is so limited that it is confined to offering a severely limited second-rate copy of interaction in the physical world. There is nothing in this body of research that would even begin to explain why someone like Bart or Vicki would make such substantial investments – emotionally as well as time-wise – in a computer mediated environment like this.

The introduction of the world wide web in 1991 signaled the start of the internet boom and also increased the interest in computer mediated communication studies. By then it had become evident that computer mediated communication was here to stay and instead of focusing on whether it was good or bad, the question became how to utilize it appropriately within organizational settings.

Since the computer mediated communication research community mainly consisted of researchers from social psychology and communication research, the phenomenon was framed as a social issue. Sproull and Kiesler (1991) separate the effects of computer mediated communication technology into two levels. The first-level effects are related to issues of efficiency and productivity. These are the effects that are the driving force behind the invention of the technology and its implementation into an organization. The second-level effects are hard to foresee before implementation and influence the social characteristics of the organization. First-level effects are sometimes called technical effects as opposed to the social or real second-level effects in an attempt to distinguish experimental results that come and go depending on the specifics of the technical implementations of a system from social effects that remain stable in regard to the medium (Spears and Lee 1994).

During the nineties the interest in different kinds of virtual environments started to grow but also these technologies were often studied from an *outside* perspective. The most apparent example of this is the strong focus on

trying to develop a method for measuring presence in virtual environments. The parameters were typically connected to how many of the senses were engaged by the system, the quality of the input to those senses and how much of the outside stimuli that was kept out (Slater 1999; Witmer and Singer 1998). To help me show how this approach is problematic I would like to cite LeValley (1997):

I danced for my cyberspace husband, whom I had recently virtually eloped with, in-world. The dancing was a delightful and deeply moving experience. I danced with a silver teapot, with a chest, with my Asian female head and with my cyberhubby's frog head (with outstretched tongue and fly) on the back of my left hand. I placed a fern on the floor of a temple room and I danced up out of it and back into it. I danced in the silence. I danced for a long time. I was fully engaged in the floating of the dance and in the act of dancing in beauty for him.

The next morning, when I awoke in my primary referential context, I remembered the dancing, not only the image of the dancing but also the sensuality of the dancing. I had sensori-motor memory of the dance. I recalled the slight movement of the air on my face as I floated up and down, up and down. I remembered the funny feeling in my tummy from this movement. I remembered the feeling of my arms outstretched with objects on my hand. I remembered the silence and the way time was suspended. I remembered both the solitariness of my self expression, in this dance, as well as my deep emotional connection to my cyberhusband. And I remembered all of this in my physical waking world body.

One might think that she has tried some new incredible virtual reality system with astonishing performance characteristics but her recollections describe an event from *Worlds Away*, a two-dimensional graphical virtual world system fairly similar in technical sophistication to *The Palace*. According to the various models for measuring presence, the above system would score poorly. Still, the experience seems so strong. I believe the answer to this paradox lies in the assumption that what Slater refers to as "the objective world" can be used as the standard for measurement. In this case, the emotional state of mind of Dr. LeValley seems to be a much more important factor than, for instance, the realism of the environment. It is also unclear what realism would entail in this case. Would the fact that her *cyberhubby* had a frog's head rather than a human head be a deal breaker, or

would the degree to which the frog's head looked like the head of a physical frog be more important?

MAKING THE CONCEPTUAL SHIFT

As the term *computer mediated communication* implies, much of the research in this field has been based on the media perspective mentioned earlier in this chapter. The context of the phenomenon has been taken to be the physical work context to which the communication mediating technology was introduced. In the early nineties the computer mediated communication research spawned a new branch as the arena perspective started to make an entry. Studies by Reid (1991), Morningstar and Farmer (1991), Curtis (1992), Dibbell (1993), Turkle (1994), and Pargman (2000) made in MUDs, IRC channels and virtual worlds began to acknowledge both that the participants perceive that the technology allows them to share a common non-physical space and that this form of social interaction offers a value in itself that makes participants spend time and effort in virtual places beyond their specific goal or purpose.

The common denominator for these studies was that the people responsible for them all had spent extensive time inside the systems they were studying, taking part in the community that they were trying to understand – and in some cases being the ones responsible for the design of them – rather than trying to operationalize parameters and measure them against face-to-face communication or properties of the physical world. The earlier studies especially, but also many of the more recent ones do not, however, really embrace the arena perspective neither methodologically nor theoretically.

Turkle (1995), for instance, made a point of always meeting the people she interviewed face-to-face at least once and Suler (1996) even provides a check-list with questions about everything from pantyhose sizes to the menstruation cycle to make use of if you want to make sure your hot cyber date really is a woman. Both Turkle and Suler equate trustworthiness with the face-to-face identity. In fact, they view virtual worlds as a simulation of “real” social interaction. Again the assumption that the virtual worlds are subordinate to the physical world lurks under the surface and severely limits

what a virtual world experience can be. In Turkle's case, the MUDs are described as an identity playground for trying out behavior in a safe environment in order to later try to benefit from these experiences in "real life." Ultimately this approach is guided by a tool perspective – in this case a psychological tool – where the virtual worlds are tools not to enhance a work-process but the individual, which means that the benefits of these systems only can be measured in reference to the participants social life in physical settings.

Turkle is one of the most influential scholars in the area of studying social interaction in virtual arenas. In *Life on the Screen* (1995) she discusses the meaning and importance of the use of MUDs. Although this work is exclusively about text-based systems and both the object of study as well as the research field has experienced significant developments since then, her work still functions as a commonly known frame of reference.

She mainly focused on the issue of identity and approached the subject from the perspective of a psychologist. She chose to describe the participants as players who played not only the games themselves but also played with their own identities and thus used the systems as a kind of self-analytical tool. The experience is framed as a simulation of real life. This framing – which is shared by her informants – of the phenomenon as something distinctly separate from our *real lives* forms a conceptual limitation to her discussion. Several times she notes that the notion of merely playing a character fits poorly with what people are really doing there. "And since many people simply choose to play aspects of themselves, MUDs can also seem like real life" (1995, 184).

The contradictions she encounters between her conceptual framework and her findings makes her question her own terminology but not to the point where she actually abandons it. The reason for this is probably that the terminology of separating virtual life from real life and framing it as gaming was very strong among the participants she interviewed – which it still is to some degree – and fitted with her wider notion of "a culture of simulation" (1995, 19) of which the MUDs were her main example.

While Turkle's work was breaking ground for a new perspective on virtual worlds, we still need a new conceptual framework in order to reach further in our understanding of their nature. I will move away from the

concept of virtual worlds as simulations towards seeing them as an expansion of our general life-world. I argue that if the arena perspective is to be taken serious, the assumption has to be that this social arena is just as real and important as any other. This entails a switch in terminology as well since acronyms like RL (*real life*) become poorly suited for denoting the difference between the physical world and the virtual world, and player (or user) often becomes a narrowing description of virtual world participants.

CAPTURING NET-LIFE

My approach to explorative studies of virtual worlds is grounded in ethnography. Ethnography is the study and systematic recording of human cultures.²⁵ The sustained presence of the ethnographer in the field setting, combined with intensive engagement with the everyday-life of the participants supports an exploratory approach in a way that for instance textual analysis does not (Hine 2000).

Ethnography generates a special kind of knowledge. According to Geertz it seeks to “reduce the puzzlement” (1993, 16) that the way other people’s ways of life can evoke. On the other hand the same method can also be used to render the familiar as exotic by applying close scrutiny to everyday situations and events in order to uncover the tacit rules, conventions, and meanings that always under the surface of social interaction (Ehn and Löwgren 1982).

Ethnographic studies are inherently subjective. The approach involves the researcher directly both in the empirical context as well as in the process of interpreting the observations. It completely lets go of the notion that there is a vantage point anywhere where contextualized human behavior can be studied objectively. Goffman even argues for the importance of personal engagement: “You’re empathetic enough—because you’ve been taking the same crap they’ve been taking—to sense what it is that they’re responding to. To me, that’s the core of observation. If you don’t get yourself in that situation, I don’t think you can do a piece of serious work” (1989, 126). This is not to say that ethnographic findings are arbitrary. The same basic rules apply as for any other kind of research. The results must be plausible

²⁵ Merriam-Webster Online <<http://www.m-w.com/>> (29 September 2003).

and non-contradictory but only within the context (as opposed to across contexts) which also means that different interpretations are of different quality. It is the method of evaluating the quality of the interpretation that is different (Geertz 1973).

A common criticism against ethnographic studies is that since the studies are about the subjective and the local, they are not contributing to a general body of knowledge that, for instance, can inform design. The defense against this argument can be divided into two parts. The first part attacks the notion that there is an alternative. If we believe that meaning is constructed locally, it can also only be observed and understood locally. This argument is not tied to ethnography in particular, instead it is a more general alternative to ideas of absolute meanings and values, and forms the foundation for most qualitative research methods (Alvesson and Sköldberg 1994).

The argument that ethnographies cannot contribute knowledge that is applicable across contexts can also be questioned. As Moore (2003) points out in a paper called *Moving from the Specific to the General – A response to skepticism towards the anthropological approach in the design process*, ethnographers also believe that it is possible to apply the understanding of local knowledge to wider contexts, or as Geertz writes, "small facts speak to large issues" (1973, 23). A good explanation to how this can work comes from Asplund (1970). He identifies the questions regarding the *meaning* of a phenomenon as a special type of question and notes that this question cannot be answered with statistics about the frequency of its occurrence or solely by the identification of the cause of its occurrence. Instead he draws parallels to the way a puzzle – for instance a droodle (see figure 16) – can be interpreted in different ways but one way is more interesting than others.²⁶ Similarly he compares research to the process of puzzle solving that the hero of a detective story normally goes through. At the heart of his argument lies the role of the researcher as someone who applies a perspective to the phenomenon. A good explanation helps others see the phenomenon in a new and interesting way. Just as the detective stories are all about the process of reaching the final conclusions, research has to account for the process that leads to the conclusions. Since Asplund is only published in Swedish, I very

²⁶ A droodle is a combination of a doodle and a riddle, a simple drawing that is intentionally hard to decipher in terms of what it depicts.

much doubt that Latour was influenced by him when he wrote *Aramis* (1996) but it is nonetheless a very good example of how a socio-technical phenomenon can be approached as a detective mystery that can be investigated following the same structure as crime novels by following leads and drawing conclusions.

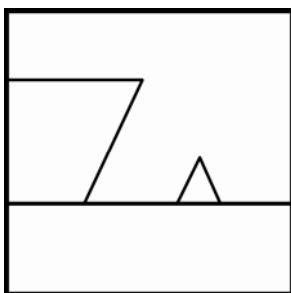


Figure 16. This doodle can be seen as very open for interpretation, but most people would agree that seeing it as a ship arriving too late to save a drowning witch is more interesting than five black lines on a white background.

These new ways of seeing a phenomenon are generalizable in the way that they can be suggested as tools or perspectives to look at completely different contexts. Later in this book I will, for instance, make use of an ethnographic study made by the sociologist Erving Goffman (1959) of a small Scottish Hebrides community in the fifties. By observing everyday social behavior such as how hosts offer different kinds of drinks to visitors depending on their status, he concludes that there is a symbolic meaning to the drinking ceremony above and beyond just enjoying the drinks and that the attainability of the beverage works as a scale for how much respect a visitor is granted. In chapter four I make use of his concept of symbolic interaction to explain the interaction between people in a virtual world. The contexts are worlds apart but the perspective Goffman derived from his study can be applied to my empirical material and help me see aspects of it that otherwise would have remained hidden. To draw a parallel with the doodle; without applying his perspective I would have seen the picture but no ship or witch.

This goes against the words of Garfinkel who states the following about ethnomethodology: “[The reported phenomena] are unavailable to the arts of designing and interpreting definitions, metaphors, models, constructions, types and ideals” (Garfinkel 1991). But as Button and Dourish point out: “many of the social ‘mechanisms’ that ethnomethodology has described are found across many different social circumstances” (1996, 6). Phenomena that Garfinkel and Sacks (1970) describe as “cohort independent” meaning social phenomena that are not tied to the scenic features of their production such as turn-taking in conversations can be seen not as context dependent but context sensitive.

The validation of these explanations – and now we are back to the issue of some interpretations actually being better than others – is both connected to how the conclusion was made, and how well it can explain something. The first issue directly involves the empirical material as a basis for evaluating the proposed explanation. For this reason, conclusions drawn from ethnographic studies always have to remain grounded in the empirical material. But no matter how well the explanation resonates with its empirical material, there is no guarantee that it can be applied to other contexts. The applicability across contexts can only be evaluated by trying and seeing if anything interesting comes out of the application of the perspective.

Thus, design implications drawn from ethnographic studies – such as those presented in this dissertation – should not be regarded as hard facts, but as potential tools. I find it reasonable to assume that by attempting to use the conclusions and reflecting on what seems to work, and what does not, adds some robustness to the perspectives. On the other hand, the practice-based part of the study has only involved people from a relatively homogenous cultural background. I am convinced that I would encounter difficulties if I would try to apply my findings to a significantly different cultural context.

Moore (2003) also notes a pitfall that deserves mentioning. In the quest for generalizable knowledge, it may be tempting to add more and more different contexts to the empirical material. This does not with any certainty lead to conclusions that are more robust across contexts. Instead the conclusions lose their indispensable grounding in their particular context. It is only in the particular that this kind of knowledge can gain its validation.

To make one last comparison with the crime puzzle novel, it is irrelevant how much material has been gathered, it is only the pieces needed to solve the particular mystery at hand that counts, the rest is potentially just as confusing as it is helpful.

The ethnographic work of Lucy Suchman (1987) has been of particular interest to me because of the way she addresses the gap between use and design of information technology. Suchman is an ethnomethodologist and there is an important difference between the underlying assumptions of ethnomethodology and the symbolic interactionism of Goffman or the symbolic anthropology of Geertz. Ethnomethodologists see the patterns and structures of social interaction and social organization as illusions of a larger order of things, rather than an indication of the existence of any rules going beyond the subject itself (Garfinkel 1967).

People act in co-ordination because they perceive the notion of an order and try to adhere to it. This seems, however, not to interfere with using findings across contexts which would have put the ethnomethodologists in the camp of the relativists. Instead I take the ethnomethodologist stance as a strong caution against believing that my findings are how things *really* are, in any kind of absolute terms.

Technalysis

Because of my interests in the interaction design aspects of virtual worlds, I have put more focus on the technological parts of these socio-technical systems than is usually done in ethnographic studies. Guiding me in this regard is the theoretical and methodological ideas developed by Michael Heim called *technalysis* (Heim 1998b), a critical but practical approach to describing and putting words to the human encounter with specific technologies. Heim has his philosophical roots within the phenomenological tradition beginning with Husserl and then, in particular, following Heidegger's branch. Phenomenology is dedicated to describing the structures of experience as they present themselves to consciousness. Heidegger, in particular, stressed that phenomenology should manifest what is hidden in ordinary, everyday experience. In *Being and Time* (1927 [tr. 1962]) he attempted to describe what he called the structure of everydayness or being-

in-the-world. For Heidegger one *is* what one *does* in the world (Mitcham 1994).

When Heim sets out to define an appropriate method for understanding our being with technology he propagates the need for an active first-person engagement as a way to achieve this understanding. “If we want to investigate the meaning of a world from a human perspective, we need to focus on the interrelations rather than the substances to understand the components of the world. It is in the acting in the world that its properties are revealed” (Heim 1998b, 90).

The first-person study of new technologies also brings to words the way our reality is transformed. Heim uses the term *technalysis* to denote our descriptions of encounters with new technology. It is important to make these encounters explicit before the technology blends into “the invisible furniture of everyday life” (Heim 1998b, 47) in order to make critical judgments about specific technologies rather than wholesale praise or rejection. At the root of *technalysis* lies a desire to understand the values of technology based on experience.

Virtual Ethnography

Virtual ethnography draws heavily on traditional ethnography (Hine 2000). There are, however, some added issues to consider when conducting participative studies in virtual worlds.

Just as a study of an office, a gym, or a disco can be approached with the focus on the interaction inside that environment without investigating what people do when they are not there, I have observed and interacted in the virtual world contexts without imposing any rules about having a name, face or anything else in the physical world to match the nicknames and avatars inside the virtual world to. In other words, I have defined the context of my studies as the virtual world itself. That does not mean that I have not gathered empirical material about the participants that belong to the physical domain, only that I do not equate reliability of the empirical material with the possibility to trace a net identity to a physical identity.

To connect back to the reasoning earlier in this chapter, my view of the virtual worlds is that they are social arenas with the same “reality status” as an office or a gym rather than simulations of life in physical arenas. I am not

primarily interested in how net-life affects the participants in other aspects of their lives. Instead, I have been trying to capture something of the nature of social interaction in the virtual worlds. If my primary interest had been in the participants themselves, and not the way they interact in these particular arenas, I would have had to admit that only studying them in their virtual context would be a severely limiting approach. On the other hand, studying the same people exclusively in physical settings would also only give a partial view of them.

I have gathered material in numerous ways, most significantly through logging the communication from virtual world visits, logging world events such as participants entering and leaving the worlds I have been owner of, taking screen shots, conducting interviews inside virtual worlds and face-to-face, capturing screen output and conversation from a speech generator to videotape, saving models and sketches, saving postings on message boards and by taking notes. By using automated techniques for gathering material it is very easy to collect large amounts of empirical data. The problem instead becomes to handle the material in a way to make it manageable. A box full of videotapes without any more information than time and place of recording is more or less useless. Just like the private investigator, the virtual ethnographer must be attentive to when something happens that can provide useful and save a retrievable record of the occurrence.

After an initial period of experimenting, a method emerged where I saved and labeled any material that I thought could be of interest, making a brief note signifying why it was interesting. What is interesting partly depends on my current frame of mind, but I have also developed a more general filter to detect potentially important incidents. This is mainly based on Yrjö Engeström's ideas that contradictions play an important role in the dynamics of human activities. Within activity theory, these contradictions are divided into different types and the types are ordered into four levels. I will not go into this theory in any detail here, but what is interesting is that these contradictions often surface as conflicts that can be observed and registered (Kuutti 1991). The break-in in the Virtual MIT House is a good example of this kind of conflict. I have also tried to find key symbols, metaphors and rituals as suggested by Ehn and Löfgren (1982).

Ethical Considerations

Since my research has involved human participants, I have had to take into consideration the risk of causing the participants any form of harm. I have followed the requirements of informing, acquiring consent, maintaining confidentiality and restricting the use of the information gathered from and about human subjects within the project as outlined by the rules and recommendations from Humanistiska och samhällsvetenskapliga forskningsrådet (1997).²⁷ The parts of the studies that have been conducted in virtual settings have, however, required some additional considerations.

Informing and acquiring consent is never possible when conducting longitudinal studies in public spaces. Whether it is the city square in Malmö or Alpha World, there will be too many people passing by to inform each and everyone of them that there is research in progress and once you realize that something said or done was of importance and will be used in reporting the study, it is generally too late to track down the person to acquire consent. The research agenda should, however, never be consciously hidden from the participants and inquiries that may arise around the content and purpose of the research should be encouraged.

In an attempt to address this problem I made a special version of my avatar in *The Palace* who holds a video camera in front of him (figure 17). Whenever I was recording the screen output to VCR I used this avatar, and it worked as intended. From time to time someone would ask me if I was actually recording. I have so far not encountered any negative reactions from the participants to any of my studies. In a few instances I have, however, noticed changes in behavior due to participants knowing they were being observed. The most noticeable was a participant who started *running commercials* by showing signs with the address to his palace world when he realized he was *on TV*.

While the above mentioned document defines personal data as all information that can be linked to a physical person, I also – as suggested by Ågren (2000) – consider nicknames used in games and virtual worlds as

²⁷ The Swedish council for research in humanities and social sciences.

personal data and always protect the participant's identity within the online community.²⁸



Figure 17. My video recording avatar for *The Palace*.

Ågren also questions the border between private and public. This is an especially problematic area since fulfilling the demands on confidentiality can conflict with the Swedish copyright law. In these cases I acknowledge the tendency among participants to treat online interaction as private communication to a higher degree than what the law predicts. In choosing between acknowledging the author's right to her own words and protecting the anonymity of informants I primarily rely on my assessment of the participant's own perceptions of whether they are acting in a private or public forum.

THE INSIDE VIEW: THE CASE OF EVERQUEST

In order to give more depth to the description of the inside view as an alternative to "snapshot" studies and "quick and dirty" ethnographies, I will use *Everquest* as an example of how the experience of being in a virtual world changes over the course of time and the implications of this on how we conceive of virtual worlds from a design perspective. In parallel I will also

²⁸ I have made up net-identities for Bart, Neo, Phrank and all the other people appearing in this book. The exception to this rule is a few instances where citing the academic work of research colleagues has "blown their cover" in which case I have called them by their given name and kept their net-identities undisclosed.

address some methodological implications of performing ethnographic studies in an environment where new levels of interacting with the world and its participants continuously reveal themselves.

I will give a description of *Everquest* from four different points in the process of progressing through the game as a player and through the empirical study as a researcher. These discreet reference points will then be connected in an attempt to reveal a richer picture of the process like qualities of studying virtual worlds. The progression through the game is individual and no two players make the same journey. Simon, Boudreau and Silverman (2006) offer a biography of their experience of *played sociality* in *Everquest* in a form that makes it a suitable companion to this section.

The Beginner Level: Everquest as a Single-player Game

To say that the *Everquest* world is vast feels like a bit of an understatement. The amount of places to visit and monsters to battle is all but endless. Almost all of this is, however, out of reach for a beginner. When a player first enters the world, it is in the designated hometown. Before the player has gained a few experience levels and acquired some basic equipment, it is impossible to venture very far beyond the city gates without falling prey to the creatures that roam the game world.

The very first obstacle that the player has to overcome is the user interface. Before being able to interact with the environment, non-player characters, or other participants, the technical aspects of interaction have to be mastered. A crucial part of this interaction is the communication with other players. All text-based communication is carried out in different chat channels. As long as the player has not selected a channel for the text input, the keys on the keyboard work as shortcuts to different commands. This means that if the player targets a non-player character and starts typing to say something to it without indicating the appropriate channel, the keystrokes will be interpreted as commands. This will in turn prove deadly if the intended message includes the character 'A' since that key by default is

set to trigger the command *auto-attack on*, and all the non-player characters in the game are powerful enough to quickly eradicate a beginner player.²⁹

After a few fatal encounters with barmaids and other non-player characters in the hometown, the player will learn to avoid at least the more devastating interaction mistakes. There will, however, still be a barrier between the beginner and the other players in the game. One important factor that keeps beginners separate from other players is the geography. While beginners cannot stray very far from the guarded cities, the more experienced players have to find other hunting grounds in order to find strong enough monsters to gain experience points from slaying them.

Besides the geographically imposed obstacles to playing the game together with more experienced players, the lack of strategic knowledge is also a problem. The abilities of different characters are designed in a way to make it beneficial for players to form groups and hunt together. The safety and efficiency of the group is dependent on the participants performing their tasks correctly and being able to efficiently communicate with the other group members. These skills take time to learn and a beginner lacks both the required knowledge and the necessary communication abilities. To accommodate for this, the developers have made it possible for all classes to easily defeat monsters on their own the first ten or so experience levels. A player who decides to start a second character will on the other hand have the required knowledge set and ties to the social networks between players to be able to immediately traverse the isolation of the beginner player (cf. Jakobsson and Taylor 2006).

After having played *Everquest* a week or so and gained around ten experience levels, I could claim to have gained first-hand experience of the object of study and my notes were full of impressions from the intense experience. Many research accounts of virtual worlds also seem to be written based on roughly this level of experience. But what had I really seen? My perception of the game was that it was a fairly repetitive hack and slash game mainly played solo in a fairly confined space. I knew there was much more of the world to explore out there and that the game was full of other players,

²⁹ Measures are continuously taken to make the system more forgiving to the beginners including a recent move of the default key for *auto-attack* from the 'A' key to the significantly less used 'Q' key.

but I had no way of knowing if the experience of being in the game world and playing the game would change significantly or if it was going to be more of essentially the same thing. The only way to experience this for myself was to continue playing.

The Intermediate Level: Everquest as a World of Personal Communities

Just like a player bursting out in a triumphant “ding” signaling that a new experience level has been reached, I remember feeling a sense of elation when I stepped into the world of interconnected personal networks that signifies participation in the world of *Everquest* at an intermediate level. In my case it was not so much a question of being rewarded after a long hard struggle, as having contacts outside the game that helped me get “connected.” In Jakobsson and Taylor (2006) we give a detailed description of the structure and importance of social networks in the game and the process of socialization. We describe the structural properties of the social networks and their similarities to the mafia as we understand its organization from popular fiction.

Everything from initiations, pledges of trust and allegiance, vows of silence and favor systems exist both in the mafia and the social networks of *Everquest*. In both cases these social constructions seem to have their origin in a need for protection in a harsh environment with limited control of law and order. Here I will concentrate on describing the way the experience of the game and the world changes as a result of the transition from being on the outside of these structures to getting inside.

While the beginner stage is passed fairly quickly, the intermediate stage will last for months, sometimes years, and ranges approximately from level twenty to sixty. For the majority of players, most of the time is spent in groups at this stage of the development of their character. A gaming session typically begins with the player spending some time looking for a group to join, or starting a group and gathering the other five players needed. These players will then pick a place to set up camp and start killing the monsters there. When a monster is killed a new one will emerge at the same spot after a set time so the group will not run out of things to kill no matter how long they stay. Normally a session lasts a couple of hours.

Although the players can move around more freely in the world at this stage, they do so to a very limited degree. Since the monsters you kill have to be on par with your own experience level to yield good experience earnings, there are only a few zones to choose from at any given experience level. The activity of camping around the same monsters for hours on end – sometimes referred to as experience grinding – might seem repetitive and even boring. But with a fairly routine task to perform to keep the development of the character in motion, the players have plenty of time to socialize with the other group members and other friends in the game. Some people have social ties to other players already when they come to the game in the form of family or friends. Others start from scratch in making friends through playing and hanging out together, and before long most players have created a social network of friends and acquaintances within the game.

From essentially being a single-player game at the outset, the gaming experience transforms into a rich social experience for the intermediate player. The game-play stays basically the same. Instead it is the context around the actual monster killing that has changed. Just as in non-game virtual worlds, it turns out that the social interaction is the very foundation for the appeal of the world. At this stage of the game, the social networks are still loose and informal for the most part. Every player has his own web of contacts primarily organized by the friends list function in the game. The players perceive belonging to a community but each player's community looks different; in other words, they are personal communities as described in Croon (1997). With continued playing this will, however, change.

The High-End Game: Organized Play

Somewhere around level fifty to sixty and after perhaps a year or so in the game, players start feeling that there is something – more specifically their epic weapon – that they are missing and that it is time to try to do something about it. All classes in the game can take on an epic quest that will result in an epic weapon as reward if it is completed successfully. The epic quests are designed to require the help of more than just a handful of

friends to complete.³⁰ Besides the monsters that need to be defeated for the epic quest, the high-end game also includes many other tasks that require a raid force of up to seventy strong players.

