Hege Nordli

The Net is Not Enough

Searching for the female hacker



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Preface

I was 21 years old the first time I had anything to do with a computer. The year was 1991 and I had just started my education, which for the first two years was within business administration. The computer class was called EDB (electronic data processing) the first year and ADB (administrative data processing) the next. We did not receive any introduction to the computers, but were put in front of it and expected to make some kind of programs. We were two in front of each computer. My partner knew as little computing as I did. Most of all I remember it as being a funny laugh. The teacher standing by the blackboard talking about stuff we did not understand at all and us not even being able to figure out how to switch the computer on.

After some time we managed better, but I never fully comprehended what was going on during the classes. I do not remember this as being a painful experience. It was most of all just very confusing and not the least bit interesting. There was only one computer lab at school, so most of the lectures took place in a normal classroom. The teacher was explaining on the blackboard. It was hard to get any time in front of the computer at all, and I did not have a computer at home, so I was not left with much chance of developing an understanding. The exam, as well, was a written one. It did not go very well, but considering how little I actually understood I did not do too badly. The second year I do not think we even used a computer. It was just a theoretical computing class. I did a lot better in that one, but I still did not have any clue as to what I could use a computer for.

The following year I decided to continue my education at the university and get a degree in Sociology. In the years that followed I got to know the computer little by little. I bought my first computer in January 1995. It was a used one that my sister-in-law had had for a couple of years. First of all I learned how to use a word processor. We needed to write our assignments on a computer, so I took a one-day class to learn how to use a word processing program. Later on I also learned to use a statistics package for a class in multivariate analysis. For the next four years I continued using the computer as a typewriter and a tool to help me do statistics that I needed in order to do quantitative analysis.

At some point in early '96 or late '95 I was given an e-mail account at the university. I had a couple of friends that lived abroad or in other cities, so mainly I e-mailed them. My private PC was not online so I only got to use my mail when going to the labs at the universities, which were usually rather crowded. Every now and then I would also look up a web-site to get some information for my work. During that time I never just played around on the computer. I always had a task that needed to be done.

I started on my Ph.D. in the summer of 1998. I got to decide what kind of computer I wanted at work, I got my own office and I was able to be online all the time. This ended up being a major change for my relationship with computers. I started playing around on my computer and could spend hours and days just trying out something new. Because of the theme of my thesis I also felt this really useful and felt I could spend time getting better knowledge. I surfed around on the Internet looking for interesting sites, sometimes rather randomly, but one link usually led to another and I found a lot of interesting stuff.

One day I went to try out a program called Active Worlds that someone had told me about. This is a program were you get an avatar to walk around with and write messages. You can fly, jump, dance, and decide what sex you want to be, what kind of clothes to wear, and such. The very first time I tested it out I was flirting rather heartily with a guy and could not understand why both he and the other people in the room could not stop laughing. I told them it was my first time in there and asked what was so funny. It turned out I had forgotten to decide what sex to be and that I was therefore dressed in a male body using a female strategy trying to chat up another man.

However, the program did not fascinate me to a great extent because the conversation was really boring. It felt like the others were a lot younger than me and it was mostly a place were people said 'hi' and 'goodbye'. To try starting a conversation I wrote something about men and masculinity. I do not really remember what it was but it was rather provocative. One person responded, while the other thought it was a really lame issue to discuss. I ended up having a pretty interesting discussion with this person and when I had to leave he asked me if I had (CQ. I had never heard about it, but he told me where to download it and gave me his ICQ-number. After that I started chatting with him on the ICQ. Some days we would chat for hours. I also got in touch with lots of other people, mostly from Europe or the USA. This way of using the computer really fascinated me and I felt a need to spend a lot more time in front of it than I had done before.

After having spent some time getting to know a lot of new people you get tired of that. You stick to the ones you have already met and feel like getting to know them better. In many ways you feel an urge to meet them face to face to get a step further in the relationship. Because most of the people I talked with were living far away, this was not possible so little by little we lost contact. However, I still keep in touch with the very first person I met. He lives in Australia, but came to Scandinavia on holiday in 2000. He then came to see me in Oslo and stayed with me for a couple of days. It was a fun experience finally meeting someone you had talked with for so many years.

In the middle of December 1999 I visited dagbladet.snakk for the first time, a channel administrated by the Norwegian newspaper Dagbladet. I wanted to try out a more 'local' chat channel so that I could be able to meet people face to face. For me it is necessary to see and 'feel' people to really feel that I am getting to know them. My first visits to dagbladet.snakk were rather boring, but very soon I started to feel at home and got to know people little by little. The final breakthrough came when I went to meet some of the others just a few weeks after I started there. Being able to meet and see the people behind the nick were of great importance and made chatting even more fun. It is now three years since I started out at dagbladet.snakk. I have spent an endless amount of hours there and have met a large amount of interesting and fun people. Ouite a few I have become friends with. What I find most fascinating about chatting is the way it has given me an opportunity to meet people that in many ways are very different from me. People I would not have gotten to know if it was not been for the technology. In addition to making friends, the chat has been important to my work. I have had the opportunity to discuss my findings here, which has given me help when analysing my material. I have also gotten to know other academics that have been into the same fields of research as myself.