The personal communities that players create during their time as intermediate players are not strong enough to support the level of organization that the high-end game requires. Players who wish to engage in the high-end game have to join a guild. There are many reasons to be in a guild – such as belonging to a community and protection of the gaming experience from disruptive forces – but it is not until the high-end game that it becomes more or less a necessity. Guilds are formalized social networks managed by the players with the support of a few in-game tools. To start a guild, a minimum of ten players have to commit to joining. The person starting the guild becomes guild leader and chooses which other players to authorize as officers. The guild gets a dedicated chat channel and a tag under their names showing which guild they belong to.

The role of an officer in a guild differs depending on the size and type of guild. The larger guilds have officers dedicated to specific tasks such as organizing raids or handling recruitment while the officers of smaller guilds tend to all do a bit of everything. During this study I have been member, officer and for a few brief periods leader of a medium sized social guild with approximately sixty to eighty active players and member of a hardcore raiding guild.

In the social guild, we do not put any specific requirements on our members in terms of experience level, abilities, play time or attendance and we only raid occasionally. We do, however, require that our members adherence to our guidelines for social behavior within the game. The guidelines are posted on the guild website and cover topics of honorable and fair behavior towards other players and helping guild members in achieving their goals. We also keep a fairly strict norm on language use in the guild channel since many of the participants are combining playing with looking after their kids.

³⁰ The maximum experience level was 55 when the epic weapons were introduced. Since then the maximum level has been raised to 70 and better weapons and armor have been added which makes the original epic weapons much easier to attain. There are now quests to upgrade the epic weapon to version 1.5 and 2.0. These quests resemble the original epic quests in difficulty to a level 70 player.

As an officer in general and a guild leader in particular, the nature of play shifts dramatically from mostly minding your own business and helping others when needed, to management responsibilities that take up more time than the actual monster killing. Besides making sure that the guidelines of the guild are followed, officers spend much of their time reading up on how to tackle certain monsters, screening guild applicants, managing the guild bank and keeping the guild website in shape. Somewhere in the middle of all this, the actual killing of the monsters still works more or less the same as it did at level one but the scale and complexity of what it means to play the game has reached a level that makes the gaming experience completely different.

The downside of belonging to a social guild is that some parts of the world require persistent raiding to reach, and these zones are the ones where you can find the best items to equip your character with as well as the most interesting monster encounters. In order to make my experience of the game as complete as possible I decided to enroll in one of the most dedicated raiding guilds on the server, which meant raiding for between four and six hours every day. By making this move I went from the top of one hierarchy to the bottom of another. As an applicant I was expected to show up on time, do what I was told by the officers and members, and not cause any trouble. It felt a bit like joining the army. Despite having played the game for several years, I found that the gaming experience changed yet again in ways I had not predicted.

One reason for joining a raiding guild was that I had reached the maximum experience level and had gained enough alternate experience points to buy all the alternate abilities I saw a need for. But with the new guild as my entry pass, I was let into a new side of the game world which almost could be seen as a new game. Without getting too technical, I will try to describe this difference. The most important difference is that everything is designed for raid sized groups of players so even if unorganized players could enter these zones, there would be nothing there for them except immediate death.

As a wizard my main function in the game has always been to decimate the monsters' hit points placing me in the category of classes referred to as DPS (damage per second). For this reason I had optimized my gear and

abilities for the sole purpose of dealing the maximum amount of damage in the minimum amount of time. The risk of getting hit had never been so central since there always is a player of a “tank” class around to hide behind. But raiding on this level is different. The encounters are much more complicated than just pulling one monster after another to a camp and killing it. The raid has to deal with monsters casting detrimental spells affecting everyone in the area or the whole zone and simultaneous attacks by large numbers of uncontrollable monsters. Suddenly my main problem was to stay alive long enough to deal out even a fraction of my total damage output capacity.

From having maximized my offensive capabilities I had to start thinking much more in defensive terms. I can imagine something similar happening to soccer players when the team wins their series and they take a step up to a division where all the opponents are significantly better than the old ones and the style of play in terms of tempo and intensity changes. The ironic result for me was that while I had joined the raiding guild because I thought I had gotten all the abilities I needed and felt that my character was “done,” I suddenly had an immediate need for a whole new set of abilities of the defensive kind.

The Endgame: Players Turning Against Players

Before the first expansion for *Everquest* was released there was a very limited selection of monsters to kill at the very high-end level of the game. The guild leader of one of the first raiding guilds on one of the original *Everquest* servers told me that after having done all the other content in the game, there were only two monsters left of interest to them. It was the two dragons Lady Vox and Lord Nagafen. His guild was the first to defeat the dragons but another was not far behind. Despite a fair amount of rivalry between the two guilds they managed to stay out of trouble by taking turns killing the two dragons. The situation became more complicated when a third guild on the server became strong enough to challenge the dragons. The limited resources in the game had created a volatile situation.

At one point one of the guilds failed in an attempt to kill one of the dragons and when they came back later for a new attempt, the next guild scheduled was already there setting up for their turn. The exact details of

what happened that night may differ depending on who you ask, but everybody agrees that things got ugly. Players tried to get players from the other guild killed and the verbal exchange between the raid forces was harsh and abusive. The incident led to an outright war between the guilds and both sides lost members as a result of it.

Peace finally came when all the involved guilds agreed to follow a web-based event calendar operated by neutral players. With the aid of this calendar, guilds could make reservations for a monster they wanted to kill and the others would stay away until their turn came up. The event calendar was successful in making rival guilds share the limited resources equally. But eventually one guild decided that they were not going to honor the calendar anymore and would try to kill any of the dragons whenever they would see fit to do so. This guild could be described as a rogue guild, a guild that thrives on gaining a reputation – but not for being good and honorable but for being bad and doing whatever they feel like.

Most servers have one or a few of these guilds and they are always the source of huge amounts of discussions and complaints on the community message boards. While the majority of players harbor negative attitudes towards the rogue guilds, there are also players who are attracted by their boldness and attitude. The impact of these guilds on the servers is undisputable. Once a guild had publicly demonstrated that they were not going to honor the event calendar, the initiative was in effect dead since it required backing from all parties to work as intended.

One of the defining traits of *Everquest* is that players fight against non-player characters and not against each other as in many MUDs and other massively multiplayer online games.³¹ In the endgame, however, when the selection of attractive targets becomes scarce, the guilds tend to compete against each other. While players still cannot directly fight each other, the competition for monsters between raiding guilds can be fierce at times and disputes often lead to trash talking and open animosity between members of the rivaling guilds. Many players who initially were attracted to the game partly because of its focus on collaboration rather than direct competition are deterred by this development. Although their characters have become strong enough to pass the entry requirements for a raiding guild, some

³¹ Only one server is dedicated to player versus player in the *Everquest* universe.

players choose not to join one, thus excluding themselves from a large number of zones and even larger number of monster encounters. Others thrive under these conditions and claim that it is at this point that the game truly begins.

Researchers at the door step

In reviews of massively multiplayer online games and research presentations alike, it is very common to be given accounts of character creation, exploration of the hometown and endless killing of low-level monsters such as rats, snakes, and spiders. The problem with these descriptions of the game is that it does not capture the typical experience of the game for the people who actually play it (cf. Saarinen 2002). You only create your character once, and although you can make more characters, most players only ever make a few and put substantial play time into even fewer. Once the character is created, however, it can be developed for years within the game. By character development I do not just mean the way the statistics of the character such as experience level, skills and abilities are developed. More importantly, the social networks within the game that are slowly developed over time contribute significantly both to the possibilities of success in the game as well as a rich and rewarding gaming experience.

The experience of the game changes dramatically based on where in the process the player is. This is easily overlooked since the layers existing beyond the current position are in many ways invisible to the participant. I thought several times that I had reached a status quo where the gaming experience would not change dramatically again, only to be proven wrong by continued play. The understanding of the properties of the game world goes hand in hand with a more developed experience of the game as a player. I understand that not everyone can spend years on the same object of study and I do believe that there is a place for snapshot observations of virtual worlds. My point is rather that there are things to be seen that cannot come through any other process than acquiring an inside view. This example also shows how participants and designers continuously change what it means to be in the world. This process does not end until the world dies which means that all ethnographic studies are incomplete. In retrospect I can point out stages of partial data saturation – corresponding to the different levels

described in this example – but virtual worlds are dynamic. Whenever you leave, the process continues on.

INTERACTION DESIGN STUDIES

Throughout my virtual world studies I have engaged in designing and constructing them. This was done for several reasons. One was that I had access to more information about the interaction in the world if I also was the world owner, and I could design places that fitted specific activities. One example of this was a world called Informatikum that I built in the *Palace* universe for the specific purpose of using it in a class I was teaching on IT for communication together with Åke Grönlund but which also was used to study interaction between students and teachers during the course.



Figure 18. Early experiment in designing for avatars from The Virtual MIT House.

The main reason for conducting these activities was, however, as a part of the exploratory process. Since the reason for studying the social interaction in virtual worlds ultimately was connected to a desire to understand how to design virtual worlds, I continuously tried out different designs on people engaged in different activities and discussed and evaluated the results with participants and co-designers. In the tradition of Schön (1992) I have used the worlds that I have participated in constructing as tools to reflect on how

to design virtual worlds. This is most apparent in the Confuse project but has been a part of my way to conduct research throughout (see figure 18).

Although Schön (1987) draws parallels between experimental research and design in how both activities involve the generation of understanding through testing out ideas in relation to constructed objects and contexts, there is a wide gap between these traditions and their underlying views on knowledge generation. According to Gislén (2003) this gap can be understood as two positions inside and outside the action which lies implicit in the dichotomy of the concepts *theory* and *practice*, which etymologically can be traced back to observation versus action. While the traditional scientific approach to generating objective knowledge always has been to try to position the observer outside the studied phenomenon, the design process is characterized by involvement and change (Gislén 2003).

In the process of securing the reliability of results gained through scientific experimentation, the object of study has to be abstracted from its natural context and operationalized in order to allow quantifiable measures. This approach aims in the opposite direction compared to Schön's (1983) description of the design situation as complex, uncertain and laden with value conflicts. Following Kuhn's (1962) description of how even the shift between scientific paradigms cannot be explained without taking subjective factors into account, studies in the sociology of science have attacked the notion of the objective observer by showing how the domains of scientific discovery is heavily contextual and messy just as any other human social activity (Latour and Woolgar 1979).

When I argue for the need for an *inside view* to understand the nature of virtual worlds I do not limit that to aspects of being in these environments but also to the issues relating to designing them. To me, practice-based research is the natural counterpart to ethnographic studies within the area of design studies. As Hine (2000) points out, virtual ethnography is special in the way the studied interaction is embedded in a technological framework. She says: "To concentrate on either aspect [culture or cultural artifact] to the exclusion of the other leads to an impoverished view" (64). Nevertheless, virtual ethnographies that satisfactory balance the critical eye of the participant with the constructive hand of the designer are rare.

Due to resource constraints, it is not possible to design and construct virtual worlds in the same scale as the ones I have been participating in as an ethnographer. Everything from actual size of the world to number of simultaneous participants has to be scaled down which means that we no longer are studying the phenomenon as such but a slightly abstracted model of the phenomenon. Our approach has been to utilize existing virtual world systems where we have designed our own worlds. This alleviates much of the needed resources compared to building completely new systems. This approach, however, constrains the design by forcing us to work within the existing framework of the system. On the positive side, working within existing systems has enabled us to make use of the existing base of participants to help populate our worlds. Making use of existing systems to build on was our only way of constructing environments that were of a sufficient level of complexity and performance to work as reflective material.

SOCIAL AND TECHNOLOGICAL CONSTRUCTION

The experience of being in virtual worlds is at least as much constructed by the participants as the designers. As we will see later in this book, the participants make use of the technological properties of the systems to try to create the type of experience they want. There are of course conflicts of interests among the participants but I have found that there exists enough (unspoken) consensus among them to drive the social interaction into directions that were not, and could not, be conceived of in advance by the designers. The social adaptation and construction of virtual worlds thus parallels of previous instances of the introduction of technologies for communication such as the telephone (Fischer 1992) or in closer proximity the internet itself (Winston 1998).

By acknowledging the strong impact users and participants have on the technological systems that we incorporate in our lives, the studies that are based in the theoretical framework of social construction of technology do, however, run the risk of placing some aspects of the design of these systems in a blind spot. To say that the participants in virtual worlds actively construct their experience – often beyond the intentions of the system designers – is not to say that the system design matters less. It is also a

mistake to see the technical aspects of the system as an outer limit within which the participants operate freely. Instead the construction of the experience is a constant interaction between the technological and social characteristics of the system. Historical, contextual and motivational issues connected to designers, participants and the technology itself, all converge to form a complex web of mutual influence.

From a design perspective it is of interest to try to disentangle this web somewhat. In the tradition of contextual approaches to studies of information system such as situated action models and activity theory (see Nardi 1996 for an overview), I have paid close attention to the social context of the system but unlike for example a workplace where a new information system is introduced, in this case the context does not exist before the technology is in place.

SOCIAL INTERACTION DESIGN STUDIES

I have now described the methodological underpinnings of my two main modes of inquiry, the social interaction studies and the interaction design studies. The next step is to describe how these modes interact. In 2000 I was involved in starting up a new research studio called *Creative Environments* at The School of Arts and Communication, Malmö University. Our concept was to study professional creative practices such as architects and designers and then develop new, technology augmented environments for these practices. Together with Pelle Ehn, Lone Malmberg and others we formulated a model for the research projects in the studio (see figure 19). An example of this model in motion is the Atelier project.³²

³² The Atelier Project <<http://atelier.k3.mah.se/>> (6 dec 2005).

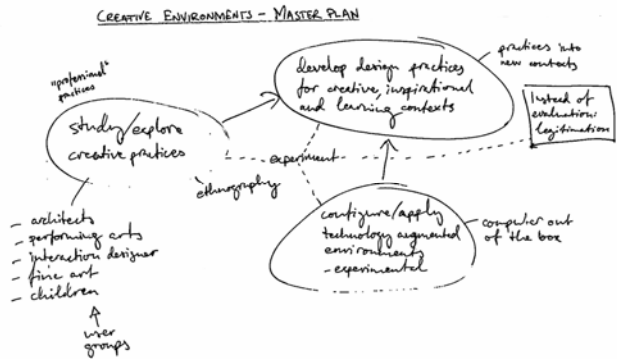


Figure 19. Sketch of the Creative Environments project model.

Besides the focus on creative environments I believe that we were describing a type of interaction design studies that is different from the way interaction design is understood in many other places by our heavy emphasis on understanding the design context. What we were formulating was a model for social interaction design studies. This model has three main stages (see figure 20).

- 1) The study of an existing social domain. Acquiring an inside view of the social dimension of the system.
- 2) Development and adaptation of the technological parts of the system.
- 3) Development of new socio-technical practices in collaboration with the participants.

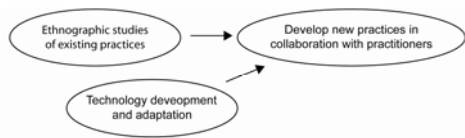


Figure 20. A model for social interaction design studies.

When this is done, the new practices become existing practices and the steps can be iterated. In practice, there are no clear borders between the three steps and conducting research according to this model entails moving back and forth between these three stages. In the Atelier project, there were a large

number of researchers involved in the process, and there were people with special competency engaged in the different stages. While I also have collaborated with other researchers, I have engaged in much smaller projects with significantly less ambitious budgets and therefore adapted more of a “do it yourself” approach. For this reason, the third stage has not led to long-term sustained socio-technical systems but rather experimental environments that have existed for months rather than years.

TWO SIDES OF THE SAME COIN

In this chapter I have defined my object of study as an *arena* for social interaction between people. I have described my method for studying these arenas through active participation both in the everyday life there and design and building of the worlds through the introduction of the concept of the *inside view*. My methodology is aimed at exploring the convergence points between two modes of understanding virtual worlds as social systems. The first is the ethnographic mode which essentially is concerned with taking the complex fabric of everyday life in these arenas and attempting to disentangle the different threads in order to see the separate processes involved a little clearer. The second is the design mode where I experiment with the different threads from the ethnography and attempt to weave them together again in different combinations in order to understand more about how they interact and work together. In the *social interaction design model*, the two modes are combined in a description of a general model for social interaction design studies.

Both as an ethnographer and as a designer I occupy myself with the particular. Just as ethnography is about digging deep into a specific context, design is about creating one specific solution out of a countless number of possibilities. While my aim is to generate more broadly applicable results, I can never, myself, grasp the universal. The possibility to generalize and apply my findings to other situations, both when it comes to how these systems work and how they should be constructed – can only be assessed by their applicability. By making the process and the reflections around the process explicit, I open up for the possibility of what Löwgren and Stolterman call “the knowledge construction culture” (2004, 2) consisting of designers,

critics, clients, and users among others, to share, debate, challenge, extend, reject or use my work.

INTERLUDE THREE

PHRANK'S STORY

When I first entered the virtual world of the massively multiplayer online game *Everquest*, I started out thinking that playing the game would be like it is described in the manual, that the most important tasks to begin with would be to do some quests to get some things to wear that slightly improved my character's statistics. I also thought I would be spending most of the time alone, fighting low level creatures for a long time before becoming of any interest to the other players of the game. Secretly I nursed a vision of finally revealing myself to the community once I had become truly powerful, similar to the way Gandalf returns in *The Lord of the Rings* (Tolkien 2002).

These expectations, however, soon proved to be based on several misconceptions. Despite first impressions of the game and indeed despite what one might gather from much of the written material, there is a more important layer of activity to consider for successful life in the world of *Everquest*. The first misconception was that it is the abilities of the character you develop within the game that is the primary deciding factor for your status within the community. While the manual for instance says "when starting a party, consider the skills of each member that you invite," factors that are not mentioned in the manual, like social ties and reputation, are at least equally important. The manual additionally advises against mentioning twentieth century technology, phenomena and customs, encouraging players to restrict their use of out of character comments. The fact of the matter is, however, that these guidelines are generally overlooked and signs of actual role-playing are few and far between which also has been pointed out by Tosca (2002) in her study of the *Everquest* speech community. Indeed, aside a designated role-play server, the *Everquest* world regularly bleeds over into the physical world, and vice versa.

While I was completely new to *Everquest* at this time, my friend and colleague T.L. Taylor was already a chastened veteran, having played the game for several years. Upon first meeting inside the game T.L. started out by handing over some items that greatly improved my abilities to kill creatures, as well as a sum of money that was very substantial compared to what I was able to earn from killing creatures at that level. This conduct is known as twinkling which I took to be a derogatory term, but when I worried that others might perceive me as a cheater, T.L. assured me that I

only had been mildly twinked compared to many other newbies. I would later realize that players even advertise that they are twinked when looking for groups and that this way of taking short-cuts in developing ones character is, in most instances, accepted within the player community. Players may express respect for untwinked characters, seeing it as a pure way of playing the game, but when it comes to choosing group partners, the well geared twinked will still be chosen first.

T.L. then informed me that there were some people that I should meet. I did not entirely understand the point of being introduced to these high-level long-time players that I was too inexperienced to hunt together with, but T.L. insisted that they were not only very nice but also very useful people to know. As she introduced me to some of her friends I slowly started to realize what this was all about. The thing that tipped me off was the way she chose to introduce me as “a RL [real life] friend” rather than just “a friend.” This distinction made me think of how the mafia supposedly introduce people as either “a friend of mine” if it is just a normal friend or “a friend of ours” if he wants to signal that the person also is a member of “the family.” As more gifts and tips about the game followed with further introductions, I started to see the importance of social networks inside the game. I saw that instead of having Gandalf as a role model, I would be closer to the mark trying to think as Tony Soprano, a present day mafia boss in New Jersey from the American TV show *The Sopranos*. In the following example, we will see how there is a gap between the rules of the game and the official means of enforcing those rules which creates a breeding ground for player-induced systems of control and protection.

A Lizard Named Phrank

Whenever a monster is killed, any member of the group that killed it can “loot” the corpse. Sometimes the looting results in a money reward, sometimes the corpse holds items that the looter can take possession of. The money from the monster is automatically divided equally between the characters in the group but items are not as easily shared. The group members have to agree on a looting scheme and then trust everyone to stick

with it. These schemes range all the way from free (or casual) looting to fairly complicated procedures.³³



Figure 21. A giant with a sword.

On the occasion in question, we had decided to loot freely but let the built in randomizer decide who would get more valuable items – a procedure known as *rolling*. The hunt progressed nicely with the exception of an Iksar – a species of lizard people – named Phrank who was a bit too hot on looting, sometimes rolling several times on the same item and at one point claiming he had rolled a very high number while being out of range from the rest of the group and demanding that it still should count.³⁴ At the place where we were hunting, a fort with giants, the good items are mainly made up of the big weapons that some of the giants are equipped with (see figure 21). These items can be sold to the non-player vendors for up to fifty platinum pieces, which is good money for a medium experienced player. But there is one item that clearly stands out among the others. The forest loop is an earring which increases the wisdom of the character who wears it. It is an infrequent *drop* and can be sold for several hundred platinum pieces.

Needless to say, we got very excited upon seeing the message broadcast to the group that Phrank was looting one of these precious loops. Everybody held their breath and pushed their roll buttons. A female cleric who had

³³ See for instance the Dragon Kill Point system originally developed by the Everquest guild Afterlife but now used by many guilds in many games in different variations <<http://www.afterlifeguild.org/template.cgi?page=dkp>> (15 March 2006).

³⁴ Phrank is a pseudonym. If there should happen to be a character with this name in Everquest, he is in no way associated with this episode.

been unlucky so far that day came out victorious and we all cheered her good fortune when it suddenly happened. Instead of handing over the earring Phrank went link dead. This occurs when a player loses the network connection and therefore gets logged out of the system. In this case, however, we all immediately suspected that Phrank had typed the `exit` command or simply pulled the modem cord from his computer and that he would not come back and hand over his ill-gotten loot. In a situation like this it is possible send a petition to a game master asking for assistance in sorting out the situation, but they are notoriously hard to get hold of so it may take a very long time before a petition is answered. Even if a game master replies, it may be hard to prove exactly what has happened and that the offense is grave enough to render retribution. In the long list of petitions that get sent in, we all knew that ours would rank fairly low.

While Phrank benefited in the short-term from his scam, the question is if he understood the larger repercussions for this kind of action. Needless to say, none of the members is ever likely to invite Phrank into a group again except perhaps for the chance to punish him. Several members also took the time to inform their guild mates that this character not was to be trusted and would certainly put in their veto if Phrank would ever apply to join their guild. While Phrank managed to give us the slip, he would eventually be caught by the invisible web of social networks existing between the players. While he would never be directly punished for his crime, he would face exclusion from the player community, a severe sentencing in a world where who you know means everything.

In the absence of potent enforcement of law and order – not unlike what the situation in Sicily has been historically (Lappalainen 1993) – the issue of trust becomes central. Alternative methods of policing, punishment and enforcement emerge. Reputation systems come to fill an important role in an unsafe environment where the participants are left to their own devices in protecting their everyday gaming experience.

CHAPTER FOUR

UNDERSTANDING SOCIAL INTERACTION IN VIRTUAL WORLDS

INVESTIGATING THE PROPERTIES OF SOCIAL INTERACTION

This chapter investigates the primary building material for a social interaction designer, the structures of social interaction. Löwgren and Stolterman (2005) talk about digital technology as a material without qualities. They do not deny that digital artifacts have properties that we have come to associate with this material such as their affordance of many-to-many communication, but they point out that these qualities are constantly challenged and redefined by new technological breakthroughs and innovations. This puts designers of socio-technical systems built on digital technology in a particularly complicated situation. The openness of the design space puts a great responsibility in the hands of the designer (Löwgren and Stolterman 2005).

While Löwgren and Stolterman see technology as the building material for an interaction designer, I will develop a design perspective that places the participants in focus. If we see the structures of social interaction as the fundamental building material, it follows that the designer needs to have thorough knowledge about the qualities of these interaction processes. If we look at Garfinkel, Geertz or Goffman, the focus of ethnographic studies is always on the patterns and structures of social interaction and social organization which leads me to believe that ethnographic investigation is key in understanding this design material.

In this chapter – as well as in the preceding interludes – I will present and discuss the empirical material from my ethnographic studies in three virtual world systems, *The Palace*, *Active Worlds* and *Everquest*. The interludes represent samples of my empirical material which I have chosen because they contain examples of many of the issues related to social interaction in virtual worlds that I wish to discuss. This chapter is ordered by themes rather than by different systems or chronologically. Thematization is a method both for uncovering meaning in cultural analysis (Ehn and Löfgren 1982) and a way of conveying the findings. The themes have emerged in the iterative process of conducting studies and reporting my findings.

I will start out by describing the commonly held view of the internet at the time of the outset of this project as a vacuous non-place without

structures, identities or bodies. I will then argue that by engaging in virtual worlds, another picture emerges that contradicts this view. Throughout the chapter I will describe how we fill the virtual worlds with all the ingredients of a social context.

Since I am interested in bringing something with me from the ethnographic studies to the design part following in chapter five, I have tried to see the social interaction structures as a building material in the design process. I have therefore chosen themes that connect to the materiality of virtual worlds. By giving weight and size to virtual entities, I try to open up for a different way of conceptualizing the virtual than being in opposition to the real and a different way of evaluating the virtual than measuring it against the physical.

The theme of weight and size leads me to the concepts of *levity* and *proximity*. Through the concept of levity, I will try to pinpoint a general characteristic of social interaction in virtual worlds and discuss the components involved in its emergence. In my analysis of proximity, I will give a picture of the way distance is transformed and plays an important role in creating the unique characteristics of social interaction in virtual worlds.

My goals for this chapter are the following: To present a “slice of life” from these worlds – what Geertz (1973) calls a thick description – in order to give insight into the way they operate, to formulate concepts that can work as keys to understanding social interaction in other virtual arenas, and to offer these concepts as tools for social interaction design. This chapter also aims to serve as an example of the ethnographic study of an existing practice in the model of social interaction design studies presented in chapter three.

SOCIAL VACUUM?

I will begin my inquiry into the social structures of virtual worlds with a closer look at the ideas permeating both research and social consciousness at the time when virtual worlds first entered the scene back in the early nineties. The strongest of these ideas was probably the one that we all somehow would become equal on the net. At that time this idea seemed to dominate the public debate concerning the nature of computer mediated communication. A cartoon on the subject published in *The New Yorker* in

1993 (see figure 22) is probably one of the best known Internet jokes of all time.



Figure 22. Internet, the end of identity? (Source: The New Yorker)

When tracing the academic source of this idea I came across the equalization model, which received substantial attention within the computer mediated communication research community during the first half of the nineties (see Spears and Lea (1994) for an overview). The term was used to denote the aggregate of studies within social psychology that indicated that computer mediated communication in general seemed to have a tendency to alleviate participants from the restrictions of social barriers and hierarchies based on for instance imbalanced power relations or group pressure.

During this period there was also an upheaval of postmodern or post structural perspectives that lean towards a world view where there are no absolute concepts or values beyond "the text," which strongly implies that computer mediated communication systems are technologies for nearly unrestricted experimentation with identity and reinvention of self. Multiple

or fluid identities have been discussed by, for instance, Stone (1991: 1995) and Turkle (1994; 1995).

At a grander scale, the *network idealists* often referred to properties of electronic network communication in general – and the internet in particular – such as the decentralized control and anonymity as guarantors for free speech and privacy.³⁵ See for example Hafner (1997, 100) or the following quote from Rheingold (1993):

Information can take so many alternative routes when one of the nodes of the network is removed that the Net is almost immortally flexible. It is this flexibility that CMC telecom pioneer John Gilmore referred to when he said, “The Net interprets censorship as damage and routes around it.” This way of passing information and communication around a network as a distributed resource with no central control manifested in the rapid growth of the anarchic global conversation known as Usenet. This invention of distributed conversation that flows around obstacles—a grassroots adaptation of a technology originally designed as a doomsday weapon—might turn out to be as important in the long run as the hardware and software inventions that made it possible.

Another influential idea about network communication was that cyberspace was a place where time and space no longer mattered. You could now access information or communicate from anywhere to anywhere at any time. Together, these ideas signaled to the network idealists that a new era was upon us where all our assumptions about who we are and what the world is had to be formed anew.

The *naïve realists* on the other hand were worried. The head of the Swedish Data Inspection Board at the time coined the phrase “modems are problems” (Bondestham 1994) which pretty much summed up their position.³⁶ Some, like Clifford Stoll the author of *The Cuckoo’s Egg* (1990) even “switched sides” when the gap between the hype and reality grew too big and the following book *Silicon Snake Oil* (Stoll 1995) was nothing less than an extensive rant about the problems and dangers of the internet.

Social accountability was claimed to have been eradicated through the disappearance of identity, and a social vacuum was implied through claims

³⁵ The terms network idealist and naïve realist are borrowed from Michael Heim (1998:2).

³⁶ To her defence I should point out that it rhymes better in Swedish.

of the disappearance of social hierarchies as the fundamental mechanism of social order. In hindsight it seems trivial to point out that just like we have constructed the rules of conduct in the physical world, incorporating issues of trust, responsibility and ethical values, we will recreate them wherever we see a need to do so. The remainder of this chapter investigates why, how, and with what we fill this social space.

EQUALIZATION?

The equalization model provides an entry point to the question of what it is that attracts so many people to spend so much time in virtual worlds. The person called Bart in the story of Bill was enchanted by *The Palace* to a degree where ordinary life seemed dull and boring in comparison. I do not know very much about the person behind the net-identity of Bart, but my guess is that the degree of attention and appreciation he got from not just his “peers” but – thanks to the equalization effect – also from people outside his normal social sphere played a part in his infatuation with *The Palace*.

The equalization model also seems to apply to the friendship between me and Vicki. It is hard to say what would have happened if we had met in a physical setting rather than a virtual world. The fact that Vicki at the time was a student and I was a teacher, the age and gender differences, and her quadriplegia, are all factors which would have made it less likely that we would connect in the way we did. We cannot really tell if we would have “hit it off” in person since we have never met physically, but we can say with certainty that our net identities are very compatible. It does not matter that we know about these differences between us. It seems that the net-based interaction has an inherent effect of de-emphasizing them.

The same phenomenon was apparent when I experimented with using *The Palace* in an undergraduate education setting. We used it on an ordinary campus course and alternated meetings in *The Palace* with fact-to-face meetings. One of the virtual meeting arenas was the “coffee room” where the students and teachers could hang out and chat. Although the same effect was apparent in all the virtual settings, the coffee room was a particularly potent status leveler. The students told dirty jokes and were in general much more

outspoken and cheerful compared to what I have experienced during coffee breaks together with students in physical settings.

In *Everquest*, this manifests itself in the way guilds often are made up of people of different ages and backgrounds that rarely would spend significant time socializing in any physical context. While this is generally seen as something positive, there are frequent complaints from older players about the *kids* being overly energetic, unattentative to detail, and unreflective in their style of playing.



Figure 23. A movie quiz games with colleagues from the department.

The equalization also worked in the other direction, from me and upwards in the academic hierarchy. At the time when I started doing participatory observations in *The Palace* I was fairly new as a PhD student. In the physical coffee room I was fairly quiet and observing, trying to “learn” how to behave in this context, but when I occasionally arranged some recreational activities in my palace as part of my research, I suddenly became the center of attention (see figure 23).

Suddenly I was the one setting the rules and those who did not obey me got a dose of the wrath of god (me). Compared to, for instance, a department seminar, things were turned upside-down. As a young doctoral

student I would ordinarily keep a low profile on those occasions just as I did in the coffee room, but in this environment I felt right at home and tended to dominate the meetings, while the senior researchers who often do much of the talking in the seminars kept a low profile or did not participate at all.

The mood of the meetings was also noticeably relaxed and at times even mischievous. I particularly remember one time when there was something wrong with the computer network at the department which stopped us from having the planned activity, a music quiz. In the absence of an organized activity we were just chatting about, among other things, how disappointed we were in the system administration for not having fixed the problem in time. At one point someone said "If he was here right now I'd..." or something to that effect, whereupon I of course conjured up a mock avatar in the shape of a little devil with the first name of the responsible system administrator. We then proceeded to let out our frustration towards the defenseless little devil both verbally and by zapping him with laser beams.

This little episode may seem puzzling and perhaps even slightly disturbing to anyone who was not present at the time. Laser beam zapping is certainly no way to treat a co-worker. To make sense of the episode we will have to adopt an inside perspective. Apparently there is something more than just status equalization at work here. Heim talks about the possibility for having less gravity in virtual worlds which "transforms routine activities through fun and playfulness" (1998a, 3). This lightness is not considered in the computer mediated communication literature as far as I can find. I can see two reasons for this. First of all it probably falls outside the focus of these studies since its connection to work-related task solving is not immediately evident. Secondly, the systems and use situations that have been studied have been of a kind where this effect becomes less prominent. The behavior was reliant on a shared trust that everybody involved understood that the displays of hostility were all part of a joke, a trust that could only develop between people who have known each other for some time.

CONSTRUCTING STRUCTURES

Although the equalization model has provided some help in understanding what it is that attracts people to spend time in virtual worlds, it has also

proved limited for understanding the social interaction. There is a discrepancy between the contexts used in those studies and the virtual worlds I have looked at. Another problem is that the studies that the equalization model is based on – like so many computer mediated communication studies – are not longitudinal. Socialization processes are slow by nature and need time to develop, thus also demanding time to be studied properly.

In my search for what it is that makes the participation in virtual worlds meaningful to those involved, the next question becomes: How can the participants protect the integrity of their experience? To say that Bart found himself accepted by people he normally would not socialize with because of the equalization effect is only the beginning of the story. Bart apparently desired the possibility of getting elevated to a new level of social status by becoming a wizard. So let us take a look at how and why social status is constructed in virtual worlds.

The Palace has hierarchies built into its very core with the categorization of participants into the four different classes: guests, members, wizards and gods. By paying the membership fee – or, which is more likely in Bart's case, getting his parents to pay it since the procedure required a credit card – Bart received the privilege of using a custom avatar instead of the generic smiley. He could also put his nickname in the nametag instead of having it say 'Guest' followed by a number that changed with each session.

The social imbalance between members and guests was very palpable in everyday interaction in *The Palace*. If you asked a member if he or she looked down on guests the answer would almost invariably be *no*, and some members really went out of their way to make guests feel welcome and involve them in the community. But my observations of everyday interaction also unveiled another picture. This example is taken from Harry's Bar, one of the most popular hangouts in The Mansion. It shows a guest that turns against the members, possibly after spending some time trying to get into the ongoing conversations but failing to attract much attention. This was a fairly common situation but this particular guest chose me as his target which granted him or her a place in my dissertation:

Guest 792	You look stupid
Guest 792	mjson
mjson	back (i think i heard my name)

Guest 792 HelloThis guy SUCKS

Guest 792 Hey buddy ...

Guest 792 mjson

mjson yes 92?

Guest 792 You look stupid

Potter (a wizard) enters, paged by one of the members.

Guest 792 mjon

Voldemort :just what we need....another rude guest....

By putting a ':' in front of the message it is made to appear in a thought bubble instead of a speech bubble.

Guest 792 mjson

mjson wel you look reeeally intelligent 792

Potter@ who is being rude?

The @ sign after the name designates Potter's status as wizard.

Guest 792 How old are u stupid man ?

Potter@ clean up that attitude please 772

mjson i can't count far enough (being stupid 'n all)

Hagrid :Dumbledore is right... It must be a full moon

Guest 792 You don't type very fast, buddy...

mjson or wimbledon, hagrid

Guest 792 I'm sure you are a small 12 years old stupid little boy

Guest 792 buudy

mjson well if you're so sure why do you ask?

Guest 792 I want to kick you

mjson go ahead (make you're day)

Guest 792 I'm sure you don't have any friends at school, or ??

mjson well if you're so sure why do you ask?

Guest 792 With your ass face ??

Guest 792 don't you ?

Guest 792 Repeat please

Potter pins Guest 792.

mjson thanx

Potter@ Clean up your act 792

Guest 792 What are you doing

Ron :bout time

Neville i see they're sending the guests to you for lunch again heheh

Voldemort :and it looks like.....YES! 792 is pinned!

Guest 792 ^help

A '^' before the message makes it appear on a square sign.

Voldemort :he looks down for the count folks.....

Potter@ unless you behave 792 you will be pinned

Guest 792 ^save ME

Neville how are the iron face shackles 792
 Malfoy Not likely !
 Neville enjoying the rust particles in the eyes?
 Hermione repent 792

Potter unpins Guest 792.

mjson enjoyed that?
 Guest 792 VERY funny
 Potter@ not ment to be funny
 Potter@ 792
 Wormtail Hi Random Angry Guest 792
 Hermione careful 792
 Hagrid It could get funnier hehhe
 Potter@ either you keep cool in here or you go
 Hermione potter=my hero
 mjson everybodys hero
 Guest 792 Where do u live (so I can burn...)
 Hermione bye 792

Guest 792 is killed by Potter.

Members would commonly refer to guests as *tennis balls* and sometimes complain about the guests to other members. A popular gag among the members was to bring out a tennis racket prop if there were guests around that they found annoying, thus signaling that they would like to alleviate the room of a guest with a forehand towards the exit, had it been possible.

Sometimes, like in this instance, wizards were summoned to take care of guests that behaved annoying. A wizard would normally try to talk the guest into stopping the annoying behavior, and if that did not work the wizard would gag the guest for a while – which meant that the guest would be unable to speak – if the annoying behavior had been chat related, or pin the guest – which would render the guest immobile – if the complaint was movement related. (Quickly moving around in the room would create lag for the others.) If the guest did not start behaving better after this punishment, he or she would be killed by the wizard, meaning that the guest was logged off from the system. The rules concerning social conduct were the same for all participants but this kind of subversive behavior was mostly carried out by guests.

I believe that much of the social gap between guests and members grew out of the fact that guests could not establish a persistent identity. I will return to the issue of net-identity versus anonymity later in this chapter but

for now it will be enough to point out that while the members who convened in Harry's Bar on more or less a daily basis grew to know each other both by name and by appearance, guests remained strangers since the system did not allow them to attain any persistent characteristics. In this way you might have an interesting conversation with a guest one day but you would not be able to look for him or her the next. This led to a general air of disinterest in whatever a guest would have to say which the guests sensed and sometimes reacted violently against.

In connection to the discussion of the social gap between guests and members it is interesting to note that a place called Member's Palace was introduced by the owners of *The Palace*. There is perhaps nothing controversial about creating a service that is exclusively for the paying customers, but in a context like this which is modeled after our culture's societal structures, the Member's Palace could be seen as something similar to a gated community enforcing segregation. Even among the Member's who frequented Member's Palace there were concerns about whether it was good to have this kind of exclusive venues.

The categorization of participants in *The Palace* served different purposes from the viewpoint of the designers. The member and guest categories were connected to possible business models, although the company later discarded the membership fee and tried an alternative way to create revenue from commercial banners before finally going out of business.³⁷ The wizard and god categories were more related to issues of community management. Although the terminology was clearly inspired by role-playing MUD worlds, there was no game progression criteria connected to becoming a wizard or a god. Instead, access to technology was the basis for this hierarchy. To become a god, you simply had to start your own server. The server software was free, but to create a world that attracted participants it needed to be run on a fast computer with a fast and permanent connection to the internet. At the end of the last decade, access to this kind of technological resources was rare and – as I will discuss in detail later – limited resources are the things that social status is made of.

³⁷ When the new business model was introduced, participants only had to register to become members.

After starting a world, it was up to the god to appoint wizards by letting them know the wizard password. The wizards could then, besides using the pin, gag and kill commands mentioned earlier, also create new rooms, and edit or delete old rooms, among other things. A wizard could do everything a god could do except shutting the world down and changing the passwords. In my palace, the process of appointing wizards was rather haphazard but in a place like *The Mansion* for instance, it was very different. To become a wizard you would first have to join *the mage* – a group of volunteers arranging different kinds of activities without being granted any special authority. Then you might become a wizard if the other wizards thought you were doing a good job and seemed to be suited for the task.

These categories were used by the participants to create social hierarchies among themselves. There is nothing in the guidelines for social conduct in *The Palace* – that incidentally are placed as an appendix to the technical client software manual – that implies that the different participant categories also should form a social hierarchy. Instead it seems that a need for a stratification of social roles emerged together with a shared sense of community. The participant categories provide an obvious “tool” for creating social hierarchies. But I do not think that this particular feature of the technological system played a decisive role in the emergence of a social hierarchy.

Following Goffman (1959), we can think of social hierarchies as self-governed emergent systems to promote social values. The re-emergence of social hierarchies is almost self-evident once the inside view has been established. Since we deal with real people interacting with each other, if someone is rude or irritating we will be as annoyed or offended by that person as we would have been in a physical environment, and if someone tears down your house, you will still want to see that person punished even if the house was virtual.

In this respect the lightness can become problematic since it can make people behave irresponsible and *forget* that they actually interact with real people with real feelings. Bart and Lisa almost felt as they were taking part in a fictional drama, while I saw hours of work go to waste and felt personally offended by the incident. Another famous example of conflicting perceptions of the weight of actions is the infamous virtual rape in *LambdaMOO*

discussed by Dibbell (1998). In the case of *Everquest*, there is also a risk of participants utilizing the properties of the system for cheating as in the case of Phrank.

Both in the case of Bart and Phrank, we can see that the perceived anonymity and fictional context can lead to irresponsible behavior. This, in turn, threatens the quality of the experience of the other participants so if anything, the properties of the medium enhances the need for stability in the social interaction to uphold standards of conduct that the participants agree are appropriate. There are also other reasons for structuring the social interaction. Social status plays an important role in the group and community dynamics in the virtual worlds and climbing the social ladder gives a sense of self-fulfillment in and of itself.

CONSTRUCTING STATUS

According to Goffman (1959), social relationships are formed by adopting consistent behaviors over time, and social roles are taken on by enacting the rights and duties attached to that role. When we strive for higher social status, we also accept a stratification of the social structure and develop respect towards those who have reached higher levels. The foundation of the social system is a shared consensus regarding fundamental values, and an assumption that the higher levels of status converge with that set of values.

Forty years later, and in a context Goffman hardly could have envisioned, this description of social relations and the role of status in hierarchies is still valid in describing the social interaction in virtual worlds, and it is as important in understanding virtual communities as it is in any ordinary community. What is new is that the criteria have changed. The change of value set comes from a shift of focus in the interaction in general. The virtual worlds I have studied offer leisure and relaxation. They also offer a new place where it is possible to set a new agenda offering an alternative to existing venues.

This means that people want to focus on different things than they do otherwise. People who come to wind down after work want to talk about most anything except work and people who do not have a job thrive in a situation where that is not an issue and even works as a benefit. Not having a

job, whether it is from disease, injury, age, taking care of children and household, or just plain unemployment, often opens up a possibility to invest large amounts of time in the virtual world. This way the virtual world can offer a kind of alternate career opportunity in terms of social status. I use work as an example because it is a major factor in establishing social status in other places. Another factor that decreases in importance is wealth. Money is a major status factor in the physical world where it also is very visible. This goes for virtual worlds too, but the factors for what constitutes wealth are different. This log extract comes from *Everquest*. I and T.L. Taylor who both play gnomes are chatting with a dwarf, another of the short races:

Dwarf I will only have same races
Dwarf Never and big races
TL I like having the exact opposite from [my gnome] though - barbarian warrior :)
Dwarf I have a dwarf warrior and had a rogue halfling
TL Heh, as far as short people go, i'd never have anything but gnomes. the others are too ugly! sorry [dwarf] :)
Dwarf I have found out that small races are liked more places then big people
TL Oh? interesting. yeah, being a gnome necro is a good combination. makes life much easier
MJ but still we get stepped on a lot more :)
Dwarf I only wanted to have an alt [secondary character] for awhile he is a STD
TL Lol and sat on :P
Dwarf Yeah
Dwarf And jumped on :([name of Ogre friend] fault
TL A what [dwarf]?
TL Lol yup
Dwarf A STD super twinked dwarf
STD is normally understood as the acronym for sexually transmitted disease.
TL Heh, ah.
MJ heh
TL Will have to remember that one
MJ me too
Dwarf My uncle said i was that and i got laughed at by him so i stoped his moeny source for awhile

Similar to the physical world, being short can pose a status problem in virtual worlds. Being sat on or kicked around by bigger races can be

annoying at times, but the young dwarf has found that by acquiring substantial monetary resources in the game, he can keep his uncle at bay. By having the opportunity to spend more time on the game than his grown up relatives – seven or eight of his family members and relatives were playing the game at the time of the interview – he had elevated his status by keeping some of them on a payroll and withholding the funding if they disrespect him in any way.

As I have argued earlier, the interaction in virtual worlds is real interaction with real emotions and real consequences. This does not make the worlds themselves real. I would, however, also like to argue that the environments and inanimate objects of a virtual world are best thought of as real as objects. Let us take one of those beers that Bill the bartender used to serve in The Virtual MIT House before his untimely demise as an example. Although we will not get less thirsty, and we will not get drunk, buying someone a beer has social significance. It might serve as an invitation to a conversation, or a sign of gratitude or friendship. It does not matter so much that we do not have to sacrifice any money to buy a virtual beer, it is still precious to have someone engaging in the symbolic act of ordering a beer and handing it over to you in a bar. The meaning of that act is also conveyed in a virtual bar. Although the beer does not cost anything, the laws of inflation still work. If you order beers for everybody who enters Bill's bar, its symbolic value will be deflated, but if you instead take the time to design a custom-made drink and offer this to someone, the gesture will be more potent than offering a generic drink.

In *Everquest*, the designers have taken this to heart by designing the rewards for long and successful gaming in the form of accessories that send very clear status signals to the other participants. The goal of this design decision is to make gamers play over as long time as possible since they pay a monthly subscription fee. This is accomplished by introducing items that are hard to get hold of. One way of doing this is to make it expensive. The horses (see figure 23) are a good example. The most basic horse costs almost 10,000 platinum pieces.³⁸ To be able to get that kind of money, a person will have to play for up to a year. When horses first appeared in the game

³⁸ EQ Stratics <<http://eq.stratics.com/content/gameplay/guides/horses.shtml>> (16 March 2006).

they would cause a great deal of envy and awe from the other players. The problem was only that over time the population has grown more experienced and money has become easier to come by to a point where most players can afford horses, which in turn has diminished their function as status symbols.



Figure 23. A gnome in *Everquest* on her suitably pony sized horse.

Another way to make items desired for their symbolic significance is to make the process of getting them difficult. Besides buying items or looting them from defeated monsters, a player can also acquire items as the result of completing quests. Each class in the game has their own epic quest that will result in an epic weapon. The epic quest normally takes a long time to accomplish and requires not only that the player getting the weapon is of a high experience level, but that she has a number of high level companions that are willing to put time and effort into helping complete the quest. The item a character is awarded for completing the epic quest cannot be handed over or sold between players and thus very clearly signals the status of the character carrying it.

Just as money has become easier to come by over time, monsters also get easier to kill as the quality of available equipment, weapons and spells improves and the maximum experience level is raised.³⁹ This means that some of the original epic quests now can be completed by a single player. The way the designers have dealt with this is to introduce *upgrades* to the original epic weapons. There is now an epic 1.5 and a 2.0 for each class and especially the 2.0 is still hard enough to acquire to appropriately impress most other participants (see figure 25).



Figure 25. A gnome wizard holding his epic wand 1.5.

A beer in *The Palace* or a horse in *Everquest* have different characteristics from their physical counterparts, but both carry real symbolic meaning. The symbolic significance is also important in the use of physical objects. We frequently use objects as tools to try to convey a desired image of ourselves to people around us. Goffman (1959) refers to objects used in this manner as sign-equipment. In the following passage, different types of beverages send

³⁹ The maximum experience level of a character was 50 at the launch of *Everquest* and is up to 70 at the time of this writing.

different messages. Note how the limited supply is a deciding factor in the effect of the sign-equipment, just like in *The Palace* or *Everquest*.

Thus, in the crofting community studied by the writer, hosts often marked the visit of a friend by offering him a shot of hard liquor, a glass of wine, some home-made brew or a cup of tea. The higher the rank or temporary ceremonial status of the visitor, the more likely he was to receive an offering near the liquor end of the continuum. Now one problem associated with this range of sign-equipment was that some crofters could not afford to keep a bottle of hard liquor, so that wine tended to be the most indulgent gesture they could employ. (29)

Sometimes the symbolic meaning of the sign-equipment differs between participants. As I mentioned in Vicki's Story, I am aware of the symbolic meaning of red roses (duh), but I did not think that it would carry over as strongly as it did into a virtual setting. What I think is the most interesting aspect of the example with the rose is that it meant the most not to the giver or the receiver of the rose, but to my girlfriend at the time. To me and Vicki, the giving and receiving of props was an integral part of everyday being in the palace. Occasionally, either of us might produce a new prop and place it on the other. Other times we would exchange gifts of wine glasses, teddy bears or whatever else we had laid our hands on while prop scavenging. This exchange of gifts was one of the many things we would not do if our meetings had occurred in a physical environment, partly because neither of us carry around a magical briefcase full of wineglasses and teddy bears, partly because neither of us would have appreciated if someone were giving either of our partners that kind of gifts (see figure 26).



Figure 26. Props for social sign-language. Some of the content of my briefcase in *The Palace*.

When I told my girlfriend that I had given Vicki a rose, it became clear that the distinction I made between giving a virtual and a physical rose was

problematic. I am sure that if my girlfriend had been a palace participant herself, she would not be the least bit bothered by it, but since she was on the outside, the technology became a shield between us. Although I still physically was there in our apartment, she could see me disappearing to some distant place that she did not have access to and did not understand.

The technology became a barrier that distanced us from each other in our everyday life, and the distance opened up for new interpretations of the meaning of the rose. It became threatening in a way similar to how the unexplained and unseen often is the most threatening in scary movies. As often is the case with actions imbued with symbolic meanings, it was not only the people engaged in the transaction that were affected by it. The effects of the action even reached beyond the confines of the virtual world the action took place in.

The beer, the horse and the rose make it clear how sign-equipment can convey important meaning and messages despite being virtual. Just because they cannot be touched by a physical hand, or located in physical space does not stop them from influencing us. In *The Palace* and in *Everquest*, the objects play a central role as carriers of socially inscribed meanings. The system with objects that can be shared – and in the case of *The Palace* custom-made – fills a function in the ongoing construction of social life.

The guilds in *Everquest* also play a role in building social hierarchies. Guilds are supported by the system, but it is on the guild websites – that are managed by the guilds without any in-game support – where the guilds can really profile themselves in terms of what it means socially and status-wise to belong to that particular guild. The most obvious examples are the so called *uber guilds* that only take on the most dedicated and experienced players and specialize in fighting monsters that are too hard for almost all other guilds in the game. Much of the material on the websites signals which norms they value and how good the guild is measured in terms of these norms. People applying to become guild members are put under detailed scrutiny by the other members both on the guild sites and inside the game.



Figure 27. An *Everquest* character with guild tag showing.

It is interesting to note that even in the uber guilds, much of the discussion about the applicants concern other things than their gaming skills such as if they are fun to be with, honorable players and even how attractive they are (referring to their avatars). Inside the game, a player that belongs to a guild can make the name of the guild visible to other players below the player name (see figure 27). The guild tag thus becomes sign-equipment used by participants to tell their environment something about their status (see Jakobsson and Taylor 2006 for a more in-depth discussion).

The raw material for the sign-equipment is different from world to world. In *The Palace* it is things like the props and the avatars that are used to convey messages about social status, in *Everquest*, guild tags, weapons and other accessories fill the same function. The use of sign-equipment is not confined to virtual worlds with objects that can be handled by the participants. It seems that participants always find ways to express such things as friendships, belonging to groups and position in social hierarchies. It can for instance be done through cues in text-based communication (cf. Sveningsson 2001) or by creating external arenas such as websites.

The kind of raw material that is available for constructing sign-equipment within the world is, however, in no way arbitrary. Different designs will lead to different kinds of experiences for the participants

although the ways meaning is constructed by the participants can be very hard to predict in advance. Some design decisions seem more dictating than others. For instance, if you introduce a functional monetary system, trading will most likely be an integral part of everyday life in that world and owning expensive objects will be connected to achieving status within that world. That is the case in *Everquest* where I think it is fair to say that status and respect – at least of the shallow kind – within the community is up for sale for anyone who has enough platinum pieces to spare. This makes sense since there is a clear connection between being a successful and experienced player and having substantial monetary resources. It is also an important factor in the success of the game. The gratification of belonging to the higher strata of the society of *Everquest* players is for many players a major driving force behind pouring both time and money into playing the game. So far this is perfectly in line with the designer's intentions but it does not stop there.

Despite efforts from *Sony Online Entertainment*, the publisher of *Everquest*, the trading of *Everquest* accounts and items for real money is widely spread practice on the net known as *ebaying*.⁴⁰ This trading can take many forms but what it comes down to is that items that command a certain price within the game can also be sold on the net for real money. By comparing the prices in-game with the prices on the web, it is even possible to establish an exchange rate between platinum pieces and any other currency (Castronova 2001). The *Everquest* item trading can simply be seen as a way of cheating, which would justify the efforts from *Sony* to put a stop to it, and according to a survey on one of the most popular *Everquest* player sites *Allakhazam* this is the dominating understanding of the phenomenon among the players.⁴¹ But it is also a good example of how the participants in a virtual world take the existing design and takes it in directions that go beyond the intentions of the designers.