My relationship with the computer has moved through three phases. The first phase was really about not having a relationship. I did some computing, made databases, even made some programs. But I did not really understand what I was doing or why I did it. The computer did not give me any pleasure and I did not see what I needed it for. In phase two I looked at the computer as a tool. I used it to send e-mail, I got information I needed for work, I used it to do quantitative analysis and as a writing tool. The computer never fascinated me, and I did not spend more time in front of it than I had to in order to do my tasks.

In the last phase, which I am still in, the computer has become an object of huge importance to me. Not just as a tool, but also as a companion through life. I spend hours in front of the computer every day. When I lived in the states I read Norwegian newspapers and kept in touch with friends and family at home, either by e-mail or chat. I also had net-meetings with my nephew who was four years old at the time and could not write. My brother put him in front of the web-camera and we would use our voices to talk to each other through the computer. Because of the camera I was able to see him. However, he complained that he could not see me since I had not bought a camera. Today I keep my diary at the computer, so that I can be reminded when there is something I need to do. When I feel like listening to some music I use the computer to play music. I am always online when I am at work, and during the day I chat with friends that could either be sitting at the other side of this university or at MIT. I look up and book things like trainand air-tables, check out what movies to see and buy tickets or get information about other things.

In many ways I have done a lot of identity work through my computer. Getting to know people that way, gives you a totally different opportunity to present yourself. My way of using the medium has always been to try to present 'the right' image of myself. But that leaves you with the question, who am I and what do I say to give people this information. You become very much aware of how you say things. What you say and how you act becomes so visible when you can only write it, and do not have your body and facial expressions to help you out. It has been an interesting experience that has been important to me as a person, as well as to me as a researcher in order to make me able to better understand my research field.

Trondheim, September 7th 2002, Hege Nordli

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CHAPTER ONE:

HACKING - FOR MEN ONLY?

For many years, the relatively small number of female computer scientists has been a public concern. In Norway, various initiatives have been taken since the late seventies to make girls and young women more interested in computing, with limited success. Also, several research projects have been initiated to analyse this situation.

As a master student I participated in one of these projects, called "ICT – new possibilities for girls?" It studied girls in the age group of 14 to 16, with an emphasis on their patterns of use of computers and how they relate to computers. In particular, the project set out to explore how the emerging new use of computers as a gateway to information and communication would affect young girls' interest in this technology. The idea was to identify what aspects of computer usage girls perceived as attractive, and to use this knowledge to tempt more of them to become eager computer-users.

Thus, I became interested in girls that had a positive and enthusiastic relationship with the computer. In my thesis *From Spice Girls to Cyber Girls, A qualitative study of young computer fascinated girls* (Nordli 1998, 2001), I found that the computers 'holding power' (Turkle 1996:30-34) was not programming, as found in earlier studies of computer enthusiasts. What fascinated the girls that I studied was above all the way they could use computers to communicate and acquire information.

However, when listening to my informants I was also struck by the way many of these girls related to the image of the hacker. They talked about the hacker, or the nerd, as a figure of whom they had a clear image, even though they did not personally know anyone they would characterise as a hacker. In their narratives, hackers carried a negative connotation. They did not want to be like that. Non-nerdishness seemed to be a necessary condition for computer fascination among these girls (Nordli 2001:117).

This observation I found interesting, but also puzzling. Why was it so important to distance oneself from hackers? Would this remain as strong as these computer enthusiasts grew older? Was it at all possible to be a female hacker?

Such questions helped me to formulate the research questions for my Ph.D. project proposal, which is the basis for this dissertation. Admittedly, for my part, I was also fascinated by what I had read about hackers. Thus, I wanted to combine my concern for women in the world of computers with my growing interest in hackers. Consequently, I decided to study female hackers: Do they exist, and if so, how do they construct their enthusiasm?

I started my project in the summer 1998 with a grant from the Norwegian Research Council. Since then, whenever I told people that I was doing a Ph.D. on female hackers, they would first of all look startled, then laugh, before asking in a sceptical voice if such women existed. Even the Norwegian Research Council said in their grant letter that they doubted I would find what I was looking for. In addition to questioning the sex of hackers, people have also to a large degree assumed that I was about to do a study of criminals, or of a community consisting of people doing illegal tasks with the help of the computer.

In this dissertation, I will tell you about my search for female hackers. Basically, this is a story about the way that some young women choose to be enthusiastic about computers and acquire impressive skills through using them. However, it is also an exploration into the production of gender and gendered images in the world of computing. Is computer enthusiasm something different for women than for men, as male enthusiasm is accounted for in the research literature? If so, what does it mean to be a female hacker? In this way, I also hope to be able to say something substantial about what kind of pleasures women may take from a strong engagement with computers.