It is hard to make sense of *ebaying* – the practice of buying in-game assets for US Dollars – strictly from a game-play perspective. It can be

⁴⁰ This practice got its name from the popular auction website *Ebay* <<http://www.ebay.com/>> (9 March 2006) where most of the in-game asset trading originally occurred. In an agreement with *Sony*, *Ebay* has banned trading of *Everquest* assets on their site but rather than this putting a stop to the trading, it just moved to other sites such as *Playerauctions* <<http://www.playerauctions.com/>> (16 March 2006).

⁴¹ *Allakhazam* <<http://everquest.allakhazam.com/>> (16 March 2006).

argued that the high-level game-play is the most interesting part of the game, but as with most games it is the hardships overcome in the process of getting there that makes getting there feel so good. Instead the value of the assets mainly lies in its potential as sign-equipment. This potential has been developed over time among the players and exists purely within the social networks created by the players. Based on her in-depth study of *Everquest* culture, Taylor (2006) questions *Sony's* claim to own the characters developed by the players, and their harsh policies on dealing with control and monitoring of emergent cultural phenomena surrounding *Everquest*.

Taylor's conclusions about cultural ownership come from a sociological perspective, but they are very much in tune with current developments within the information systems field of research. During the nineties, the view that the IT-adaptation process is at least as important as the IT-design process for the well-being of the system has grown strong within the field of information systems research. From what Henfridsson (1999) terms the *action* perspective, the evolution of technological systems is seen as "a result of social actors' anticipations and expectations, enactment of emergent patterns of use, and exploitation of up-coming opportunities" and according to actor-network theory "[n]ew patterns of IT-use emerge as a result of a series of translations 'inscribed' into the technology" (Henfridsson 1999, 24) to name a few examples.

Seen from any of these perspectives it seems that the characters that the players invest large amounts of time and money in developing could very well be regarded as theirs rather than the property of the owner of the game. My point here is that beyond stating that it is impossible to predict what the outcome of any given design decision will be when dealing with virtual worlds, I think we have to view the design as a continuing process shared between the system designers and the world participants. While it is the developers that create the appearance of an avatar, it is the player that develops the social status that the avatar represents.

CONSTRUCTING IDENTITIES

In the beginning of this chapter I showed the famous *New Yorker* cartoon with a dog living it up on the internet. I used it as a symbol of the belief that

this technology created a level playing field since everybody could present themselves as anybody in the absence of disclosure of the physical body. But just as I have found that we create social structures, I have also found that we create virtual identities for ourselves and that these identities are much more than temporary aliases on the screen. In an attempt to show how this works I will once again return to Bill's story.

Let us assume that I really would have wanted to punish Bart by banning him from as much of the palace universe as possible. I could have used the IP address of his computer since it was recorded in the server log and since the palace server allows the administrator to lock out computers from the server by putting their IP address in a "ban list." But since that particular computer was not assigned the exact same address every time he connected to the net, I would have had to ban not only all the people using that computer, but all the people using the same internet service providers as he did. Another way to ban him would be to put his nickname in the ban list. But since he could change his name at any time, we might conclude that this would be a poor attempt at keeping him out, but here comes the catch. To escape his punishment he would have had to give up his name, and by doing that, he would also give up his identity.

This brings us back to the need to fit into a social context. Like everyone else in *The Palace*, Bart had built up a personal social network of people around him. He had invested time and effort in the relations to these people, and these investments resided in the connections to these people in the form of social capital.⁴²

Without his identity, he would also be without the key to all the resources he had created for himself within this community. Remember how Goffman (1959) states that social relationships are based on people adopting consistent behaviors over time. To do this, we also have to adopt identities that are persistent. Therefore, it comes as no surprise that Schiano and White (1998) has found that there existed a social peer pressure in the MUDs they were studying to maintain a stable primary identity over time, and that participants to a large extent limit their self-presentation to one main identity.

⁴² For a discussion on personal relations and social capital in virtual communities see Ågren (1997).

As it turns out, I would not even have had to put Bart's name on any ban list. It would have been enough to spread the word that he had done something that seriously disagreed with the value set of the community – and he would have seen the value of his social investments diminishing. The lesson here is that we are not anonymous in virtual worlds. We are indeed held responsible for our actions with our social reputation within the community as collateral. All societies, virtual or physical, demand that we contribute something in order to benefit from being part of them, and to keep tabs on our contributions there has to be identifiers. Without identifiers, or identities, there will be no payback.

Chatting on the net is often thought of as being anonymous, but the interaction between me and Vicki was instead about revealing as much as possible of our identities to each other. The interaction was both about exploring our net identities as well as our physical identities. In face-to-face interaction we always let the physical appearance of a person influence our first impression of that person. One could say that we get to know people from the outside, in. For me and Vicki the direction of this process was reversed. We initially became acquainted through the exchange of our thoughts, ideas and emotions. We then slowly built up a context around that. This contextualization has been conducted by exchanging information about ourselves and our social surroundings by sending pictures, sound files, and even video clips of ourselves, our partners, and family. One might say that in our case, the process of becoming friends was instead directed from the inside and out.

In chapter two I described my choice to view material gathered from people I only have been in contact with via the net as perfectly valid empirical material. While I then made the reservation that I could only study their net identities with this method, I think it would be just as important to make the opposite reservation about a study of the same people that only collected empirical material from a physical context. The net identity is a separate and perfectly real part of who we are. People even often state that they are more themselves on the net than in the ordinary world, and the only way to access this part of their personality is to meet them online.

CONSTRUCTING BODIES

The net-identity is closely connected to the avatar. Vicki – who has known me for many years and who has seen numerous pictures of me, once noted that whenever she thinks of me she sees the avatar I normally used in *The Palace* and the same goes for me whenever I think of her. It is also fairly common that people that know me primarily from the net call me by my net-name when I meet them at conferences or other social events face-to-face.

The so-called willing suspension of disbelief is definitely at play here, but my experiences indicate that it is not so much willing as automatic. This view is corroborated by a large body of experiments conducted on the psychological perception of media by Reeves and Nass (1996). We both perceive our virtual body as our own body and other avatars as the actual body of that person to some extent. Just as with movies, we can close our eyes and remind ourselves that it is only images, but as soon as we engage in the interaction again we automatically go back to perceiving avatars as people. These notions also linger on after the encounters.

People who have spent extended time in *Active Worlds* heavily engaged in building activities often report that they find themselves trying to navigate their physical space in a manner similar to the way they move their avatar. Instead of turning when approaching a corner of a corridor, for instance, they get an impulse to continue straight ahead until they have cleared the corner and then start side-stepping into the next corridor. This would be the fastest way to do that maneuver in *Active Worlds* due to the rather rudimentary navigational controls, but in the physical world it just looks silly. What has happened is that the person momentarily mistakes the physical body for the avatar body. The brain has gotten used to maneuvering the avatar and tries to apply the same methods to the physical body. In a similar manner, *Active Worlds* users occasionally replace other people's physical bodies with their avatars. A couple of years ago I met a colleague face-to-face for the first time after having worked together in *Active Worlds* for a long time. In the world where we had worked together, the avatars are birdlike creatures and when we met, he told me that he had gotten a mental image of a big red bird coming flying into the cafeteria moments before I had arrived.

These mental lapses are only momentary, but what they tell us is that while we are inside a virtual world, the representations of things from the physical world do to some extent actually take the place of what they represent. It is therefore reasonable to assume that we are, if not deceived, at least influenced by how things appear. In a longer time perspective, the meaning of the graphical representations transforms. Seeing someone as a particular avatar for years on end creates an attachment not only to the person behind the avatar but to the avatar itself. This can take many different expressions. One example is when I met Vicki for the first time in *Sims Online*. Since the name I used in *The Palace* was already taken, I not only had to assume a new body, I also had to take a new name. This led her to reflect that it did not feel like that was really me. Another example comes from a female colleague who used to play *Everquest* together with her boyfriend. Some time after they had broken up their relationship, he decided to stop playing *Everquest*. That would mean that the character he had been playing would disappear as he stopped paying the monthly fee. But she felt that she had an emotional attachment not only to him, but also to his character and decided to take over the payment of the account to save the character from vanishing.

My investigations into the virtual body have concentrated on the use of graphical avatars, but it is important to note that it is possible to perform a virtual body without graphics. In fact, Taylor (2000) notes that the possibilities of performing the body virtually are more limited in the graphical virtual worlds compared to the text-based MUDs. The reasons for this are partly technical. It is easy to make a system that allows participants to act out body-movements through text messages, but to create a graphical avatar that actually can perform these body-movements is much harder.

While the possibilities of performing the avatar body are fairly limited in the graphical virtual worlds, the avatar is still a powerful tool for social expression. The positioning of the avatar can by itself signal everything from intimacy to hostility and thus makes a significant contribution to setting the mood of a conversation. It can also be used to emphasize the purpose of a meeting or structures within a group, who the leader is for instance.



Figure 28. A heated discussion in *Worlds Away* (left) and a relaxed conversation in *The Palace* (right). (Left side from screenshot by T.L. Taylor.)

In figure 28 we can see how both the atmosphere of the room and the placement of the avatars contribute to the general mood. Just to make an avatar sit is, however, often to be asking more than the system can offer. *The Palace* offers considerably more freedom than the *Active Worlds*. When I and Vicki started having conversations in *The Palace* on a regular basis, it quickly started feeling awkward to stand up all the time, so Vicki went to a prop room and got herself and me some *sk8ter* avatar sitting legs.⁴³ This way we could talk for extended periods of time without our avatars having that uncomfortable *I'm just about to walk away* look about them. When I migrated to *Active Worlds*, I made an effort to find sitting avatars to use there, but I discovered that the technology did not really allow for that. All *Active Worlds* avatars have one base position. All avatar movements such as walking, waving or karate kicking are then implemented as loops that begin and end in the base position. Even if you create a sitting script for your avatar – which requires world owner status and extensive three-dimensional

⁴³ Avatar construction in *The Palace* was largely left to the participants who saw a need for staying in the same body but still being able to customize that body. Out of this came a series of customizable avatar bodies such as the little people, the paper dolls and – by far the most popular – the *sk8ter* avatars. Evolution of the *Sk8ter* by Cyberia <<http://www.thepalace.com/wonder/ezone/sk8ters.html>> (17 March 2006).

modeling knowledge – it will only make a sitting movement and then get up again. The only way to sit in *Active Worlds* is to switch to an avatar that has sitting as its base position. A design student of Asian origin at Art Center College of Design who found the lack of sitting possibilities in *Active Worlds* strange, remarked that it was not until he had been to his first American cocktail party that he saw a similar way of interacting in the physical world.

As Taylor notes in regard to the performance of sexual activities in virtual worlds, there are also other reasons for the limited performative possibilities of avatars based on cultural, political and economical considerations. While killing is considered okay in the gaming worlds, none of the major virtual world systems support naked avatars or the performance of any kind of sexual activities although the *Moove/Rose* system has some at least romantically oriented movements (Taylor 2000) and *Sims Online* has a few combined movements (by this I mean movements that include a movement script both for the avatar performing the action and the avatar receiving the *treatment*) that are quite intimate in a cartoony, over the top, kind of way.

The cultural aspect of the restrictive policy towards avatar sexuality became apparent at a visit to *Blaxxun*, the developers of the virtual world *Cybertown*. They were about to release a tool for making highly customized avatars and one of the co-founders of the company remarked that they had to make clothing mandatory on the models to get the tool accepted on the US market, which he – referring to his European origin – found slightly ludicrous. As yet another example of how the participants also participate in the design, not only the use of the system, Taylor (2000) notes that participants are very innovative in coming up with alternative uses of the existing avatar movements as a way to compensate for movements that are lacking for one reason or another.

BETWEEN BODIES

In the *Playstation 2* console games *SSX Tricky* and *Rez* there are game modes where all the traditional gaming aspects have been eliminated. In the *free ride* mode in *SSX Tricky* and *traveling* mode in *Rez*, you play without scoring points, beating times or risking losing lives (see figure 29). The pleasure derived from playing the games this way is less about traditional gameplay

and more geared towards having an aesthetic, meditative, or otherwise pleasurable experience. What is most interesting about these non-competitive game modes in this context is that the use of avatars provides the possibility of both being performer and spectator at the same time. To derive pleasure from these solitary performances, it is crucial that the gamer has control over the avatar so that she feels that the outcome is a result of her actions, but there also has to be a gap. If the gamer always knows what the avatar is going to do and if the avatar behaves exactly as the gamer does in person, the experience suffers.

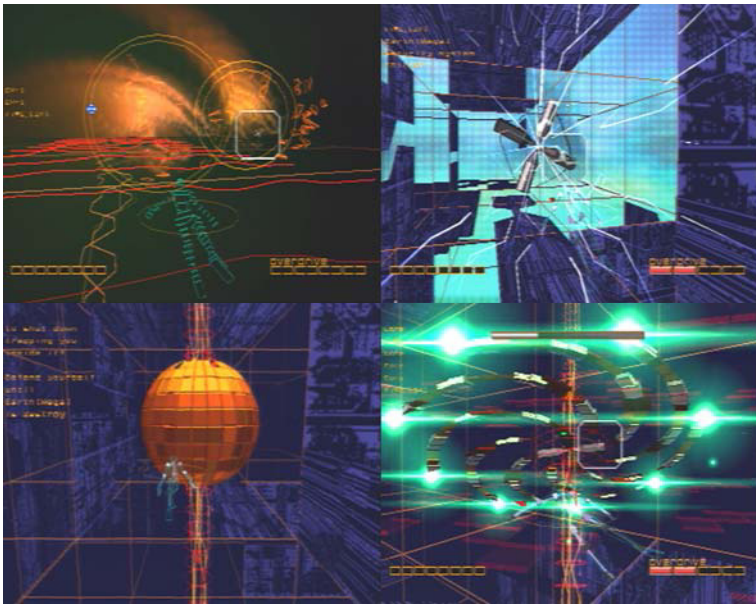


Figure 29. Traveling in *Rez*.

From the single-player games we can bring with us the idea that just one person and her avatar can have a meaningful interaction together. In virtual worlds that aspect is still at play all the time although the task that is performed may be far from the action packed activities of the above mentioned games. All the people participating in the social interaction with other people are also continuously performing their avatar.

We can begin to see even more complexity at work by distinguishing between characters and players. While it is true that a hunting group in *Everquest* is made of up to six different *characters*, it is important to understand that a group actually consists of up to six *people*.

Each account is allowed eight characters per server and most players maintain several characters. Indeed, some players even have access to multiple accounts thus further increasing their number of characters. Since each player also has their own network of contacts, any given group actually extends well beyond the six characters in the formal group list. This has some interesting effects on the game-play as illustrated in the following log extract where a group finds themselves in a difficult situation.

Druid	Crap
Ranger	Ouch
Magician	Dont move
Druid	Oom [out of mana, a power that enables classes who know magic to cast spells]
Druid	Sorry [ranger]
Ranger	Its ok
Warrior	Hold on let me see if my BF's [boyfriend's] cleric is in this zone
Druid	We deffinitely need a heale[r]

Warrior leaves the group and is replaced by her boyfriend's cleric character.

Cleric	Ask [ranger] if he's ready for res [resurrection]
Magician	[ranger] you ready for rez?
Ranger	Ya
Wizard	wb [welcome back]
Druid	Welcome back to the living lol [laughs out loud]
Cleric	Hehe too bad my warrior and his cleric is on the same account 8(

To an experienced *Everquest* player this scene is only too familiar. The group lacked proper healing resources and was temporarily overpowered by a monster and the ranger paid with his life. A character that dies loses experience points which is the principal way of measuring progress in the game. The character is also returned to its 'bind spot' which, if it is far from where the player was killed, means a perilous and time consuming run back to the place where death occurred.⁴⁴ Such a run is doubly hazardous given it

⁴⁴ Since the events recounted here took place, several ways of safe corpse retrieval have been added to the game.

will essentially be performed naked since all the character's belongings remain with the corpse and has to be looted upon returning. Because of the risky corpse runs and experience losses, the cleric is an especially sought after class. Besides being the class that is best at healing, they also have the power to resurrect players from the dead which decreases the experience loss and eliminates the need for a corpse run entirely. In this case, the warrior made use of her boyfriend's cleric in order to help the ranger. By logging out her own character and logging in the cleric – which she then continued to play for a while since the group was in dire need of a healer – a potentially devastating event turned out relatively okay.

Within Everquest a substantial number of people playing together have offline links to each other. After the unfortunate death (and helpful resurrection), the group in the log above continued hunting. A little later a beastlord – a class with limited healing powers – joined the group to replace another member that was leaving and the woman playing her boyfriend's cleric went back to playing her own warrior. The arrival of the beastlord just as someone had to leave was more than a lucky coincidence. The beastlord was, in fact, the offline wife of the magician. He had asked her if she wanted to join the group when a slot opened up. The husband later left the group (and was replaced by another magician) to play another of his characters, which proved to be a disastrous decision.

Beastlord	Man my husband just got killed in a bad place and cant get to his body or rezzed
NewMagician	Where is hubby [beastlord]?
Beastlord	Asking
Beastlord	Hmm hes upset
Warrior	Why?
Beastlord	Not talkng atm [at the moment]
Beastlord	Cause he may not be able to get his body back
NewMagician	Where did he die?
Beastlord	Hes not saying i know its near bur[n]ing woods
NewMagician	Could a 60 ranger get it
Beastlord	He was 52 i think he lost his lvl [level]
Warrior	If he needs help i can summon his corpse [implies having access to a necromancer or shadowknight]
Beastlord	Might
NewMagician	Got a 57 cleric too
Beastlord	He thinks he got 1

NewMagician K well i can rez him with my son's cleric and probably drag
with my ranger
Beastlord What lvl clewric?
NewMagician 57
Beastlord Okay I told him
Beastlord Our puters are not in the same place so we talk thru tells too
lol

In the first log extract we saw how a character outside the group, but connected to one of the players via an offline relation, came to their assistance. Here the situation is reversed; the group reaches out to help someone through an offline tie. A character played by the husband of one of the group members dies in a particularly troubling spot and runs the risk of not only losing experience but by not being able to get close enough to his corpse to loot it, permanently losing all the equipment, items and money he was carrying at the time of death.

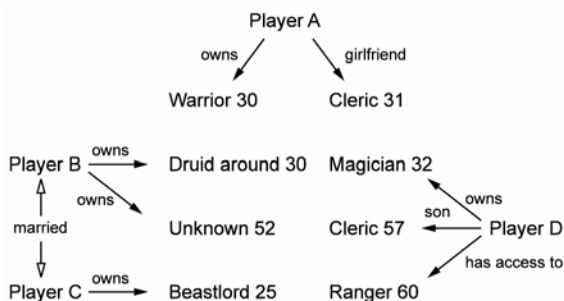


Figure 30. Social ties between players and characters.

Any *Everquest* player who has suffered this fate with a high-level character can testify to how understandable his first reaction of not even communicating with his wife is. But as the log shows, the group members are quick in offering their help. Though they do not have any bond to the character other than having earlier shared a group and now being with his wife, they are willing to stop their own play and strategize how to assist him, possibly even logging out and re-logging with other characters. This example points out not only the value of having built up some goodwill with ones fellow players, but the resources that can be called upon for assistance. In the

diagram (see figure 30) we can see the connections between players and characters mentioned in the log mapped out. This diagram shows how the importance of the social network to the gameplay can only be understood by simultaneously considering both characters and the human players behind them.

The type of offline connections between players seen in the previous example is very common in *Everquest* (Yee 2003). Besides providing an explanation for how many gamers first got exposed to *Everquest*, the offline ties between players also serve as an important component in the creation of the gaming experience.

TECHNICAL CONSTRUCTION OF SOCIALITY

In *Active Worlds*, following another avatar through a world is not always an easily accomplished feat regardless of the proficiency of the user, which makes the join command nearly indispensable. It allows participants to immediately transport their avatar to the avatar they are joining, ending up facing that avatar at close distance. To perform the join command is in one sense the functional equivalent of using other avatars as things to strap your imaginary lasso around in order to pull yourself to their location. But since you know that the person being joined notices the event it becomes a bit personal, and it would feel awkward to repeatedly join someone that you do not know. For the same reason it also works as a reinforcement of social connections between participants. Being joined signals togetherness.

Back when I and Vicki were new to *Active Worlds*, we often kept close, joining each other from place to place. This use of the join command reinforced a feeling of togetherness between us. Design can be seen as selecting one particular solution out of an endless number of possibilities. To understand the influence of technological design decisions on social interaction, we have to consider the options that were not chosen by the designer. There is for instance no function for assigning membership to a group in *Active Worlds* as there is in *Everquest*. If there had been, there might also have been a command for joining or automatically following the leader of that group. Then the join command would not have worked as an amplifier of the social connection between the person joining and the leader. It would

instead have amplified the sense of togetherness within the group. As it is now, the join command favors dyadic social bonds.

Just as there is a connection between the technical implementation of the navigation system and the socialization process in *Active Worlds*, there is also a strong connection between the chosen solutions for communication and socialization. One communication function Vicki and I made extensive use of was the *telegram*. At the time of the study, we had to send telegrams if we wanted to privately communicate with each other. Through the use of telegrams, Vicki and I often kept two distinct levels of conversation going. On the surface we were participating in the ongoing conversation of the group, but beneath that we also had an animated private dialogue between each other. Below follows an extract from the chat log of a building meeting in ACCD World:

mjson ok, should the path start from the waterfall exit OR end at the
 center of island 1?
Cartman offset in which direction?
Stan to the right, cart
Stan to lead to the tower
Cartman Like that?
Stan the path should, it seems to me, start at the waterfallo, mf
Stan oops!
Stan mj
Mr. Hat yes, start at waterfall
Stan sorry
mjson calling me mf eh?
mjson heheheheh
Stan my mistake!!
Cartman Mr. hat how does first island from waterfall look now?
Mr. Hat looks a little to the left

As you can see, one of the participants accidentally calls me a *mf* instead of *mj*. I will leave it to the reader to figure out what that is short for, but it means something rather impolite. As you can see, the conversation continues around us without much disruption but at the same time I and Vicki exchanged the following telegrams:

mjson Did you see that? Stan just called me a mother [bleep]er, hehe
Vicki Yes I saw! I'm rotfl!

Before we look at the social implications of the telegram function I would like to squeeze in an observation on language and lightness. In the telegram Vicki said *rotfl*. This acronym stands for *rolling on the floor laughing* and is what you say when the situation is too hilarious to be covered by a simple *lol* (*laughing out loud*). Since Vicki is quadriplegic, there is no way she could in fact be rolling around on the floor. The same discrepancy between the word-by-word meaning of the expression and how it is commonly used also exists for *lol*. This does not in my opinion mean that the use of the acronyms is inappropriate.

What originally was intended to convey that the person behind the avatar was laughing out loud has come to mean that the person would be laughing had there been anyone there to hear her. Or in other words, it denotes that the avatar laughs, rather than that the physical person behind that avatar laughs.

Since *lol* is used in a way that is far from self-evident it is also open for the possibility of misinterpretations. One Swedish *Everquest* player had, for instance, misinterpreted the term to mean something closer to *laugh without loud* and thus translated it as *skratta utan ljud* [laugh without sound] or *sul*. The usage of this term initially led to some confusion but has since then become a household expression within that particular group of Swedish *Everquest* players, a game club in a small town in southern Sweden. I think this acronym fits the phenomenon it describes better than *lol* and who knows, maybe it some day will make the leap back across The Atlantic and replace *lol* with *lws*?

What I find interesting about the *mf* example is how the design of the technology affects how participants manage social distances. More specifically it allows for creating togetherness by enhancing the feeling of proximity by allowing the exclusion of others through so called back channeling.

In *Everquest* I typically send and receive messages on a number of different channels. There are several standard channels that are based on their intended purpose such as the *auction* channel for selling and buying things, the *shout* channel which reaches the whole zone, the *ooc* channel which is intended for out of character communication within a zone and the default *talk* channel which only reaches the people in close proximity of the

talking character. Added to that, a dedicated *group* channel is created whenever a group is started and if a person belongs to a guild, she also has access to that *guild* channel. Furthermore there is the possibility for players to create their own channels. Every time I enter the *Everquest* game world, I automatically join a number of player created channels such as one for people playing the same class as me that reaches across all servers and one where former members of my former guild hang out together with members and recruits of that guild. There is also an equivalent of telegrams, but in *Everquest* the back channeling is referred to as sending tells.

These channels are connected to the social networks existing between the players. If we were to draw a map of the players based on their shared communication channels, it would help us in creating a picture of how close or distant different players are to each other in the game. This social network map would tell us something about the way the game is experienced by the players that a geographical map of where they are residing in the physical world or where their characters are in the virtual world cannot tell us.

In later versions of the *Active Worlds* client, there is no longer any need to use telegrams in order to hold private conversations. Now there is a more direct function for back channeling called *whisper*. Although this new function was very close to the existing telegram function, its introduction caused some controversy among the world owners. A world owner is a person who is paying for the ownership of a world in the *Active Worlds* universe and thus gains control over a number of aspects of the world such as who has the right to enter the world or build things in it and so on.

When the *whisper* function was first introduced, one world owner wrote on *Worldbuilders* – the official *Active Worlds* message board especially for world owner discussions – that he did not want the *whisper* function in his world and that he thought the world owners should have the possibility to disable the function in their worlds if they did not like it.⁴⁵ The argument was that world owners should have total control over their worlds. Another world owner further emphasized the possible negative effects of having participants *whispering* to each other by pointing out that they could be trash talking each other and even the world owner himself and stated that “Whispers cause wars!” Paralleling the debate on fire arms in the United

⁴⁵ Worldbuilders <news.activeworlds.com/worldbuilders> (17 April 1999).

States, another participant in the debate argued that “Whispers don’t cause wars. People cause wars.” Although there was disagreement as to whether whispering was good or bad, no one questioned the assumption that the person controlling the technology also is entitled to control the social environment of the participants. Instead a designer working for *Active Worlds* argued for the whisper function not being possible to disable by the world owners by stating that “if you disable whisper they will just use telegrams or *ICQ* [instead].”

The connection between the technical and social aspects of the virtual worlds was acknowledged by the participants in this discussion but it was handled in a fairly unreflective manner. If we look at the virtual worlds as public spaces for social interaction, the assumption that the person controlling the technology also should have full control over the participants and how they communicate becomes problematic. As a participant, I have to conform to both the system designers and the world owners to be allowed to be in the virtual world. The way the issue of what the participants might think was not even addressed implies that the world owners think of their worlds more like tools that they provide for usage on their terms rather than public spaces. In other words, it seems that the tool perspective dominates over the arena perspective. If the participant is thought of as a user, her interests will be addressed in terms of usability rather than civil rights.

WEIGHT ~ LEVITY

In the intersection of the equalization model and Heim’s concept of lightness, we find a certain characteristic of the medium that I will refer to as *levity*. The levity of these environments is not possible to trace back to any particular aspect of virtual worlds in a one-to-one relation. It is rather a complex interaction of different features of these systems that give rise to this phenomenon. I do not believe that it is possible to determine exactly which these features are. Given the inherent complexity of social systems, I believe that there is a threshold to how specific we can get in the models of cause and effect connecting the technological and otherwise designed aspects of the system to the emergent social behaviors within them. Some features, however, surface as more significant than others.

In the case of the zapped system administrator I am sure that the aesthetics of the environment played a part in creating the levity effect. There is something about being immersed in a world that has the look and feel of a cartoon that makes the participants start behaving a bit like cartoon characters. The environment evokes a certain state of mind. The look and feel of the environment is not a given, it is the designer who sets the tone. Heim writes that a “virtual world must have the right amount of fantasy to make the world attractive and ‘virtual’” (1998b).

The zapping of the system administrator offers another clue to the origin of levity. To borrow a concept from Latour and Woolgar (1979), the technology itself has inscriptions that affect the interaction. The *zap* function is part of a standard script which allows the avatars of the participants certain automated behaviors. By saying *zap* a beam is painted from that avatar to the location of the mouse pointer, a spiky message bubble appears with the word *zap* while a space gun sound is played. To finish the effect off, a prop is placed at the mouse pointer coordinates giving the appearance of a big hole in whatever was there before the zapping. The default availability of this function signals to the participants that although the world is a chat world and not a game world, the occasional zapping of your chat buddies is accepted behavior.⁴⁶ Other systems have different inscriptions. Sometimes the interpretations of the inscription are intended by the designer, but often it is not.

The perhaps most generally applicable factor behind the levity phenomenon is the use of avatars. The avatar works as a mask which has the psychological effect of shielding the participant and thus affects the way participants interact. This gap provides a sense of control that Markham identifies as a “significant and meaningful benefit of online communication” (1998, 20). Crockett (2002) compares the use of avatars to the way children use dolls as ways of exploring the world around them. Thus, according to Crockett, the avatars become transitional objects that allow us to immerse ourselves in environments existing outside the ordinary physical world. Combining the ideas of Crockett and Markham generates an understanding of the avatar as both a separator and a bridge. The avatar allows us to be

⁴⁶ The world designer can decide to disable scripts in certain rooms which further indicates that where scripting is allowed, zapping is tolerated.

together without some of the pressure that physical presence exerts on social interaction.

When considering levity as an inherent property of virtual worlds, I think we can see the vandalization of The Virtual MIT House in a new light. Destroying virtual property is significantly easier than destroying physical objects to begin with. Most of us have at some time bitterly realized the lack of proportions between how easy a digital document can be erased compared to the time and effort spent on producing it. But more importantly, Bart and Lisa acted within a system that affected their behavior. They behaved as if they were in a partly fictional world and therefore were partly alleviated from responsibility for their actions outside that world.

DISTANCE ~ PROXIMITY

Once upon a time, the heralds of the internet age were telling everyone that in cyberspace we were no longer bound by restrictions of space and time. My guess is that the people who came up with that idea all lived in California and mostly used the net to communicate with each other. In reality, the fact that people live in different time zones makes synchronous interaction between the different corners of the world complicated. However, on those occasions that we in spite of this do meet people from far away places, we can immediately confirm that the magic works. It really does feel as if you are in the same place as the people you meet even if they physically reside on the other side of the globe. The medium evokes a sense of proximity. In this regard there is a difference between text-based and graphical systems. Although there is a sense of mutual presence in both cases, the avatars add immediacy to that presence, a kind of face-to-face feeling, although it is avatar faces.

The concept of proximity does not only denote the sensation of being physically close. Many virtual world participants can also testify to a certain kind of emotional closeness that seems to have a strong connection to the characteristics of the system. A common way that participants express this phenomenon is by saying that they feel that they are able to be themselves more in the virtual worlds than in the physical world. One of the main reasons for this effect is the mask effect. Many people feel that by interacting

through an avatar, they avoid any preconceptions people might form about them based on their physical appearance. In the process of getting to know other participants better, more and more information about the physical person and context is normally exchanged, so the difference is not that one personality is exchanged for another separate personality. Instead it is more about reversing the process of getting to know someone from outside-in to inside-out.

I believe that the way avatars allow interaction without revealing the physical bodies of the participants to be a key aspect of social interaction in virtual worlds. As I mentioned earlier in regard to levity, the avatar works as a mask that shields the person behind it and in this way tends to make the person more open. The saying that *the mask does not hide, it reveals* captures this phenomenon very well. In this respect, the medium shares a feature of the Catholic confession booth and the psychoanalyst's couch. One might think of this effect as an increase in social immediacy through a decrease in physical immediacy.

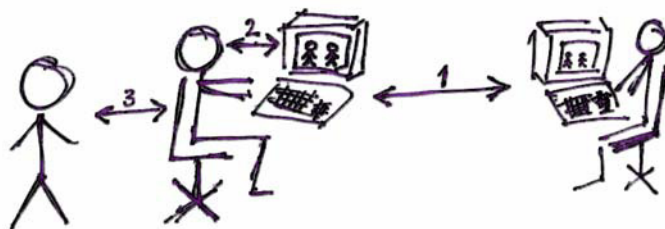


Figure 31. Proximity. The transformation of social distances through virtual world technology.

Proximity, like levity, also has its drawbacks. While participants feel close to each other, the system can also distance participants from people outside of it. The examples of this effect are numerous and range from the distancing effect of *The Palace* between me and my girlfriend discussed in *Vicki's Story*, to the popularity of the *Everquest-Widows* online forum, a website for spouses and family members who feel that they have *lost* a loved

one to the game of *Everquest*.⁴⁷ Also the flaming phenomenon can be seen as an effect of proximity. The mask effect that makes the interaction more open and direct also seems to make us more open about negative feelings.

The transformation of social distance through the proximity effect involves the three distances marked with arrows in figure 31. By creating a social arena that can be accessed from any physical location, the social distance between participants, arrow number one, decreases. The gap between the participant and her avatar, arrow number two, also increases social proximity. This process can, in turn, lead to an increased social distance between the participant and her physical social context, arrow three.

FROM EQUAL TO SOCIAL

The main objective of this chapter has been to give a rich picture of the inner workings of virtual worlds based on my studies of *The Palace*, *Active Worlds* and *Everquest*. My descriptions have revolved around the people interacting in these worlds. The reason for this is that I have found that the participants in a very concrete sense are the worlds. While we may debate whether the same goes for the physical world, it is hard to deny that a tree falling in a virtual forest really does not make a sound if no-one is there to hear it. In fact, it would not even really fall since only the parts of the worlds that are currently occupied by participant ever get rendered to the output devices of a computer.

In summing up the lessons learned in this chapter, I think that the most important thing to understand about the virtual worlds is that they are real. It does not matter if there is gameplay, role-play or any other kind of play, pretend or make-believe going on in the worlds. The participants still engage with, and commit to the experience they are having in the world. Once we have established that virtual worlds are real and have real consequences for the participants, it is very reasonable that the participants will develop social structures similar to those we have developed over time for the same purpose in the physical world.

⁴⁷ Everquest Widows <<http://health.groups.yahoo.com/group/EverQuest-Widows/>> (22 March 2006).

While the reality of these worlds and the re-construction of social structures point to an understanding of virtual worlds as very similar to the physical worlds, there are distinct differences. Through the concept of levity I have tried to put my finger on the phenomenon of displacement that makes people behave differently in virtual worlds than physical worlds. While it is possible to design away most of the levity effect, I believe that it should be seen as a current that can be utilized if the designer goes with the flow and will put up a resistance if the designer tries to work against it. Levity thrives in the properties separating virtual worlds from the physical world. Without the aspects of virtual worlds that can only exist as fantasies in the physical realm, the levity effect suffers.

One of the sources of the levity effect is the gap between participants and avatars. This space alleviates participant from a direct physical engagement with the each other, but this distancing also leads to a certain sense of closeness, proximity, between participants. This small gap thus contributes to bridging huge physical distances between participants. While the distances between the participants shrink, the same transformation process can lead to an increased social distance between people physically situated right next to each other. The proximity effect means that distance has to be understood and measured in completely different ways in virtual worlds.

When we design virtual worlds, we basically provide a library of tools for the participants to use in their social construction of the worlds. All these tools get imbued with values from the designer, from the skin color of the avatars to the layout of the city maps, or the selection of beverages in the bar. Contrary to physical world architecture, there is no existing environment that guides or limits the design or properties of materials such as weight or stability to consider. The designer has great freedom in making her design choices, and they will have an effect on the social interaction in the worlds, but since virtual worlds are complex emergent social systems, it is impossible to know the outcomes in advance.

While it is important to utilize the properties of the technology that widen the possibilities of interaction, it is equally important to recognize the fact that the virtual world system in turn is part of a larger system, and that unreflected decisions about the design of the virtual worlds can have negative effects to the wider system.

We now enter the part of this dissertation that deals with the design of virtual worlds. It will partly be a critical examination of existing design practices and partly an exploration of an alternative route that will end in the proposal of a model for virtual world design.

INTERLUDE FOUR

AN ALPHA WORLD TRAVELOGUE

This interlude is meant to serve as a bridge over to the design-oriented part of the dissertation. It is a personal reflection over the current state of virtual worlds in the form of a report from an excursion in one of the earliest and best know virtual worlds. Alpha World was first opened to the public in June 1995 and is the oldest world in the *Active Worlds* universe.⁴⁸ Initially it was the only world there, but now it shares the same technological platform with over a thousand other worlds. Measured in square meters, Alpha World is larger than the state of California.⁴⁹ It is a world where anyone can build their own buildings or whatever they choose to construct out of a library consisting over three thousand different objects and textures. By placing objects on the ground you claim that area as yours which prohibits anyone from building on top of that. Unless you have paid the *citizen* fee anyone can, however, take away what you have built. There are currently over ninety million objects in Alpha World.⁵⁰ One of those objects is mine. It is located at 1969 south, 1969 west, where I put it yesterday.⁵¹ Today I have decided to make it there on foot. This is my report of that trip.

The default place of entry is in the exact middle of the world, referred to as ground zero. The entry point is surrounded by huge billboards with community information and advertisements. The commercial feel of the place makes me think of the concerns voiced about corporate ownership and domination of public spaces in cyberspace in general by Lessig (1999) and virtual worlds in particular by Taylor (2006). The area directly surrounding ground zero is exempted from public building which is apparent in the more strategically planned feel of this area compared to the rest of the world.

As soon as I leave ground zero the neat grid of walking paths evaporates. There are no easy ways to get out to the *suburbs* from ground zero. I frequently have to cross other people's property. I look around inside some of the houses I pass which makes me feel a bit like an intruder. There is no way of separating public and private which seems to make everything strangely semi-public. Even if I build a house here and call it my house, it seems that it will become more of a public exhibit of a house that is mine.

⁴⁸ Alpha World Historical Society <<http://www.awcommunity.org/awhs>> (26 March 2006).

⁴⁹ Active Worlds <<http://www.activeworlds.com/overview.asp>> (26 March 2006).

⁵⁰ This was the current figure as I took off on my trip the 21st of July 2001, at 10:40 AM.

⁵¹ The coordinates reflect my year of birth and physical location in Sweden.

On my way through the densely built city districts surrounding ground zero I come across numerous traces of phenomena from the physical world that seem strangely out of place here. Virtual world technology gives us a chance to construct the worlds of our dreams and yet what I find here more seems to be an attempt at replicating the physical world around us. The houses, gardens, roads, and cars all look the same, but they have all lost their original purpose. No-one lives in the houses, the flowers in the gardens do not grow, the cars cannot be driven, and the streets can only be used for walking on.



Figure 32. Graffiti in Alpha World.

The neighborhood I walk through looks distinctly North American. The combination of swimming pools, freeways, street grids and palm trees on flat land with a mountain range in the backdrop under a perpetually shining sun reminds me of Los Angeles in particular.⁵² Except for artifacts such as cars and houses, I also see traces of different kinds of phenomena from the physical world such as graffiti (see figure 32). Although the set of existing objects that everything has to be built from obviously restrict what is created in the world, there are at least attempts to combine and position items in surprising ways, such as the house fire in figure 33.

I am not sure what my walking speed is but by holding down the *ctrl* key I can make my avatar go twice as fast. Rather than the switch from walking to running in first-person shooters like *Quake* or *Unreal* this feels like transforming the avatar into a vehicle, but the avatar will still look the same

⁵² The fact that one of the avatars in the world is a *surfer dude* complete with a board lodged under his arm only strengthens this impression.

and perform the same walking motion, only faster. At this speed, it becomes very hard to keep the avatar on narrow paths which makes me realize that even if there are no cars that can be driven in the world, it makes sense to have wider roads that are easy to stay on at this speed. The avatar navigation is very crude and it is impossible to follow the road in a straight line. I feel a bit silly having to zigzag all over the freeway despite traveling by foot.



Figure 33. A house on fire in Alpha World.

At approximately 500 south, 500 west I start following the South West Freeway on my way out from the inner city area.⁵³ In the physical world the architecture surrounding a road exclusively for cars is typically very different from one where people are walking. This is what (at least Scandinavian) architects call 50 km/h architecture versus 5 km/h architecture. The difference is of course due to the fact that you simply cannot take in as much detailed impressions when you are passing by in a car as you can when you are walking by. While a store owner by a freeway puts up a big billboard with limited but easily perceivable information an inner city merchant fills his store window with an abundance of luring items and offers. In Alpha World I cannot see this difference in the architecture. The set speeds of avatar movement seems like a key feature to take into consideration when building these worlds but the reality is that avatars are not using their feet that much at all in these worlds. My guess is that whoever built these freeways probably did not expect people to actually travel on them very much. World inhabitants are instead most likely to just teleport to their

⁵³ The numbers indicate how many cells away from ground zero the designated spot is located in the given direction. Every cell is ten square meters.

destination which has given rise to what could be called a teleportation architecture.

In a world where teleportation is possible, it does not matter so much how long it takes to get to a place by foot, it matters more how easy the coordinates of the place are to remember, since the coordinates are used in the teleportation. And since one number is easier to memorize than two, it has become more popular to build along the x and y axis of the coordinate system, where one of the coordinates is zero, and along the diagonals, where both coordinates are the same. This emergent behavior among the building community was not predicted by the designers of the system and it was not until a tool was constructed that could produce maps of large areas of the world that this starfish pattern was discovered (see figure 34).

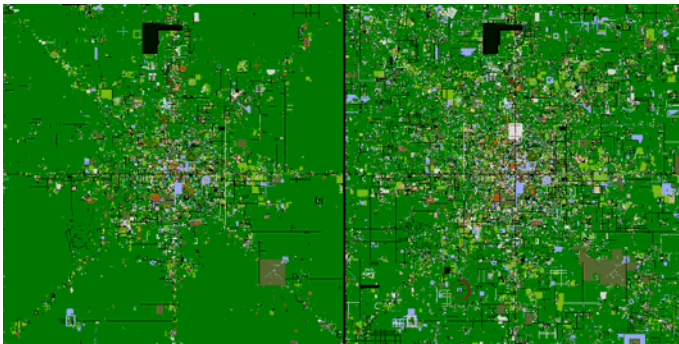


Figure 34. Building in Alpha world has taken on a starfish pattern. The image to the left was generated by the *Alpha World Mapper* in 1996 and the one to the right in 2001.⁵⁴

I keep following the South West Freeway to somewhere around 900 south, 1000 west where I make what turns out to be a wrong turn and end up way off course, which again reminds me of being in California. I back track to 611 south, 1001 west and find the exit I missed earlier. The area beyond the 1000 west cell is much less densely populated. This has apparently inspired builders to underline the rural character of the area. At 1001 south, 1152 west the highway is disrupted by a cow path crossing (figure 35) and at 1081 south, 1098 west some pine trees and large rocks suggest wilderness in a way

⁵⁴ Alpha World Mapper <<http://mapper.activeworlds.com/aw>> (20 March 2003).

that makes me feel closer to the mountains in the background. I do, however, know that this is an illusion and that I will never reach the mountains since they are just a two-dimensional image that is *wrapped* around the edges of the world.



Figure 35. A cow path crossing, but no cows in sight.

After three hours I have reached 1200 south, 1190 west. I am only twenty-seven kilometers from ground zero and have 511 kilometers left to the edge of the world which is located at 32750 south 32750 west. I am glad I did not make that the destination for my trip. Beyond 1500 south, 1500 west the buildings thin out even more. Except for the occasional little crossroad towns at the road intersections, there is not much out here except the road. Building constructs tend to be much wider in scope here and would fit as badly close to ground zero as a Texas ranch on Manhattan.

Suddenly I get the feeling of standing still with the environment moving around me. I have often marveled at how easy it is to fool the brain that I actually am inside a virtual world or a game but it does at least take a little more than just a three-dimensional environment. Moving along the freeway became so uneventful that I lost my engagement in what I was doing and then traveling suddenly became browsing.

Since I chose a year for my coordinates I got to thinking about distance as a metaphor for time. Someone could for instance build a *History World* where ground zero represented the birth of Jesus Christ and each cell represented a year. The time line could then be filled with characteristic buildings from the different eras. Apparently I am not the only one who thought about the correlation between time and space. At 1946 south, 1991 west there is a Freddy Mercury (born 1946, died 1991) memorial park. Three people have left signs and flowers.

I have reached as far as I want to go west but still need to go further south. I try to find a road that takes me in the direction I want to go, but without luck. I guess it is time to trade asphalt for grass. I take a south-eastern course into the wilderness or more appropriately, emptiness. I start to feel a little excited. Nearly there now. At 1973 south, 1973 west I come across a place called Party Town which looks more like a cemetery, but at least it has some rides. I come across a lot more buildings now that I follow the diagonal. Next to Party Town is a Norwegian dating, party and music service. The instructions are in broken English but apparently I am supposed to email this guy about myself and my interests, and where my party will be, and he will supply the music and a date. There is also a condom machine here. Moving on...

At 1990 south, 1998 west there is a teleport to Forefinger's House of Frags. That sounds interesting, but not today. No teleporting on this trip. I suddenly realize that I have gone too far, and backtrack to 1969 south, 1969 west and here it is, my very own spot of land. It is squeezed in between the walls of Party Town and a garden that also looks like a cemetery. The trip here took me five hours and forty minutes – including food and coffee breaks – and since leaving ground zero I have not met a single person. I feel a bit like Burt Lancaster in the 1968 movie *The Swimmer*, where he travels through American suburbia by swimming through the swimming pools in people's backyards, but at least he got to talk to some people along the way – getting caught up in one cocktail party after the other. I wonder what it would take to create a world that was not just as big as California, but as densely populated. Oh well, time to get back to ground zero. As interesting as the walk was, I think I will teleport back. When I get back to ground zero the object counter has reached 90 414 045, over ten thousand objects more than when I left. This strengthens my feeling that this is a building world, not a being world.

CHAPTER FIVE

EXPLORING VIRTUAL WORLD DESIGN

RESEARCHERS GRAB YOUR HAMMERS

In this chapter I will focus on the design of virtual worlds and propose a model for virtual world design from a social interaction design perspective, the interacture model. Up to this point, I have tried to give a rich picture of the experience of participating in virtual worlds. My method has been ethnography and my tools have been different instruments of recording what I have seen and heard. As part of my efforts to outline a new model for virtual world design, and the implications of this work in the wider context of virtual world design, I have also conducted design experiments throughout the process. In this chapter I will present the largest of these, the Confuse project.

When switching mode of study from participation in existing worlds to the design and building of new worlds, a new method and a new set of tools will be required. The main difference between the two modes of inquiry occurs at the stage of generating empirical material. Instead of collecting material through observation and participation, it is here generated through design and construction. While logs, images, and interview transcripts continue to be part of the empirical material, the designed objects as well as sketches and mock-ups are added. In both cases, the active participation in the process that is studied is a key element.

It is important to note that while I have used these two modes of inquiry as a divider to separate my findings into chapter four and five respectively – for reasons of clarity in the presentation – there is nothing stopping the two modes of inquiry to be engaged simultaneously. In fact, from the very start of the first study in *The Palace*, I have conducted design experiments, and during the world building projects in *Active Worlds* that this chapter will deal with, I have also *moonlighted* as an ethnographer, observing the designers at work.

The design activities only make up roughly twenty percent of the total time engaged collecting empirical material for this book. The formulation of the interacture model should be seen as a provisional attempt at finding alternative ways to approach virtual world design rather than a tried and true model.

THE THEORY OF VIRTUAL WORLD DESIGN

In the groundbreaking anthology *Cyberspace: First Steps*, Michael Benedikt (1991) proposes that we can either see cyberspace as an *etherialization* of the world we live in or the *concretization* of the world we dream and think in or, he continues, as a place in-between these two worlds. He then proceeds to sort out which axioms and laws of physics to retain from physical space and which to get rid of when laying the grounds for cyberspace design.⁵⁵ His fundamental design principles appear similar to my own, he states that “the criteria for success are pragmatic and human from the outset – workability, pleasure and human empowerment taking precedence, always, over utter fidelity to nature at large” (126), but when he presents his essential design principles under the headlines of dimensionality, continuity, curvature, density and limits, it becomes clear that our approaches diverge.

Benedikt maintains a very strict perspective in his suggestions for design principles, talking extensively about what should not be allowed in terms of freedom of movement, access, invisibility and so on. Novak (1991), on the other hand presents a much more free vision in his framework called liquid architecture where he draws on music and poetry as sources of inspiration. Both Benedikt and Novak have their background in architecture which I believe shines through in a willingness to design the spatial features rather than going straight for the human interaction. While their visions steer in different directions, they both see information as the fundamental building material to craft this space in-between mind and matter out of. In the absence of physical materials, they look at cyberspace as structures of information that people inhabit and interact with.

Morningstar and Farmer (1991) were among the few that had any empirical experience from virtual world design at the time, having worked on *Lucasfilm's Habitat* project, a low-tech two-dimensional graphical world running on *Commodore 64* home computers over 300 baud connections (see figure 36). Like Benedikt, they stress the importance of the participants,

⁵⁵ Benedikt takes these axioms and laws as a given starting point despite noting that there is no one true way of conceiving physical space. He defines cyberspaces as “a globally networked, computer-sustained, computer-accessed, and computer-generated, multidimensional, artificial, or ‘virtual’ reality” (1991, 122). His definition parallels my definition of virtual worlds with one main difference. He thinks of cyberspace as the singular virtual world that everyone will connect to, similar to Gibson’s *Matrix* (1984) or Stephenson’s *Metaverse* (1992), the science fiction visions of the time.

“cyberspace is defined more by the interactions among the actors within it than by the technology with which it is implemented” (274). They then, however, proceed to describe virtual worlds as systems where technology is the fundamental building material. After describing their system in terms of object-orientation and network solutions and drawing conclusions about how virtual worlds should be implemented, they reach a final layer of social issues such as crime, protests, exploits, and other forms of player ingenuity interfering with their vision of the world as engineers.



Figure 36. Lucasfilm's Habitat.

The paper is a fascinating read, giving an early glimpse of many of the issues connected to social interaction in virtual worlds that have continued to engage researchers such as myself until present day, but while they identify these issues, they offer very little in terms of solutions. They readily confess to the shortcomings of their attempt to technological world building: “[W]e were our own worst enemies in this undertaking, victims of a way of thinking to which all engineers are dangerously susceptible ... that all things may be planned in advance and then directly implemented according to the plan’s detailed specification” (Morningstar and Farmer 1991, 284).

Since the beginning of the nineties, these two different tracks, the one of architecture and that of engineering have been developed and refined both through theoretical contributions as well as through the increasing amount of experience of actual implementations of virtual worlds. Bridges and Charitos (1997) discuss how architecture can be applied to virtual environments and introduce a taxonomy consisting of places, paths, domains

and thresholds. Anders (1998; 2001), also an architect, criticize the earlier technology driven theories for cyberspace design. His proposal for design of a more human-centered experience is called anthropic cyberspaces. It consists of twelve design principle based on scientific and cultural observations regarding individual cognition and social interaction. Despite his grounding in cultural observation, he claims that his principles are general and not specific to any particular culture. While intriguing, I find that he ends up very close to where the experimental psychologists were in the seventies (as described in chapter two). He makes the same mistake of using interaction and representation in the physical world as the perfect state that virtual worlds should try to measure up to. He states that our online representations are pale shadows of ourselves and that the distance between avatar and physical person – user and representation in his vocabulary – is the source of a false intimacy inherent in the medium that underlies much frustration and misunderstandings. In the end, virtual worlds are architectural challenges like any other to Anders, but with a virtualized surface.

The last five years has seen a boom in virtual world based games, the massively multiplayer online games. This is also where we find most of the reflective practitioners of virtual world design, most notably Raph Koster, lead designer of *Ultima Online* and creative director of *Star Wars Galaxies*. Through the almost complete focus on MMOGs, the object of study has shrunk from the inclusive concept of cyberspace to a game space owned by a company where issues not related to game play and maintaining a profit has been pushed to the side. The engineering perspective completely permeates the discussion of MMOGs. In fact, when Koster wrote *A Declaration of the Rights of Avatars* (2000), an exciting attempt at problematizing the outlaw situation of MMOG players by contrasting the situation of the player with the rights of regular citizens, he was met by very little understanding from the designer community. The overall sentiment seemed to be that MUDs and MMOGs are games and whatever goes on in there is up to whoever made the game or runs the server. People may have rights, but when they enter a virtual world, they are players and human rights do not apply, or as one anonymous person put it in one of the comments following the paper: “Rights of *avatars*? Why not of ‘chess

pieces?’” In line with Lessig’s (1999) observations, code is very much seen as law in these worlds and the power of government fall into the hands of those producing the code.

A PHENOMENOLOGICAL DESIGN APPROACH

Similar to Benedikt, Heim believes that virtual worlds should strive for something in-between pure fantasy and photo-realistic reproduction of the physical world (1998a; 1998b). In line with the design theorists from both the engineering and architecture camp, he believes that the value of the virtual worlds should be measured by how well they can serve the functions that we attribute to them (1998a; 2001a). Heim, however, goes further in stressing the importance of a human centered approach to virtual world design. According to him there is a need to project – through our active effort – the human back into the system since computers were originally designed for organizing data, not for facilitating human communication.

Most virtual worlds available on the net today strive very hard to reproduce the physical world. The Holodeck from *Star Trek: The Next Generation* is often referenced both by developers and users as a goal to strive for.⁵⁶ Just as I found that people with an outside view thought that interaction in virtual worlds belonged to the unreal domain of playing and fantasies, I have found that the strive for photo realism is a longing for authenticity. Heim states that reality will not be attained by technical refinement of the systems, virtual worlds become real to us through our habituation of them, just as the reality of the physical world is a result of our dwelling in it (1998a).

By incorporating imagination and fantasy into the design process we can make virtual worlds that are more attractive by offering something extra to the participants. Heim describes this as letting us have less gravity as avatars than as primary beings. This advice can be taken literally to mean that virtual worlds should not have gravity, or only partial gravity, as the ACCD World in the *Active Worlds* system (see figure 37). It can also be interpreted metaphorically, staking out a direction for design of virtual worlds that

⁵⁶ The Holodeck is virtual reality environment which is impossible to distinguish from the physical world.

allows for a touch of whimsy and playfulness, not as ends in them selves, but as means for achieving the goals of the worlds (Heim, 1998a).

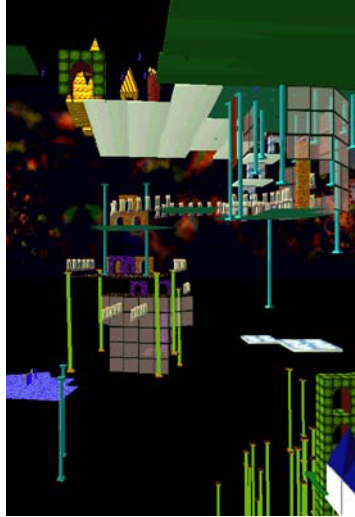


Figure 37. ACCD World has no universal ground plane which evokes a more vertical architecture.

In *The Metaphysics of Virtual Reality*, Heim offers a list of concepts that are connected to the essence of virtual reality. They are simulation, interaction, artificiality, immersion, telepresence, full-body immersion, networked communications, activity/passivity, manipulation/receptivity, remote presence, and augmented reality (Heim 1993). Over time some of these concepts have been de-emphasized. The importance of full-body immersion is, for instance, also propagated in *Virtual Realism* but in a later comment on the book Heim admits that this conviction had been shattered by trying new systems with interaction possibilities smooth enough to allow the user to psychologically *slip into* the virtual world on the screen. “The photo of the author on the jacket of *Virtual Realism* shows me against the background of [the *Active Worlds* world] Atlantis. The jacket photo was the very last step in the publication process and at that time I was already groaning at the limits of my 'strict' definition of VR in the first chapter of the book” (Heim 2000). Immersion as a psychological or phenomenological

effect cannot be measured using any simple algorithm focusing on sensory input. Engagement and interactivity can give the VR sensation using standard PC equipment.

One of the primary ideas behind ACCD World was to investigate the inherent properties of the medium (Heim 1999). Instead of relying on concepts from other media like film, painting or theatre, Heim wanted to focus on the unique characteristics of this medium to develop its own aesthetic. He notes that, for instance, cinema is both passive and linear while VR has first-person engagement and free navigation that is complicating the possibility for a narrative structure while opening up for new possibilities such as *playability* (Heim 1998a; 1999; 2001b).

Although the medium is unique, it does have important similarities with other media. One of the desirable characteristics of a virtual world – playability – is a term used to describe a central but elusive characteristic of computer games. Virtual worlds and computer games sometimes blend together as in the case of the MMOGs, so they inevitably have many things in common. But even when a virtual world has a work-related theme, the avatars will still offer a fictional displacement. People will perceive the *lightness* of the environment that will reflect in their behavior (Heim 2001b).

According to Heim, western science has traditionally been preoccupied with substance on the expense of process. Post-Newtonian science has, however, made a shift in this regard towards energy fields and interrelations between entities that has made new phenomena appear. One could say that it is a newfound interest in the *context* of substances. A similar shift can be observed in modern philosophy where the subject-object dichotomy gave way for an interest in the context in which substantial entities and psychological subjects can arise. Heidegger's notion of a world as a “context of involvements” is an example of this development (Heim 2001a).

Heim argues that the same shift of focus is called for in the understanding of virtual worlds. Caught in ideas stemming from traditional architecture, we have been looking for the substance of the worlds in its building blocks. But where the material of physical buildings plays an essential role in the construction of physical environments, attempts to reproduce these materials in virtual environments only lead to the

construction of fundamentally hollow and empty facades that imprison the participants rather than liberate them.

We have to leave the idea of designers providing a fixed environment consisting of graphical elements that simply has to be filled with people to create communities. Instead we have to direct our attention to the event-based interactions to locate the *substance* of virtual worlds. “A good virtual environment, therefore, is not an object seen in and for itself but an environment that blends into the user’s activities” (Heim 2001a).

Through a period of apprenticeship in Heim’s design team – on site in Pasadena and in ACCD World – filled with the experimental activities of dwelling, dreaming and designing I got to experience Heim’s approach not only as a theoretical framework but also as a design practice. Heim provides a design approach resting on a phenomenological foundation that provides an alternative to the dominating perspectives of architecture and engineering.

THE TROUBLE WITH REALISM

When facing the challenge of virtual world design in *Active Worlds*, realism seems to be the most common approach. Roaming through the many worlds in the *Active Worlds* universe, I have noticed that many designs tend to mimic the physical world. The basic assumption seems to be that it is best to make the virtual worlds as *real* as possible. Another explanation is that it is the act of building rather than the result that is the focus of attention behind these creations. Perhaps the participants mainly were interested in exploring the possibilities of the system and in a rather non-reflected manner just built whatever they could see outside their windows.

It is not very surprising that people come up with environments reminiscent of physical cities since the system itself strongly points the world builders in that direction. It is up to every world owner to decide what building blocks to make available in a world but there is a standard set of objects that is used unless something else is specified. The standard set consists of walls, roofs, flowers, roads and so on. When a new world is started there is only one object in the whole world and that is a piece of road located at the center point of the world. The world also has a ground plane

which is a prerequisite for simulating gravity in the world. It is as if the system designers wanted to say that you can build anything you want but you will probably want a flat ground plane, gravity and a road. The road is especially surprising since there are no cars included in the standard set of building blocks.



Figure 38. A typical building found in *Active Worlds*. This building is located in the world AWSchool.

Consequently, you will find many virtual towns that look like physical towns with streets leading to houses similar to buildings seen in the physical world. The houses are built with walls, roofs, windows, and nice lawns in front of them, just like the ones you might find in your everyday physical environment (see figure 38). Beyond encouraging a realistic building style there is a distinct touch of western, even American culture – not unlike the environments of the computer game *The Sims* – to the elements of the world. These are the building blocks of suburbia.

A tour through the existing virtual worlds also tells us something about the consequences of this design approach. The worlds are often virtual ghost towns. Walking around on roads where no cars will ever pass, looking at flowers that does not grow or require nurturing, or peeping into empty houses cautiously fitted with roofs sheltering from rain that never falls, gives a strange and somewhat desolate feeling. These replicas of everyday physical environments do not seem to be very successful when it comes to attracting visitors or being the place for frequent activities. On the contrary, worlds that very closely reflect the physical reality seem destined to quickly become abandoned and fade into oblivion.

When trying to transfer physical environments to the virtual, we also import physical limitations and constraints. This leads me to wonder why we should try to create a copy of the physical reality when we already have the original. The copy can not measure up to the original and will not offer the same functionality. Physical environments are designed for doing physical things and when they are reproduced virtually, a gap reveals itself between the activities that might be meaningful to engage in within a virtual world and what the environment supports. The only activity that the worlds in *Active Worlds* support really well is building. It is very easy to build things as long as you use the pre-made building blocks, and the process is often seen as both fun and engaging. This explains why *Active Worlds* has kilometer after kilometer of uninhabited environments. They were not designed to support any activities. The meaningful activity was the construction of the environment. Does it have to be that way? Is it possible to design environments that support other activities? To do this we have to reconsider the claims for realism and instead focus on the medium as such, its characteristics and possible use.

FANTASY

During the time I followed the work of the Virtual World Design Team at Art Center, I Participated in the building of a world that was conceived as a counter argument to realism in virtual world design, and as an exploration of the unique properties of virtual worlds. While I to some degree participated in the design work, I was primarily there to study the design process and the world that was being built, ACCD World. The designers were specifically asked to avoid influences from the outside and focus on the particulars of the technology and the medium they were working with (Heim 1998b; 2001a). The result was a world unlike anything seen anywhere else. Although the *Active Worlds* system by itself puts a number of limitations to the design, the group was successful in creating an astounding as well as confusing experience for the visitors.

Some of the features of ACCD World include hyper-travel by clicking on nodes by the entrance that teleports the participant to the different places of the world and sculptures that the participants can pass through. The

world was built without a ground plane and does not have gravity. This inspired avatar designs that look more like birds or bugs than humanoids and encourages the participants to fly. Some areas of the world deal with immersion in different ways showing that there is more to feeling immersed than having many of ones senses engaged. In some areas the designers have played with the technological constraints of the system such as the narrow clip plane, to evoke feelings of surprise, disorientation and entrapment (see figure 39).

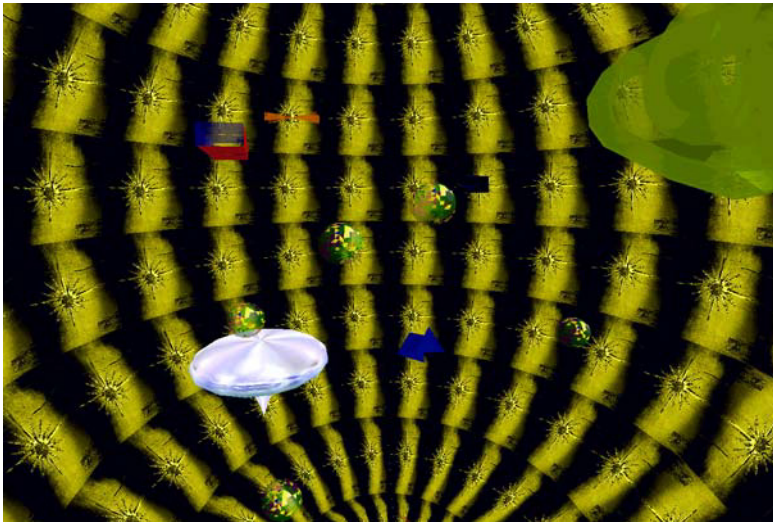


Figure 39. The Dazzle Dome in ACCD World.

By moving outside of the boundaries of physical architectural design, we discover that virtual worlds offer both new possibilities as well as new restrictions. As Bridges and Charitos (1997) point out, there are no rules to dictate the dynamic nature of virtual environments. There is no gravity or friction unless we put it there. Space is noncontiguous and multi-dimensional, violating the principles of real space.

If these are some of the many potential benefits with designing virtual space, one should also consider the constraints. The technology that mediates our experiences as participants in virtual worlds is limited in many ways. While having five senses to experience the physical environment, most

output devices connected to virtual world systems only provide feedback for two of them, the visual and auditory. In addition, the feedback given is not sufficient to give the user a fine-tuned notion of the representation of their body in the virtual world (Bridges and Charitos 1997). Virtual worlds cannot be compared to the physical reality when it comes to achieving multi-sensory experience, which again underlines that they should not be designed as a duplicate of the physical world. In other words, aiming for realism is counter productive when aiming for quality of experience.

Let us instead begin the search for a design approach for virtual worlds by considering the antithesis of the realism approach. We can think of this as the fantasy approach. I use the term fantasy in the same way as Heim, as a synonym to imagination, not as a category of fiction. Entering a virtual world with no similarities to the physical reality we usually live in would most likely be a confusing experience as ACCD World also illustrates. Having lived our entire lives in a physical world, it would be very hard to comprehend an environment with no reference to that world. We would try to orient ourselves in the environment, looking for landmarks, signs, buildings, anything that could help us understand what the place was all about. As stated in traditional environmental design (Lynch 1960) we need those clues to orient ourselves in any environment and in their absence we would probably end up being paralyzed, unable to interact with the environment since we would not know how. Anders (1999) and Heim (1998a) conclude that although the real can not be reproduced in a virtual space one should not try to replace realism with pure fantasy. We need some points of reference to previously experienced environments in order to understand the virtual space. Also in the perspective of Gibson's (1986) ecological approach to perception which puts weight on the embodied nature of our way to perceive our environment, the extreme non-realistic approach to design does not appear to be a good solution.

The path between the two extremes leads to a concept where the qualities of the virtual world are in balance with maintained references to the physical world. While realizing that we need to incorporate clues from the physical reality to enable users to comprehend the virtual environment, the opportunities for innovative design still remain. This design concept comprises an understanding of the intrinsic qualities of virtual worlds,

aiming at a design with features that match those qualities. The first step in the search for a virtual world design model is to acknowledge the need for a balance between realism and fantasy.

STRUCTURE VS. FUNCTION

Knowing that it is a good idea to balance realism and fantasy is not enough. Realism is easy. It is basically what crops up if we just start building. Fantasy is harder, and to strike the right balance between the two is even more complicated. Our model needs to be more informative about which the fundamental issues are so they can be addressed at the outset of the design process.

Let us consider for a moment what the differences actually are between building a virtual house and a physical one. This comparison is very hard to do without having some kind of context for the task. Let us say that we want a place where people can meet for different types of intellectual interchange, a conference center of sorts. Unless the virtual environment has a working ecosystem we will not have to have walls and roofs for the sake of keeping the participant sheltered from rain, wind, snow, or cold weather. So why would we need a wall? For one thing, if we had nothing showing people where to meet up, they would probably have a hard time finding each other. Walls can serve as designators of a place, something that could be marked out on a map or referred to in a route description, but we would not need walls for this, a simple *x* on the ground would suffice.

Walls can also isolate an area so that sounds from the outside are kept from coming in and vice versa. This is a desirable feature in a conference center where you want to be able to have several different activities going on at the same time without interference. Unfortunately a virtual wall cannot stop talk from flowing right through it if the talk is typed-in utterances in a separate chat box. Another important aspect of walls is that they contribute to the atmosphere of the room. If you for some reason want to evoke claustrophobia you should probably put the walls really close to each other, but you can probably also create an atmosphere of intimacy by keeping peoples avatars in close proximity. Walls will of course also have color and

texture that will affect the atmosphere of the room and could for instance be used to show images on.

We can conclude that walls are much more than just shelter from the forces of nature and we will probably continue to want them also in virtual environments, but what will they look like? Normally walls are very straight and upright but perhaps that mostly has to do with gravity. In a virtual environment where gravity might affect only the avatars and not the buildings, or perhaps not exist at all, we might want to experiment more with shapes and curves. And if the material we use has no weight we can build vertically just as easily as horizontally.

This might make us wonder why Alpha World has the sprawling urban feel of Los Angeles. One reason is of technical nature. There is a very tight limit to how much you are allowed to build within any given cell in *Active Worlds*. A cell is ten times ten square meters in the horizontal plane, but infinite vertically. This means that there are severe restrictions to how high you can build compared to how wide. Similarly the fondness for objects of fairly simple geometry with sharp edges and flat surfaces is connected to the fact that other objects would put a harder strain on the rendering engine that translates information in the world database to a graphical environment on a participant's screen.

Yet another possibility in zero-gravity architecture is to give up the idea of *up* and *down*. This could be done partially, as in *2001 – A Space Odyssey* where *up* is in different directions in different parts of the space ship, or full out without any decision made by the designer as to how the body ideally should be aligned in reference to the room. There are, however, indications (Charitos, Bridges, and Martakos 1999) that this kind of freedom is more distracting than liberating and that people try to find an *up* and a *down* based on angles and size of surfaces even if no such clues have been deliberately put there by the designer.

This thought experiment points in a direction where the function of the environment is the starting point of the design. Since it is easier to say beforehand what we want to do in the virtual world we are about to design rather than what it should look like, why not take the activities themselves as the starting point for a function centered design approach. Again I find support in Heim who says that the value of the virtual worlds cannot be

measured by how much they look like the physical world, but by how well they can serve the functions that we attribute to them (Heim 1998b; 2001a).

THE CONFUSE PROJECT

The function centered approach was taken as the starting point when I led a group of designers in the creation of a virtual world called Confuse. By forming the name of the world from its intended function, *conference use*, we alluded to the fact that we tried to build a function rather than a building structure. By looking at ACCD World we could see that the reaction against structural realism into the area of structural fantasy can lead to interesting revelations but also problems. Without a ground plane or other structural entities mimicking the physical world, inexperienced participants in particular easily run the risk of feeling disoriented and overwhelmed by the experience. This is perfectly acceptable and even desirable in a place like ACCD world which was created to make a statement about, among other things, alternatives to structural realism.

In Confuse, on the other hand, we wanted something less confusing (excuse the pun) that still was alleviated from the clutches of structural realism. Instead of only focusing on positioning the design correctly on the spectrum from fantasy to realism, we focused on providing functions instead of structures hoping that we had found a synthesis beyond the dichotomy of realism and fantasy (see figure 40).



Figure 40. Function as a synthesis to the structural realism and fantasy thesis and antithesis.

In the design process we made extensive use of physical models in *Lego* (see figure 41) and constructed virtual counterparts for the *Lego* pieces (see figure 42). There were two main reasons for using models in the design process. First, we wanted to know how something would look before building it, second we wanted the group to collaborate in the design process.

The choice of *Legø* as material for building the models was based on two main assumptions. First, it is a material that is commonly known and easy to handle. The enjoyment in our design team was evident when it came to building the models. Second, *Legø* is very suitable for work that requires repeated change and iteration since it can be reconfigured as many times as necessary without any considerable effort or deterioration of the building material.



Figure 41. Physical model in *Legø* with *Simpsons* chess pieces acting as avatars.

To some extent we achieved the benefits that we had hoped for. The models helped visualize our design concepts and made problems explicit. In this sense, the models made the design process less abstract. Furthermore, the models were used when discussing certain aspects of the design. They made it easier to focus discussions of the whole group around a specific aspect of the design. Finally, the models encouraged us to continuously reconstruct and re-evaluate different solutions.

The use of the models shifted considerably during the design process. In the initial phase of the process the models proved to be of great importance and were used extensively by the team. Sometimes the physical models steered us in the wrong direction. It proved to be considerably harder to control your avatar in *Active Worlds* compared to the way in which we used the chess pieces in the physical model. For example, our focus on the physical model had made us build staircases and corridors that were too narrow to be easily used by the avatars.

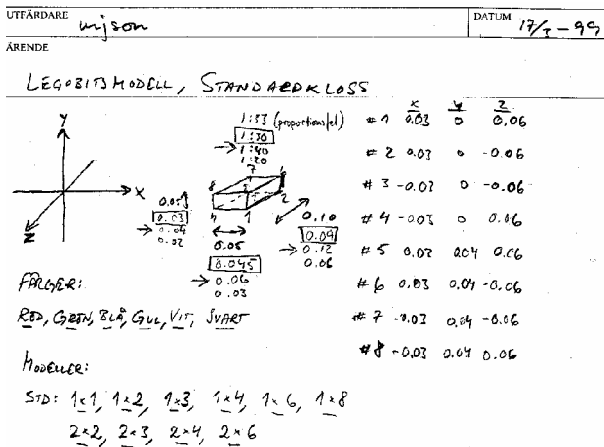


Figure 42. The virtual *Lego* was modeled in the scale of 30:1.

The use of models also gave the design certain characteristic features, like buildings without roofs for instance. It is very hard to do interior design in the scale of 1:30 if the model building has a roof. This did, however, turn out to be a positive feature since not having roofs on virtual buildings gives the participants the possibility to use the *third person view* camera setting without the roof coming between the vantage point and the avatars.

In the later phase of the project and in the actual design of the conference center, we used the models in a more flexible way. We switched back and forth between the physical model and the virtual environment. Most advantages were found when using the model of the conference center for trying out different solutions and particular concepts. Even though the model was relatively small and consisted of a limited set of objects it proved to be helpful when used in a flexible way and in close relation to the virtual implementation.

Besides the advantages we experienced, the model also had its drawbacks. The model did not meet our expectations when it came to creating a feeling for the virtual counterpart. As mentioned above, we had problems in designing for example staircases and corridors in an appropriate way. Visually we had an understanding of the object, but the *feel* of the physical model did not correspond to the virtual counterpart. The ability to move around inside the building gave us a completely new experience of the

environment that could not be achieved by using physical chess pieces inside the physical *Lego* building. This forced us to reconstruct parts of the buildings inside the virtual environment. The flexible nature of the model also made it hard to decide at what stage to stop modeling.

Another problem we encountered was the documentation of the process. Blueprints are easy to distribute and file for backup and archival purposes. A model does not lend itself to these procedures. Although we made photographs of the models, there was no way to fully document the model and keep up with all revisions. The more we learned how to make good use of the modeling material, the more ephemeral the design process became. I also think it is significant to note that we decided to move into a lab where we could all be together for the second phase of the project. While virtual worlds in general tend to advocate interaction and collaboration over distances, the physical model re-introduced a need for physical proximity. Finally, we found that the model also favors solutions that follow the physical laws of gravity since the model has to do so.

Besides reflecting on the use of models, we also made observations related to the specific material we used. We found that the material itself had major implications on the design and the way in which it was carried out by the participants. During this project we did not come across anyone who did not know what *Lego* is. To most people it seems to evoke feelings connected to play, joy and childhood. The effect of that is that everybody who visits our world recognizes that it is made of *Lego*, and gets the impulse to build something. Thus, the environment is perceived as expandable and unfinished. This is a feature that should be explored further and that can be beneficial in situations where creative activity and collaboration is desired.

From a technological standpoint, *Lego* translates easily into virtual objects. Few polygons are needed to generate a box shape which makes the objects easy to render for the system. There is, however, a limit to the freedom of expression using this material. It was obvious that the characteristics of the material influenced the environment and the perception of it considerably. The blocky structure of *Lego* and its few characteristically bright colors put severe restrictions on the aesthetic possibilities. The final version of the main building in the Confuse world can be seen in figure 43.



Figure 43. The conference centre in the Confuse world.

We divided the main function – meetings – into four categories, small meetings between two to four people, medium sized group meetings with four to eight people, presentations with eight to sixteen people and a general mingling area. Each function corresponded to a room in our building. For the small meetings we wanted to enhance the intimacy of the meetings by making the room small. We also placed a table in the middle that we hoped would work as a subtle positioning cue to make people position themselves at an appropriate distance to each other and in the field of view of the other participants. Since walls do not stop an avatar in one room from seeing what someone in another room types in the chat window, we did not make the walls solid. The holes in the walls were intended as a reminder to the participants that these walls lacked the function of enclosing the communication, that everyone in the building could *hear* you (see figure 44).

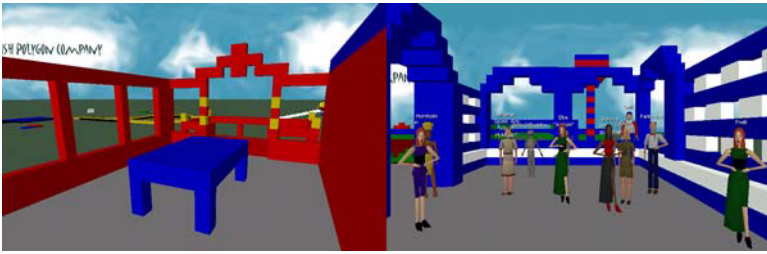


Figure 44. The small and medium sized meeting rooms.

At the ground floor we put a mingling area for people to interact more informally and wait for others to arrive. To signal to the visitors that this was something more than an entrance hall that you only pass on your way to the other rooms we put a small bar and a couple of chairs there. Although it was not possible to get a drink from the bar or sit on the chairs, we saw them as filling a purpose in signaling the function of the room (see figure 45).

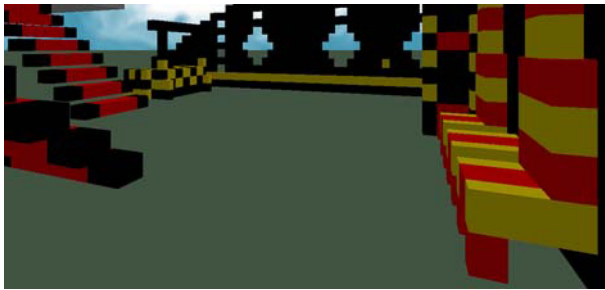


Figure 45. Mingling area with symbolic chairs (foreground right) and bar (background left).

The room for eight people and above was designed as a lecture hall with one person standing on a podium in the front facing the others. I had on earlier occasions noticed that when virtual world presentations are given in open spaces, the audience tend to move around and talk during the presentation which in turn tends to make less experienced presenters nervous. Therefore we placed railings in the room in an attempt to make the audience distribute evenly in the room and stay put with their attention directed towards the speaker during the presentation (see figure 46).

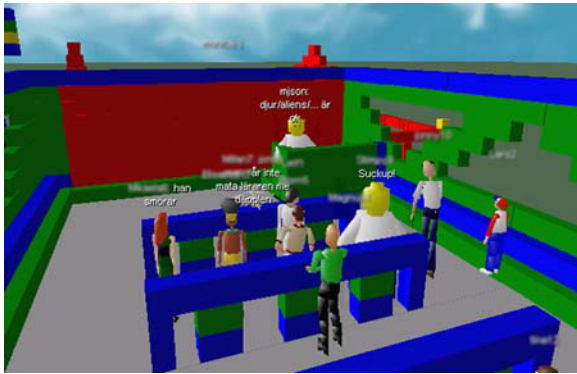


Figure 46. The main lecture hall.

BEYOND CONFUSE

Our goal was not to create a complete and finished environment, but to create something that could be added to and altered indefinitely, but we did reach a point where we felt that the foundation was in place and we could start using our creation. That was when we realized that all was not well in Confuse. It was not that people did not like the main building. Being immersed in Lego leaves very few people unaffected. But it was not utilized at all as we had expected. My first lecture there had not even started properly before I realized that there was no chance of me giving a forty-five minute presentation with the students listening quietly to what I had to say.

It quickly became clear that it is not possible to take a function – such as a lecture – out of its physical setting and implement it the same way in a virtual setting. It is not just the structural aspects that change, functions are also transformed. In fact, we had made the same mistake as those importing structural realism, but on a different level. We had inadvertently tried to import functional realism by creating a structure to support functions like lectures and meetings assuming that the conditions would be different, but that the functions themselves would basically stay the same. Once again we face the problem of having to strike a balance between realism and fantasy. At the same time as we want to make use of the participants' understanding of what it means to be in a learning situation we have to transform the function to fit in with, and make use of, the properties of the medium.

Confuse never became the hit we had hoped for as a virtual meeting place. Since it only was put to sporadic use, it is hard to tell how well the specific design solutions worked in practice. The only thing I can say for sure is that the participants do not adhere to position markers in the way we had intended. I have used the small meeting room on a number of occasions and almost never have the participants lined up around the table in the manner we had predicted. While the people I meet with often do keep *eye contact* with my avatar, they seem just as happy standing in the doorway or halfway out on the balcony during discussions. I guess the lesson here is that avatars do not take furniture as *seriously* as humans do, which is in line with the idea that the building structures are subordinate to the functions.

Although the Confuse world was unsuccessful, all it needed to become a success was a reformulation of its purpose. Since we all agreed that the process of building the environment in virtual *Lego* had been tremendous fun, we decided to make a clone of the Confuse world and make that clone open to the public so that anyone could have a go at virtual Lego building. That world – named Ogel – proved a success (see figure 47). Besides using it for several courses in teaching virtual world construction and design, people from all over the world have taken advantage of the possibility of making their own creations in the world and it has received honorable mentions within the *Active Worlds* community.

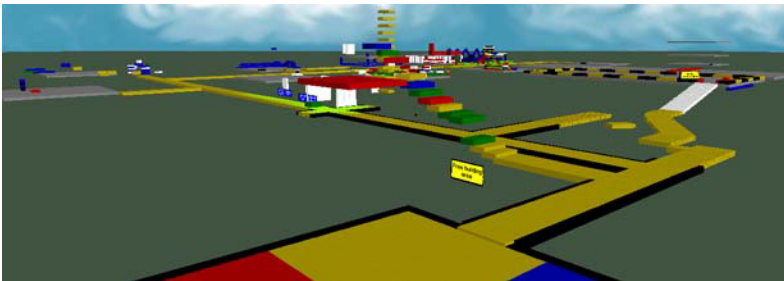


Figure 47. View of the free building area in Ogel. (The narrow clip plane restricts the view to the closest building experiments.)

Once again the point that it is fun to build virtual worlds was strengthened without much progress made on how to support other types of

activities. The situation resembled the one we were in when the project started. Just as on the structural level, there is a balance to strike that seems just as elusive as the former. Where do we go for guidance in transforming functions so that they can be successfully executed in virtual worlds? Are we doomed to constantly repeat the process of trial and error for all functions we want to transform for virtual arenas (see figure 48)?

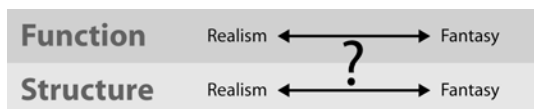


Figure 48. Realism versus Fantasy revisited.

THE WORLD AS A PROCESS

Game design offers some interesting input to the functional level of virtual world design. In games, the world is part of the rule set that help create a balanced and evolving gaming experience. *Everquest* is both a game and a virtual world. As a game, it needs to drive the process of playing forward. Exactly what that process is can only be determined individually and at given points in time since different players have different motivations for playing and these motivations change over time. The most important driving force in the game, however, is to increase the abilities and experience level of one's character.

The pursuit of experience points could be regarded in terms of a number of possible paths traversing the geography of the world. Right outside all hometowns the designers have placed beginner areas with low level monsters that players can kill to gain their first few experience levels, but soon they need to move on through the world in order to keep the experience points rolling in. The issue of where to go next, once the experience gain starts dropping off is constantly a hot topic among the players. This gives rise to a need from the players to map the game landscape in two different ways. The first is the traditional geographical maps that show which zones are adjacent to each other and how to get from one place to another (see figure 49). The second is a process oriented description showing appropriate ways of

progression through the game in terms of zones to go to and tasks to perform.

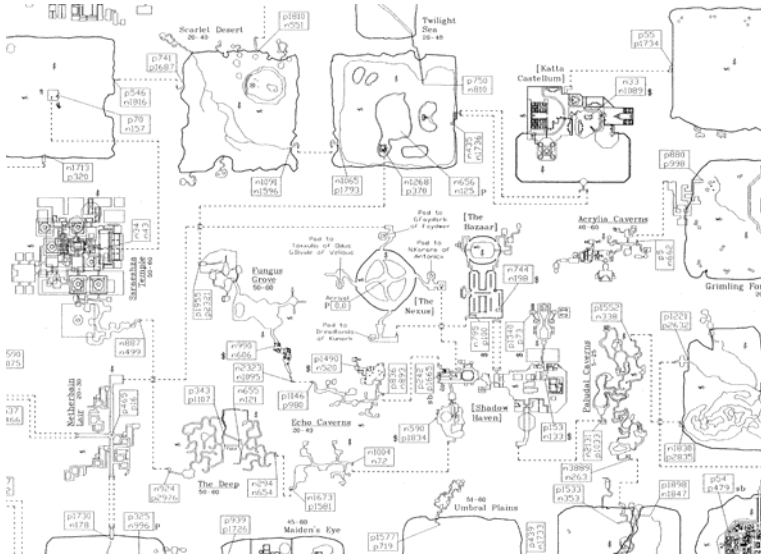


Figure 49. Area of a spatially oriented map of the moon Luclin from *Everquest*.

While the first map shows the shortest way from one place in the virtual landscape to another, the second way of describing the world focuses on the optimal way to develop your character. The process oriented progression through the game becomes even clearer in the high-end game. In figure 50 the high end zones are ordered in a flow chart telling players how to progress through the zones to finally get to the Plane of Time, the most rewarding zone in the game at the time when this illustration was made. It also tells us that this world can be understood as a flow of people through the environment working their way towards their goals.

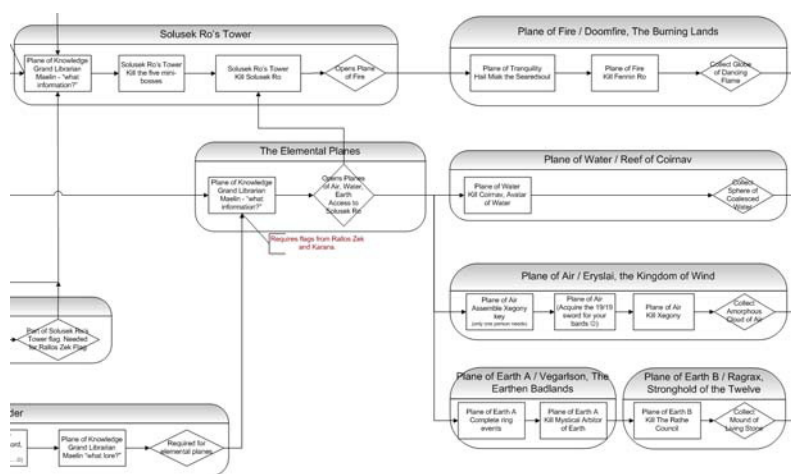


Figure 50. Excerpt from a process oriented map showing how to get to the Plane of Time.

In the case of *Everquest*, the process that the world is there to support – or provide a pleasurable resistance against – is the development of the player's characters. The process oriented nature is, however, nothing unique for the MMOG worlds. It could both help us understand the success of MMOGs and tell us something about how to create successful virtual worlds for other purposes.

INTERACTURE

Heim has suggested that it is in the event-based interactions that we locate the *substance* of virtual worlds, an idea that can be traced back to Heidegger's notion of a world as a *context of involvements* (Heim 2001a). This rewording of the concept of function opens up for a more detailed understanding of what a function actually is. One part of a function is the event and one part is the interaction. The character of the event will change from instance to instance, but the interaction is a more stable component.

All the different contexts I have studied – including conferences, design work, recreational social interaction, and development of close social relations in and around virtual worlds – share some interaction characteristics. There is a layer of interaction that is more persistent than the layer of

function. By adding an interaction level to the previous levels of structure and function we arrive at a model for virtual world design that I call the *interacture* model.⁵⁷ The word *interacture* can be thought of as a concatenation of the words *interaction* and *structure*, implying that the social structures of interaction make up the fundamental material that virtual worlds are made of, rather than the graphical building blocks. The word can also be seen as an alternative to the word *architecture* where the substitution implies a need to break loose from tried and true principles for spatial design in the physical world when designing for virtual worlds.

The *interacture* model for virtual world design entails two things. First of all it suggests that the design *process* should begin at the interaction level as opposed to the function or structure levels. Beginning at the correct level is not enough, however. It is also, as on the earlier levels, a question of striking the correct *balance* between realism and fantasy.

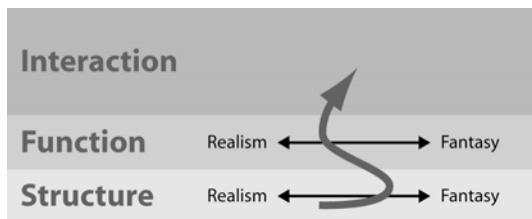


Figure 51. The path followed in this chapter in the search for a model for virtual world design.

Beginning with the process issue, we can look at the *interacture* model as an inversion of the path I have taken through this chapter in the process of coming to terms with the different levels of virtual world design (see figure 51). Instead of ending up at the interaction level, this is where the design process should depart. Issues of social interaction are at the very core of virtual world design.

When examining the issue of balance, we can see that the interaction layer has the same division between realism and fantasy as the other layers and there is a call for balance between the two. We can use what we know

⁵⁷ Partial credit for coming up with this word goes to Mikael Wiberg who came up with, and offered me a similar word which I tweaked into this one.

about social interaction in virtual worlds to guide the balance between realism and fantasy in this layer. The investigation into the nature of social interaction in virtual worlds promises insights that are more generally applicable than insights at the levels of structure and function and can work as helpful advice to many kinds of virtual world design projects.

On the realism side we have the first and most important outcome from my studies of social interaction in virtual worlds, the realization that the virtual worlds are real in terms of everything from interaction to objects. We have also seen that people will create social structures and hierarchies simply because there is a social need for them. On the fantasy side we have seen that the medium affects the weight and distances of social interaction in ways that I have tried to capture through the concepts of levity and proximity.

After dealing with the interaction level we come to the function level, and as the last link in the design chain we have the issues of dressing the world in graphical structures, all the time minding the balance between realism and fantasy (see figure 52).

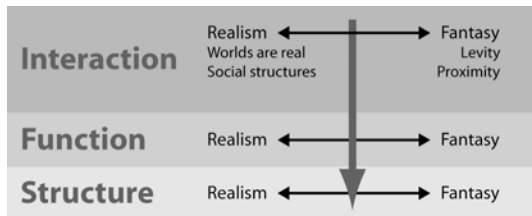


Figure 52. The interacture model.

FROM UNDERSTANDING INTERACTION TO DESIGNING INTERACTION

Now that I have established the interaction level of my model as the heart of virtual world design, let us take a closer look at the content of this level. On the realism side, I have found that much of the social structures that exist in the physical world also exist in virtual worlds. This goes counter to suggestions that anonymity, a decentralized technological foundation, and a fleeting, shallow nature of the medium would stop social hierarchies from forming. I found that people are not really anonymous. While they use pseudonyms instead of their given names, they stick to these online identities

in order to be able to build up a social capital and thus also accept accountability for their actions through that identity. This way, social hierarchies are formed also in virtual worlds, but the criteria for social status are different.

I have also found that social relations formed and upheld exclusively online *can* be the very opposite of fleeting and shallow. There are many reasons for the misconception that they could not. These include the game-like first impression that virtual worlds emit to the casual observer and the nonsensical, hacked up, and unfulfilling character of the first attempts at text-based chat that are often conducted in *portal* areas where, as Saarinen (2002) points out, mostly inexperienced users and researchers tend to end up. There is also a widely spread and deeply rooted assumption that physical face-to-face interaction is complete, and can be taken as the standard that all other forms of social interaction should be measured against.

All these misconceptions point to a need for long-term in-depth engagement with people in virtual worlds as a pre-requisite for making claims of understanding them. This is what I have termed the inside view, which has been lacking in, for instance, computer mediated communication research. For good and bad, social interaction in a virtual worlds (even if that world happens to be a game world) is *real*, and should be granted that status by the designer. This entails not taking the position that what goes on in a virtual world only has effects within those boundaries and does not have any *real* consequences.

But what about the fantasy side then? While I do not think that fleeting or shallow are inherent properties of this medium, I believe that there are properties of the medium that are unique, and shape the social interaction in virtual worlds differently from social interaction in physical settings. The particular properties of virtual world systems seem to open up a new space of possibilities for social interaction. In order to clearly convey the impact this new interaction space has, I have tried to compile my observations about the character of this interaction space into the two categories, levity and proximity.

While the awareness of the proximity effect in virtual worlds should permeate all the design decisions, it will probably not generate particular solutions to particular design problems. In the case of levity, the notion of

trying to go with the natural tendencies of the medium leads me to more concrete ideas for solving design problems I have encountered. As described in chapter four, levity is a multi-faceted aspect of virtual worlds as a medium. As such it leads to a number of interesting design questions. Levity implies a lack of gravity. The interacture model invites us to stretch the concept into a new domain by asking what gravity means in terms of social interaction. The artist and software developer Gerald de Jong gave a perfect illustration of how to approach the issue of gravity from social perspective. He suggested to me that instead of gravity sucking the avatars towards the ground plane, there should be a sort of social magnetism between the avatars that made them align themselves head-to-head and feet-to-feet whenever two or more avatars approached each other.

By replacing spatial gravity with social magnetism we could preserve social conventions about bodily alignment and eye contact at the same time as making away with both gravity and ground plane. Although a ground plane is great for finding one's bearings in an environment it also leads to environments with low content density. Just think of Alpha World as an example. In the vertical plane, Alpha World is roughly the same size as the state of California. But in the horizontal plane it is wafer thin. If you would like to increase the content density around a given point, say ground zero, you would want to go for a spherical structure rather than a flat disc and then the social magnetism would come in handy.

Levity can also be understood as a difference in the way we behave in virtual environments compared to physical. In relation to design, levity is one of the main reasons why the interacture model should be favored over the functional approach. In the framework of recreating a function from the physical world, such as a lecture, levity often becomes an unexpected problem since conventions of social interaction is supposed to remain constant. The problem then has to be attacked by adding features that constrain the levity of the social interaction until it better matches the expectancies.

From the interacture perspective, the first question becomes what to do instead of lectures that would enable the participants to make use of the benefits of levity instead of having to see it as a problem that has to be solved. In the case of a lecture, I think the excursion is an interesting

metaphor for how to create a substitute for the lecture. Heim (2001a) has developed what he calls reverse memory palaces. The concept of memory palaces dates back to the ancient Greeks and is a method for memorizing large quantities of information by visualizing an imagined or existing structure (such as a palace) and then *placing* the information in different rooms. The information can then be retrieved by mentally navigating through the rooms of the palace (Anders 1998).

What makes Heim's palaces reversed is that instead of internalizing a structure into the mind of one person, a reversed memory palace is an externalization of mental structures that can be shared by several participants in a virtual world. Instead of working as a mental tool for a speaker, it serves as an interaction enhancing context for an event of some kind. The reverse memory palace is not only limited to give cues for the interaction through the visuals. Also sound and even the constitution of the avatars has been used to evoke a certain mood or the discussion of a certain topic in the course of the CyberForum online events (Crockett 2005; Heim 2001). By utilizing the levity of the environment, it is possible to transform a lecture into an excursion through ideas. Contrary to the lecture situation, the trip accommodates the chat style of conversation very well.

As I stated in the beginning of the chapter, the Interacture model is only a tentative result of some design experiments that mostly were informative in the way they taught us what not to do, but it can also be seen as a point of departure for further explorations into virtual world design beyond the dominating perspectives of engineering and architecture.

CHAPTER SIX

VIRTUAL WORLDS, SOCIAL
INTERACTION DESIGN AND BEYOND

IN CONCLUSION...

I ended chapter one with a four-point list comprising the aim of this book. It read as follows:

- a) To explore the possibilities of using ethnographic studies as the foundation for a participant centered design approach.
- b) To investigate the persistent qualities of social interaction in virtual worlds.
- c) To formulate a model for virtual world design based on social interaction as the fundamental building material.
- d) To merge the findings from *a-c* into a general approach to the study and design of socio-technical systems.

Point (c) was taken care of in chapter five when I presented the interacture model for virtual world design and will not be iterated here. In this chapter I will be revisiting (a) and (b) and conclude with an attempt at (d). I will start with a look at what can be said on a general level about the characteristics of social interaction in virtual worlds. Then I will look at how my choice of research methodology with a focus on attaining an inside view of the object of study and combining observation, participation, design and reflection has influenced my findings. I will also take a look at the development of virtual worlds during the last ten years to emerge at possible implications of these ideas in terms of future development. Finally, I will broaden my perspective and reflect on social interaction design theoretically as well as methodologically.

PERSISTENT QUALITIES OF VIRTUAL WORLDS

The Reality of Virtual Worlds

Rather than claiming that virtual worlds are real places by default, I believe that they *become* real. The transformation of any cartoonish fantasy landscape into a regular part of our everyday lifeworld occurs as the participants begin to treat the world as part of their reality. This process occurs over time and through different kinds of investments in the world such as time, effort, emotions and money. It is not the mental substitution

of iconic symbols for their physical world counterparts I refer to here. It is true that especially in periods of intense engagement with virtual worlds, we can momentarily forget that the person we are talking to does not look anything like the avatar he or she is using, just like we may start thinking of the physical world as having properties from the virtual world such as point, click, edit and undo functions. What I refer to here is reality in the sense of a unique part of the world we live in rather than a simulation of some other part, or a fictitious place akin to those found in literature or film. I also use reality in the sense of interconnectedness where our actions have real consequences for ourselves as well as others both inside and outside the virtual arena. Although the fictional status of a world begins to disintegrate as soon as a people pour into it, the habituation of a virtual world is a slow process and requires commitment from the participant. Far from everyone participating in a virtual world develop a deep social and emotional engagement with the world.

Just as in society in general, social engagement will lead to conflicts. There will be conflicts between those who make a significant investment and those who have invested significantly less, like in the example of the guest picking a fight with the *Palace* members in chapter four, and people who cannot see satisfying returns on their investments like Bart in the prologue, or even lost it all together – a possible consequence for Phrank in interlude three – will be the outcasts and disenfranchised of the virtual worlds.

Just as virtual worlds are real, although exhibiting particular qualities compared to social arenas in the physical realm, virtual identities are also perfectly real identities. It is hard to imagine an appealing virtual world experience in the absence of some kind of persistent identity signifier. The demand for a persistent net identity can also cause problems. The punishment of having to start over from scratch after getting discredited can sometimes be out of proportion to the mistakes made, and since identity is intimately connected to a particular world, it can become a prison as seen among people who stay in game worlds long after they stopped playing because there is no alternative way of keeping existing social ties and positions in the social hierarchy.

Virtual identities are closely tied to the construction of social hierarchies and a need from the community to hold participants accountable for their

actions so that participants can build up social capital in their ties to other participants. While this is mostly used for positive social capital, it is also a way of holding participants accountable for behavior that is perceived as negative. The examples mentioned above also show how people will go to great lengths to protect their investments through the creation of elaborate social structures built on codes of honor, trust and shared values.

Social structures and hierarchies

The most advanced, complex and powerful part of a virtual world system is invariably the people that participate in the activities of that world. To understand virtual worlds we have to understand the people who inhabit them. Through my empirical studies I have come to realize that the fundamentals of social interaction have not changed very much on account of the virtual context that embeds the interaction. This insight might seem a fairly trivial conclusion, but looking at prediction about what was likely to happen – whether based on research or pure speculation – seemed to be formed around the idea that social behavior as we know it was inseparably connected to the physical world.

From this perspective, there was a risk of degrading the values of social interaction by imposing technology that at its very best could provide a lesser copy of the original. The only way to see a positive progression based on this perspective is to envision the birth of some new kind of social interaction that sparked by technology reinvents ourselves as social human beings, but so far we have not wanted to reinvent ourselves, instead we appropriate the technology in ways that express our old social selves in new ways.

The way we do things – such as form friendships or construct social hierarchies – can in fact still be accurately described in terms that has been used by ethnographers since the 1950's, but since the context is different, we use other means to accomplish the ends. We use a new set of equipment to fill with symbolic values, with little care to whether a certain object is physical or virtual. As long as there is a consensus within a group of individuals about what the symbolic value of an object is, it can fill the intended purpose.

Are we then to understand the study of a virtual community as something roughly equivalent to the ethnographic studies of, for instance,

the tribes on Borneo, a way of living that is so far from our own customs and culture that we need to decipher them in order to see how they correspond to our own culture (Asplund 1970)? My answer is, no. We have to remember that the people I have encountered on the net all belonged to a culture already when they logged on, and whether there is a will to shake that baggage or not, it will remain with them. The virtual world system is a vehicle that has the power to reveal new sides of a person and new ways of interacting socially, but rather than changing who a person is, this only uncovers sides of a person that always have been there as latent potentials. Different participants will experience the worlds differently based on their individual background, character and motivations. This makes it hard for designers to predict the outcome of the contact between the participants and pre-designed parts of the system.

STUDYING VIRTUAL WORLDS

I started out by saying that all my descriptions of virtual worlds are social constructions of observations filtered through the subjective lens of me as the mediator. I have tried to show that the direct engagement in the processes that I have studied is a strength when it comes to reaching an inside view of this phenomenon. I have also concluded that the fundamental building material of virtual worlds is the social interaction of the participants which makes them – in a very concrete sense – social constructions as well.

My methodological approach is heavily influenced by ethnography. The check-list for the inside view reads like a *Pepsi* commercial with the two main items being *been there* and *done that*. But there is a duality to each point on the list. Having *been there* as a designer and as a participant are two very different things but they are equally important. In order to design you have to participate, but if you want to understand participation in virtual worlds not only as snapshot descriptions of the there and then, but also in terms of potential change, you also have to understand something about the design and implementation of the system, and ideally even have a go at designing your own world.

It is in this duality that my methodology departs from much of the work not only in today's academic environment but equally so within the field of

practitioners. There are many studies made with theoretical depth and intellectual vigor about the human condition in virtual worlds that simply fail to transcend the border into the land of the practitioners, and even if they do, the practitioners have trouble matching their own experiences with the academic work due to a lack of intimacy with the object of study in the research.

Designers might rather listen to the participants for suggestions on how to improve existing systems or make new, better ones. But the participants typically also lack an essential ability. To me, to design is to dream, a designer has to be able to dream something that does not yet exist. This is a very special ability that the participants often lack. As a result, their design suggestions run the risk of being limited to wanting more of the same, only faster and shinier.

Based on my approach where I have been aiming for an inside view of both the understanding of social interaction in existing worlds as well as the design of new worlds, I have suggested a methodological framework for social interaction design that includes both of these activities. Following this methodology means something else than being thoughtful in casting a well balanced task-force of people representing different areas of expertise and different interest groups. Social interaction design entails crossing boundaries in the specific search of knowledge that does not exist within any single domain.

FROM VIRTUAL WORLD DESIGN TO SOCIAL INTERACTION DESIGN

Nearly ten years have passed since I first set foot in a virtual world. Many things have happened during this time. The technology itself has changed shape in ways interesting and intricate enough to warrant a dissertation of its own investigating everything from the takeover by three-dimensional graphics to the intimate relation between technology and aesthetics.

One interesting development is in the types of activities the worlds are made to support. While the MUDs started out as game worlds and other uses such as strictly social MUDs and educational MUDs were introduced later, the virtual worlds started out mainly as general purpose social worlds only to later explode in popularity with the re-introduction of the traditional

role-playing element of the early MUDs into the systems. Depending on whom you ask, *Everquest* is more or less just a role-playing game (RPG) MUD with added graphics, or a general purposed virtual world with RPG rules added. Interestingly, this development has pushed the field of virtual world research in the direction of the emergent academic field of game studies. This development is understandable given the dominance of MMOGs among the most popular virtual world implementations, but there is a risk that the research done on non-game virtual worlds (e.g. Schroeder, Heather, and Lee 1998; Taylor 2000) is forgotten or understood as pertaining to a different object of study when I believe that they fundamentally are the same. Contrary to what the terminology used by many MMOG designers and scholars suggest, MMOGs are every bit as social as general purpose virtual worlds and calling participants players will not change who they are, how they behave or make them easy to slide into any pre-existing categories of player motivations.

Maybe the most important development is the proliferation of virtual worlds into people's everyday lives which has extended beyond even my expectations. At the outset of this endeavor, I was surprised to find hundreds of people logged on to the most popular systems at once. Today the major MMOGs have tens, sometimes hundreds, of thousands of simultaneous participants each. Worldwide, millions of people are regularly spending substantial amounts of time in these environments and this development seems to be continuing.

The evolution of virtual worlds so far can roughly be summed up in three stages.

- Two-dimensional worlds (*The Palace, Worlds Away*)
- Three-dimensional worlds (*Active Worlds, Cybertown*)
- Massively multiplayer online games (*Everquest, World of Warcraft*)

By structuring the development over the last ten years this way, it becomes apparent how double-edged the concept of progress can be. The two-dimensional worlds were often very close descendants to the MUDs. It only makes limited sense to think of these systems as one continuous world. Every room (equal to one screen layout) worked a lot like a discreet unit, only connected to the rest of the world by the defined entry and exit points which would load up a new room when activated. This made it possible to

make two rooms that both would lead to each other by choosing the left exit. Inconsistencies like this would sometimes be frowned upon but at the same time the possibility to, for instance, enter a specific room through a specific door from ten or more different rooms was often seen as a feature rather than a flaw of this type of system. Inconsistencies (or magic properties if you will) in the geography of the worlds would also tend to increase with the number of people involved in expanding the world.

The graphical representation of both environments and characters were very simple bitmap images where movement animations constituted the cycling through a few slightly different images. The benefit of the simplicity of these systems was that anyone with a rudimentary knowledge of image manipulation could construct, modify and accessorize their avatars and make their own rooms. With a little programming knowledge, the participants could also build in some functionality into their avatars and rooms. It was also possible to run your own world server on a standard PC of the time.

The move to three-dimensional graphics came with a number of changes. In the two-dimensional worlds, there were no world-spanning coordinate systems, each room had its own x and y axis. In the three-dimensional worlds, this was replaced with a coordinate system spanning a large area (zone) or the whole world. The feeling of being in the same continuous world as the other participants was strengthened. At the same time this change introduced the concept of a centre and periphery into the worlds. Many worlds would exhibit signs of rapidly and dramatically decreased density of population when moving away from the main entry point of the world.

Creating your own content from scratch for a three-dimensional world is much more complicated than doing so in two dimensions. Even making simple objects with simple textures requires a considerable amount of knowledge and use of non-standard tools such as modeling software and making your own avatar complete with movement animations requires yet another level of technological expertise and specialized software tools.

The de-fragmentation (centralization) of the world and the raised requirements for content production led to an increased top-down perspective on world design. The *Active Worlds* system is interesting in the way it allows participants to build things in the world while being inside it,

based on a library of existing objects made available by the world owner. Here a multi-layered structure of design emerges. The developers of the *Active Worlds* system were building upon existing internet protocols, the world owners then has the ability to construct and define which objects and avatars that should be available for the participants in the world, as well as setting a number of variables for the world such as whether it should have gravity and who would be allowed to build in it. The participants then have the possibility to choose which objects to use from the library and how to put them together. With all the pre-existing layers of design decisions, this can be seen more as worlds designed for building as an activity than the participants actually designing the world. To take the Ogel world as an example; if the available building blocks all resemble *Lego* bricks, the result will invariably be something resembling a *Lego* world. The ease of building in *Active Worlds* spoke to the amateur designer inside many of us, whether we understood the system as a magic *Lego* box or a magic dollhouse, the urge to build was strong. The results were, however, often of limited use. To build is easy, but to design for meaningful activity is much harder.

MMOGs provided an activity that in many ways was a perfect fit with medium. The result was an explosion in popularity of virtual worlds. In these systems, the possibilities for the participants to design and build were very restricted. With high costs for the original game and periodical expansions coupled with monthly fees, the participants expect worlds of professional quality in everything from game-play to aesthetics. The companies also fear the inclusion of inappropriate material or ways of cheating in the game if they do not control the content production. The notion that the content provider owns a world and all aspects of it is problematic as Taylor (2006) points out. As I have tried to show in this book, when you design a social arena, you design part of the participants' life-world. While MMOG worlds are technological marvels compared to the first stage of virtual worlds, they also pose a stark contrast to the sense of *right of common access* of the earlier systems which has been substituted with a standard of complete corporate control.⁵⁸

⁵⁸ The right of common access (*allmansrätt*) is part of Swedish law and grants everybody access to all land except house lots and arable land regardless of ownership, including the right to camp, pick mushrooms, and eat berries.

SOCIAL INTERACTION DESIGN

At some point, and maybe that time is right now, we should accept that the phenomenon at hand has grown out of the outfits it has been dressed in this far. The narrow focus on the structural properties of the object itself (as exemplified by my own definition of a virtual world in chapter two) makes less and less sense as the number of people with a relation to the object of study increases. Eventually, it will make as little sense to talk about virtual world studies as, for instance, word processor studies. A narrow focus on the function of the system whether it is games, education or something else is equally limiting.

When we look at the experience of participation in virtual worlds from the perspective of engaging with an intricate social fabric made up of groups, networks and hierarchies built on values, needs and desires, it becomes apparent that this should be reflected in some way in the *toolbox* of the virtual world designer. Designing virtual worlds means managing investments of social capital between participants by for instance providing possibilities for identity creation that fosters accountability without imprisoning the participant. This advice should be valid for a much larger set of socio-technical systems. Starting at the level of interaction and taking the properties of the medium into consideration is not just good advice for virtual world builders but for anyone building systems that afford community creation as an emergent property.

Sometimes the concept of putting the participants in focus and seeing their interaction as the most fundamental design material can even work literally. Löwgren and Stolterman's example of how intimate knowledge of the design material also means knowing its drawbacks: "concrete is inflexible once molded" (2004, 3) bears a strong resemblance to Bartle's (2004) conclusion that MMOG players are strongly imprinted on the first MMOG they encounter and tend to act inflexible towards other worlds with other design imperatives. Again, this can be extrapolated to other socio-technical systems. Putting the participants in focus also means regarding the history of the participants before they enter the system as well as caring for what happens to them once they leave.

The fundamental premise for arguing that social interaction design is a good way to understand and build virtual worlds is that they are inherently

social systems. Following the thread from general purpose virtual worlds to MMOGs, we can see that there are games that are virtual worlds and that social interaction design applies to these systems as well. From there we can start looking at other types of network games, the transition between games taking part in virtual worlds and other network games is smooth with games like *Guild Wars* as an in-between example. Here, much of the spatial environment is not persistent, but the player community is, and to me it is obvious that social interaction design can and should be applied to these systems as well.

The fundamental ideas of seeing socio-technical systems as arenas for social interaction as a starting point for understanding and designing the systems should be applicable far beyond the confines of virtual worlds. While persistence of the virtual environment was part of the definition of a virtual world, social interaction design should be applicable to all systems with a persistent community of participants. This shift of focus puts further emphasis on the position of the participant at the centre of the design approach. The persistent community can for instance be a workplace or a school where people use the same IT-application with some form of social interaction. Acknowledging the role of the software applications as subordinate to existing social networks generates design goals of how the application can complement and enforce but not disturb or interrupt existing values of the social system.

When the model of social interaction design studies is put together with the interacture model for virtual world design, we can see that both put a strong emphasis on the participants. The social interaction design model starts with the study of an existing social domain and acquiring an inside view of the social dimension of the system, while the interacture model begins with the design of the social interaction aspects of the system (see figure 53).

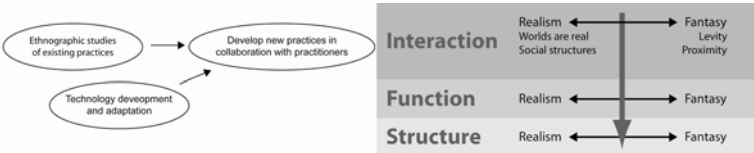


Figure 53. The social interaction design model and the interacture model.

Both models also put an emphasis on *process*. Just as a participatory study of a virtual world never becomes fully saturated, the development phase of a virtual world never concludes. Seeing a virtual world as an open-ended process merges the activities of design, development and maintenance.

It is not only the design that is procedural in nature. I believe social interaction designers can benefit from game design when it comes to seeing the path a participant takes through a socio-technical system as a process. The reason MMOGs are so popular is that the world the participants are given is constantly unfolding as long as the participants continue to engage with the world and learn more about it. The development of the character is central in this process, but it is not just about *leveling up* and becoming more powerful. The development of the personal social network is even more important.

Social interaction design is not only about providing virtual arenas that function as places, but also about providing a dynamic experience that develops over time and has the potential to last. It is essential that participants can track their development as they accumulate key resources such as social capital and knowledge about the system. Understanding social interaction design is to understand that designers and participants alike have to be on a path of progression from the first steps towards creating the system and all the way to the end of its life-cycle.

POSTLUDE

THE AVATAR GRAVEYARD

If you ask *Everquest* players why the game appeals to them you will find a more or less even mix between exploration, achievement, socialization, empowerment and escapism. This list pretty well corresponds to the typical ideas of what games in general provide to their players. If you instead look at what the players do, you realize that much of the activities revolve around learning more about the game world and passing on that information to other players.

Studying tactics for how to defeat certain monsters or how to get to a certain place is typically thought of as a meta-activity by the gamers themselves. It is something that is needed to do in order to advance in the game, but not considered gaming as such. It is perhaps not surprising that the learning aspect is reduced when gaming pleasures are discussed since learning can be connected to work, school and studies – things that a significant portion of the *Everquest* players want to get away from when they play. It is nevertheless always present in the gaming activities and a substantial time is spent on learning more and more about the game world. Reputation in the game is also closely associated to the knowledge a player has about zone geography, the value of tradable items, tactics for killing monsters or the history of other guilds and players.

After over two years of playing and studying the game I have started to interest myself more and more for questions connected to leaving the game and have begun to interview people who contemplate or have decided to leave the game after having played for a long time. In these interviews the issue of learning plays a strong, almost dominating, role. Most players connect the loss of passion for the game with having seen as much of it as they can hope to see at their level of play and having so much knowledge about the game that it in some regard has become transparent to them and therefore lost its mystical appeal.

Monk Bye bye Everquesters... monk gona go FD [feign death is a monk specific ability used to fool monsters that you are dead] one last time in Qeynos [the anagramatic name of one of the home towns]if i knew you, well met.....see you on EQ2 [Everquest 2] or WoW [World of Warcraft]

Death is a constantly present part of life in *Everquest*. A character that dies in the game reappears at a predetermined location and can run back and

reclaim the possessions from the dead body, only suffering a penalty to the experience level. But since there is no final goal to the game, the player will sooner or later have to make the decision to stop playing the game altogether. While the *Everquest* game system is constantly evolving and many additions have been made following requests from the player community, there is not a single line of code or advice written to help players who want to quit.

Once a player stops paying the monthly subscription fee, the character lingers on in a kind of limbo for an undisclosed period of time before eventually risking deletion from the database and being gone forever without a trace. I have come across many examples of how players react to and try to deal with this issue. Some players sell their characters for real money. Others keep paying without playing or give away their characters. I have also encountered players paying for other people's accounts to keep those characters alive.



Figure 54. A graveyard in *Everquest*.

When *Sony* announced that the *Planes of Power* expansion to *Everquest* was going to include something called graveyards (see figure 54), my first thought was that they finally had addressed the issues of the inevitable death of characters in the game, but unfortunately these were only designated areas for corpses to reappear in order to make them easier to retrieve. But what if graveyards where players really could bury their characters when they are done with the game were implemented? Maybe a culture of funeral ceremonies would develop within the player community where friends and guild members could say farewell to the character in a way that would provide a sense of closure both for the player who is leaving the game as well as those who have developed a relationship to the player within the game. While a high score list is a fitting way for gamers to leave a trace from their encounter with a *coin-op* game, and a *hall of fame* website is a suitable complement to a racing game, the persistent nature of MMOGs creates special needs for the kind of traces the participants should be able to leave behind them when they go.

REFERENCES

- Alvesson, Mats and Kaj Sköldberg. 1994. *Tolkning och reflektion. Vetenskapsfilosofi och kvalitativ metod*. Lund: Studentlitteratur.
- Anders, Peter. 1998. *Envisioning Cyberspace: Designing 3D electronic spaces*. New York: McGraw-Hill
- . 2001. Anthropic cyberspace: Defining electronic space from first principles. *Leonardo*. 34(5).
- Asplund, Johan. 1970. *Om undran inför samhället*. Lund: Argos
- Bartle, Richard. 2004. *Designing virtual worlds*. Berkeley: New Riders Publishing.
- Benedikt, Michael. 1991. Cyberspace: some proposals. In Benedikt, M. (ed.) *Cyberspace: First steps*. Cambridge, Mass.: MIT Press.
- Bondestham, Anitha. 1994. Följ Datorreglerna! Interview in *Datormagazin* 8(9).
- Bridges, Alan and Dimitrios Charitos. 1997. On architectural design in virtual environments. *Design Studies*. 18(2).
- Button, Graham and Paul Dourish. 1996. Technomethodology: Paradoxes and possibilities. *Proceedings of the ACM conference on human factors in computing systems, (Vancouver, Canada)*, New York: ACM Press.
- Castronova, Edward. 2001. Virtual Worlds: A first hand account of market and society on the cyberian frontier. *The Gruter Institute working papers on law, economics, and evolutionary biology*. 2(1).
- Charitos, Dimitrios, Alan Bridges, and Drakoulis Martakos. 1999. Investigating navigation and orientation within virtual worlds. In *Interactions in virtual worlds. Proceedings of the fifteenth Twente workshop on language technology*. Enschede: University of Twente.
- Chenault, Brittney. 1998. Developing personal and emotional relationships via computer-mediated communication. *CMC Magazine* 5(5).
- Churchman, C. West. 1971. *The design of inquiring systems. Basic concepts of systems and organization*. New York: Basic Books.
- Crampton Smith, Gillian, Mario Mattioda, and Philip Tabor. 2003. *Interaction design almanacco 2003*. Ivrea: Interaction Design Institute Ivrea.

- Crockett, Tobey. 2002. The computer as a dollhouse. Digital Cultures Conference. University of California, Los Angeles.
- . 2005. Building a bridge to the aesthetic experience: Artistic virtual environments and other interactive digital art. *Intelligent agent* 5(1). <http://www.intelligentagent.com/archive/Vol5_No1_ave_crockett.htm> (19 November 2005)
- Croon, Anna. 1997. R U Out There? On Personal Communities in Cyberspace. In Kristin Braa and Eric Monteiro (eds.), *Proceedings of the 20th IRIS Conference*. Oslo: Department of Information and Computer Science, University of Oslo.
- Croon, Anna and Mikael Jakobsson. 2002. Beyond use and design. The dialectics of being in virtual worlds. *Digital Creativity*. 13(1).
- Curtis, Pavel. 1992. Mudding: Social phenomena in text-based virtual realities. <<ftp://ftp.lambda.moo.mud.org/pub/MOO/papers/DIAC92.txt>> (9 March 2006)
- Daft, Richard and Robert Lengel. 1986. Organizational information requirements, media richness and structural design. *Management Science* 32(5).
- Dibbell, Julian. 1993. A rape in cyberspace or how an evil clown, a Haitian trickster spirit, two wizards, and a cast of dozens turned a database into a society. *The Village Voice*, December 21. <<ftp://ftp.lambda.moo.mud.org/pub/MOO/papers/VillageVoice.txt>> (12 May 2003)
- . 1998. *My tiny life. Crime and Passion in a Virtual World*. New York: Henry Holt & Company.
- Ehn, Billy and Orvar Löfgren. 1982. *Kulturanalys: Ett etnologiskt perspektiv*. Malmö: Gleerups förlag.
- Ehn, Pelle. 1988. *Work-oriented design of computer artifacts*. Stockholm: Almqvist & Wiksell.
- Ehn, Pelle and Jonas Löwgren (eds.). 2003. *Searching voices. Towards a canon for interaction design*. Malmö: Malmö University.
- Featherstone, Mike and Roger Burrows. 1995. Cultures of technological embodiment: An introduction. In Mike Featherstone and Roger Burrows

- (eds.), *Cyberspace, cyberbodies, cyberpunk: Cultures of technological embodiment*. London: Sage Publications.
- Fischer, Claude. 1992. *America Calling: A Social History of the Telephone to 1940*. Berkeley: University of California Press.
- Garfinkel, Harold. 1967. *Studies in ethnomethodology*. New Jersey: Prentice Hall.
- . 1991. Respectification. In Graham Button (ed.) *Ethnomethodology and the human sciences*. Cambridge, U.K.: Cambridge University Press.
- Garfinkel, Harold and Harvey Sacks. 1970. On formal structures of practical actions. In John McKinney & Edward Tiryakian (eds.) *Theoretical sociology*. New York: Appleton Century Crofts.
- Geertz, Clifford. 1973. *The interpretation of cultures*. New York: Basic Books.
- Gibson, James. 1986. *The Ecological Approach to Visual Perception*. London: Lawrence Erlbaum.
- Gibson, William. 1984. *Neuromancer*. New York: Ace Books.
- Gislén, Ylva. 2003. *Rum för handling. Kollaborativt berättande i digitala medier*. Karlskrona: Institutionen för arbetsvetenskap, Blekinge Tekniska Högskola.
- Goffman, Erving. 1959. *The presentation of self in everyday life*. New York: Doubleday.
- . 1989. On Fieldwork. *Journal of Contemporary Ethnography* 18(2).
- Hafner, Katie. 1997. The epic saga of the well. *Wired Magazine*. 5(5).
- Heidegger, Martin. 1927. *Being and Time*. English translation 1962. New York: Harper & Row.
- . 1977. The question concerning technology. In *The question concerning technology and other essays*. San Francisco: Harper & Row.
- Heim, Michael. 1993. *The metaphysics of virtual reality*. Oxford: Oxford University Press.
- . 1998a. Creating the virtual middle ground. *Technos Quarterly*. 7(3).
- . 1998b. *Virtual realism*. Oxford: Oxford University Press.

- . 1999. Transmogrification. <<http://www.mheim.com/html/transmog/transmog.htm>> (19 November 2005)
- . 2000. Reply to a review of virtual realism. <<http://www.com.washington.edu/rccs/bookinfo.asp?AuthorID=27&BookID=66>> (12 February 2006)
- . 2001a. The feng shui of virtual reality. *Crossings*. 1(1). <<http://crossings.tcd.ie/issues/1.1/Heim/>> (29 March 2006)
- . 2001b. "Seminar at University of California, Santa Barbara."
- Henfridsson, Ola. 1999. *IT-adaptation as sensemaking: Inventing new meaning for technology in organizations*. Umeå: Department of Informatics, Umeå University.
- Hine, Christine. 2000. *Virtual Ethnography*. London: Sage.
- Holmström, Helena and Mikael Jakobsson. 2001. Using models in virtual world design. In *Proceedings of the Thirty-Fourth Hawaii International Conference on System Sciences*. Computer Society Press.
- Humanistisk-Samhällsvetenskapliga Forskningsrådet. 1997. Forskningsetiska principer. <<http://www.hsfr.se/regler.html>> (10 August 1997)
- Jakobsson, Mikael. 1996. Badis as theatre: Putting the drama perspective to the test. In Bo Dahlbom et al. (eds.), *Proceedings of IRIS 19: The Future*. Göteborg: Göteborg University.
- Jakobsson, Mikael and Vicki Popdan. 1999. How we became net friends, and what we learned from it. *Identities in Action. Languages and Discourses, Communities and Selves, Values and Representations*. Gregynog, Wales.
- Jakobsson, Mikael and Daniel Skog. 2001. What makes a house? Approaching architectural design in virtual worlds. *Proceedings of the 24th Information Systems Research Seminar in Scandinavia*. (Ulvik, Norway) Bergen: University of Bergen.
- Jakobsson, Mikael and T. L. Taylor. 2006 (in press). The Sopranos meets Everquest: Social networking in massively multiuser networking games. In Eric Hayot and Edward Wesp. *The Everquest Reader*. London: Wallflower Press.

- Jones, Steve. 1999. Studying the net. In Steve Jones (ed.), *Doing internet research: critical issues and methods for examining the net*. Thousand Oaks: Sage.
- Josefsson, Dan. 1995. I dont even have a modem, interview with William Gibson. <<http://www.josefsson.net/gibson/>> (last visited 19-09-05)
- Kammersgaard, John. 1990. Four different perspectives on human-computer interaction. In Jenny Preece and Laurice Keller (eds). *Human-computer interaction: selected readings*. Hemel Hempstead, UK: Prentice Hall International.
- Kendall, Lori. 2002. *Hanging out in the virtual pub: Masculinities and relationships online*. Berkeley, Ca.: University of California Press.
- Koster, Raphael. 2000. Declaring the rights of players. <<http://www.raphkoster.com/gaming/playerrights.shtml>> (29 January 2006)
- Kuhn, Thomas. 1962 *The structure of scientific revolutions*. Chicago: University of Chicago Press.
- Kuutti, Kari. 1991. Activity Theory and its applications to information systems research and development. In Hans-Erik Nissen, Heinz Klein, and Rudy Hirschheim (eds.) *Information Systems Research Arena of the 90's*. Amsterdam: North-Holland.
- Laber, Emily. 2001. Men are from Quake, Women are from Ultima. *The New York Times*. January 11.
- Lappalainen, Tomas. 1993. *Maffia*. Stockholm: Fischer & Co.
- Latour, Bruno. 1996. *Aramis or the love of technology*. Cambridge, Ma.: Harvard University Press.
- Latour, Bruno and Steve Woolgar. 1979. *Laboratory life. The construction of scientific facts*. Thousand Oaks: Sage.
- Laurel, Brenda. 1993. *Computers as theatre*. Reading, Mass.: Addison-Wesley.
- Lessig, Lawrence. 1999. *Code and other laws of cyberspace*. New York: Basic Books.

- LeValley, Janet. 1997. Constructing and engaging virtual body-mind in an interactive animated cyberspace community. *CyberConf6 Proceedings*. Oslo: University of Oslo.
- Lin, Holin, Chuen-Tsai Sun & Hong-Hong Tinn (2003) Exploring clan culture: Social enclaves and cooperation in online gaming. In Copier, Marinka & Joost Raessens (eds.) *Level up*. Digital games research conference. Utrecht: Utrecht University.
- Lynch, Kevin. 1960. *The image of the city*. Cambridge, Mass.: MIT Press.
- Löwgren, Jonas, and Erik Stolterman. 2004. *Thoughtful interaction design: A design perspective on information technology*. Cambridge, Mass.: MIT Press.
- Markham, Annette. 1998. *Life online: Researching real experience in virtual space*. Walnut Creek: Altamira Press.
- Matsuba, Stephen. 1999. Speaking spaces: Virtual reality, artificial intelligence and the construction of meaning. In A. Nijholt et al. (eds.), *Interactions in virtual worlds. Proceedings of the 15th Twente workshop on language technology*. Enschede: University of Twente.
- McCloud, Scott. 1999. *Understanding comics*. New York: Paradox Press.
- Mitcham, Carl. 1994. *Thinking through technology: the path between engineering and philosophy*. Chicago: University of Chicago Press.
- Moore, Jason. 2003. Moving from the Specific to the General: A response to skepticism towards the anthropological approach in the design process. Sober usability website. <<http://www.sober.dk/content/anthro.html>> (30 September 2003)
- Morningstar, Chip and Randall Farmer. 1991. The lessons of Lucasfilm's Habitat. In Michael Benedikt (ed.) *Cyberspace: First steps*. Cambridge, Mass.: MIT Press.
- Myers, Michael. 1997. Qualitative research in information systems. <<http://www.qual.auckland.ac.nz/>> (11 April 2003)
- Nardi, Bonnie (ed.) 1996. *Context and consciousness: activity theory and human-computer interaction*. Cambridge, Mass.: MIT Press.
- Novak, Marcos. 1991. Liquid architectures in cyberspace. In Michael Benedikt (ed.) *Cyberspace: First steps*. Cambridge, Mass.: MIT Press.

- Ojelanki, Ngwenyama and Allen Lee. 1997. Communication richness in electronic mail. Critical social theory and the contextuality of meaning. *MIS Quarterly* 21(2).
- Pargman, Daniel. 2000. *Code begets community: On social and technical aspects of managing a virtual community*. Linköping: Linköping University.
- Preece, Jenny, Yvonne Rogers, and Helen Sharp. 2002. *Interaction design. Beyond human computer interaction*. New York: John Wiley & Sons.
- Reeves, Byron and Clifford Nass. 1996. *The media equation. How people treat computers, television, and new media like real people and places*. Stanford: CLSI Publications.
- Reid, Elizabeth. 1991. Electropolis: Communication and community on internet relay chat. <<http://www.irchelp.org/irchelp/misc/electropolis.html>> (9 March 2006)
- Rheingold, Howard. 1993. *The virtual community: Homesteading the virtual frontier*. Boston: Addison Wesley. <<http://www.well.com/user/hlr/vcbook/index.html>> (19 September 2002)
- Rossney, Robert. 1996. Metaworlds: Avatars could be the next interactive revolution. Just don't let them steal your head. *Wired Magazine*. 4(6).
- Rucker, Randy, R.U. Sirius, and Mu Queen. 1993. *Mondo 2000 : A user's guide to the new edge*. London: Thames and Hudson.
- Saarinen, Leena. 2002. Imagined community and death. *Digital Creativity*. 13(1).
- Schaap, Frank. 2002. *The Words That Took Us There: Ethnography in a virtual reality*. Amsterdam: Aksant.
- Schiano, Diane and Sean White. 1998. The first noble truth of cyberspace: People are people (even when they MOO). In *Conference Proceedings on Human Factors in Computing Systems*. New York: ACM Press.
- Schroeder, Ralph, Noel Heather, and Raymond Lee. 1998. The sacred and the virtual: Religion in multi-user virtual reality. *Journal of Computer Mediated Communication*. 4(2).
- Schön, Donald. 1983. *The reflective practitioner: How professionals think in action*. New York: Basic Books.

-
- . 1987. *Educating the Reflective Practitioner. Toward a New Design for Teaching and Learning in the Professions*. San Francisco: Jossey-Bass Inc Publishers.
- . 1992. Designing as reflective conversation with the materials of a design situation. *Knowledge-based systems*. 5(5).
- Simon, Bart, Kelly Boudreau and Mark Silverman. 2006 (in press). Two players: Biography and 'played sociality' in Everquest. In Eric Hayot and Edward Wesp. *The Everquest Reader*. London: Wallflower Press.
- Slater, Mel. 1999. Measuring presence. A response to the Witmer and Singer presence questionnaire. *Presence. Teleoperators & Virtual Environments* 8(5).
- Spears, Russell and Martin Lea. 1994. Panacea or Panopticon? The hidden power in computer-mediated communication. *Communication Research*. 21(4).
- Sproull, Lee and Sara Kiesler. 1991. *Connections: New ways of working in the networked organization*. Cambridge, Ma.: MIT Press.
- Stephenson, Neal. 1992. *Snowcrash*. New York: Bantam Books.
- Sterling, Bruce. 1993. *The hacker crackdown: Law and disorder on the electronic frontier*. New York: Bantam.
- Stoll, Clifford. 1990. *The cuckoo's egg: Tracking a spy through the maze of computer espionage*. New York: Simon & Schuster
- . 1995. *Silicon snake oil: Second thoughts on the information highway*. London: Macmillan.
- Stolterman, Erik, and Mikael Jakobsson. 1997. Nya arenor för social interaktion: En studie av virtuella miljöer. <<http://www.informatik.umu.se/nlrg/nafsi.html>> (9 March 2006)
- Stone, Rosanne Allucquère. 1991 Will the real body please stand up?: Boundary stories about virtual culture. In Michael Benedikt (ed.) *Cyberspace: First Steps*. Cambridge, Mass.: MIT Press.
- Stone, Rosanne Allucquère. 1995 *The war of desire and technology at the close of the mechanical age*. Cambridge, Mass.: MIT Press.

- Suchman, Lucy. 1987. *Plans and situated actions. The problem of human-machine communication*. Cambridge, Mass.: Cambridge University Press.
- Suler, John. 1996. Do Boys Just Wanna Have Fun? Male Gender-Switching in Cyberspace (and how to detect it). <<http://www.rider.edu/~suler/psyber/genderswap.html>> (13 May 2003)
- Sveningsson, Malin. 2001. *Creating a sense of community: Experiences from a Swedish web chat*. Linköping: Linköping University.
- Söderström, Mikael, Mats Klingvall, and Tor Söderström. 1996. Practicum: A virtual world for distance education. Educational Reports No. 48. Umeå: Department of Education, Umeå University.
- Taylor, T. L. 2000. *Living digitally: Embodiment in virtual environments*. Waltham, Mass.: Department of Sociology, Brandeis University.
- . 2006. *Play between worlds: Exploring online game culture*. Cambridge, Mass.: MIT Press.
- Tolkien, J. R. R. 2002. *The Lord of the Rings*. London: HarperCollins Publishers.
- Tosca, Susana. 2002. The Everquest Speech Community. In Frans Mäyrä (ed.) *Computer Games and Digital Cultures Conference Proceedings*. Tampere: Tampere University Press.
- Turkle, Sherry. 1994. Construction and reconstruction of the self in virtual reality. Presentation at Third International Conference on Cyberspace. Austin, Texas. <gopher://home.actlab.utexas.edu/00/conferences/3cyberconf/selfinvr.txt> (23 September 1997)
- . 1995. *Life on the screen. Identity in the age of the internet*. New York: Simon & Schuster.
- Williams, Ederyn. 1977. Experimental comparisons of face-to-face and mediated communication. A review. *Psychological Bulletin* 84(5).
- Winston, Brian. 1998. *Media Technology and Society: A History from the Telegraph to the Internet*. London: Routledge.
- Witmer, Bob and Michael Singer. 1998. Measuring presence in virtual environments. A presence questionnaire. *Presence. Teleoperators & Virtual Environments* 7(3).

-
- Yee, Nick. 2003. The Norrathian Scrolls: A Study of Everquest. <<http://www.nickyee.com/eqt/demographics.html>> (31 January 2003).
- Ågren, Per-Olov. 1997. Virtual community life: A disappearance to third places for social capital. In Kristin Braa and Eric Monteiro (eds.), *Proceedings of the 20th IRIS Conference*. Oslo: Department of Information and Computer Science, University of Oslo.
- . 1998. *Att förstå virtualisering*. Umeå: Department of Informatics, Umeå University.
- . 2000. Forskningsetik i cyberrymden. *Human IT*. 4(1).

Published reports in publication series:

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UMADP-RRIPCS

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