The immediate assumption by most people that hackers are male nerds, with which no sane, normal person would identify, calls for a clarification of the basis for this view. From where does our present understanding of hackers emerge? This is particularly important because female computer enthusiasts have to relate to this widespread image. Maybe there are no female hackers just because the public image of the hacker is so negative?

Originally, 'hacker' was a name given to a person within the computer science community that was especially good at what he was doing. It was a name of honour. Today, it still is within some communities. The third edition of *The new hackers dictionary* (Raymond 1996:233-234) defines a hacker as "1. A person who enjoys exploring the details of programmable systems and how to stretch their capabilities, as opposed to most users, who prefer to learn only a minimum necessary. 2. One who programs enthusiastically (even obsessively) or who enjoys programming rather than just theorising

about programming. 3. A person capable of appreciating hack value. 4. A person who is good at programming quickly. 5. An expert at a particular program, or one who frequently does work using it or on it; as in 'a Unix hacker'. (Definitions 1 through 5 are correlated, and people who fit them congregate.) 6. An expert or enthusiast of any kind. One might be an astronomy hacker, for example. 7. One who enjoys the intellectual challenge of creatively overcoming or circumventing limitations. 8. [deprecated] A malicious meddler who tries to discover sensitive information by poling around." As an opposite of the hacker you have the cracker who is, according to the hacker scheduler who breaks security systems". The definition of the hacker can be seen as rather open and will include a number of people.

However, to most people the hacker is synonymous with a person that uses his computing knowledge to do something illegal, to steal something or to be just mean. The hacker is someone who breaks in and destroys other people's programs. This was also enhanced in Vestby's (1998) report of young boys' and girls' definition of different ITconcepts, where she found that they look at hacking as most of all being something illegal.

The hacker is not just a central concept among young computer fascinated girls, but among people in general. Most people have a pretty clear image of a hacker, and the concept is used by the media at a regular basis. So where does this image come from?

1.1 The hacker as a cultural image

Presumably, movies are an important source of cultural images and there are several movies that feature hackers. War Games from 1983 was one of the first out. This movie is about David Lightman who is presented as a nice kid that is a little brighter and shyer than most. Dave spends his time in the Arcade or at home in front of his computer. His ingenuity gets him into enormous computer systems, allowing him to change his and his classmate Kate's grades, and in the end to play the War Game. He manages to break into the most sophisticated computer system ever built, Joshua, the Defence Department master war computer. In the beginning David does not realise that he is not playing a game, but is actually launching the system for World War III. David is caught, but manages to escape, and with the help of his friend, Kate, they find the person that made the program originally so that they can stop the machine from starting World War III. More or less the same plot is found in *Hackers* (1995). Here we first meet a young boy who is arrested by the Secret Service for hacking into the government. The boy is then banned from using a computer until his 18th birthday. Years later, he and his new-found friends discover a plot to unleash a dangerous computer virus. The boy and his friends use their computer skills to find the evidence while being pursued by the Secret Service and the evil computer genius behind the virus. In the end they manage to stop the virus from spreading and get the evil computer genius arrested.

Sneakers (1992) is a light-hearted thriller about computers and cryptography, government and espionage, secrets, deception and betrayal. Martin Bishop is the head of a group of experts who specialise in testing security systems. When Martin is blackmailed by government agents into stealing a top-secret black box, the team members find themselves embroiled in a game of danger and intrigue. After they recover the box, they discover that it has the capability to decode all existing encryption systems around the world, and that the agents who hired them do not work for the government at all. In the end, Martin and the team manage to put things right.

In Johnny Mnemonic from 1995, Keanu Reeves is a space-age courier who is plugged in, turned on, and buffed up to have the most important data of the 21st century delivered wet-wired directly into his brain. The movie is based on William Gibson's short story with the same name. The story starts in Beijing in China, but most of it takes place in New York City. Johnny is transporting data from Beijing to New York. Inside his head is a cure that can save the world. The bad guys, of course, try to get their hands on the data. They are fighting the system. Females are mostly used as bodyguards. In the end they win the fight and romance pops up between Johnny and his beautiful bodyguard Jane.

In *The Net* (1995) we meet computer expert Angela Bennett played by Sandra Bullock. The extent of her reliance on cybertechnology in order to prove who she is, is frighteningly apparent to Bennett when her identity is effectively erased and then rewritten by the Praetorians who infiltrate supposedly secure computer systems on the path to global domination. Bennett is rewritten on databases as a petty felon, Ruth Marx. Despite her protests, Bennett effectively becomes Ruth Marx, since she is unable to prove that she is not – computer say that is who she is, and no one will question what a computer tells them. Bennett is depicted as the stereotypical computer 'nerd', with hardly any social connections in real life. However, the film-makers stop short of making her look like the stereotypical nerd – and her near total reliance on life online renders her completely vulnerable to this identity rewrite, since no one knows her other than via a screen.

In one of the most recent movies, *Matrix*, from 1999, we meet a young man named Neo, played by Keanu Reeves. Neo works as a software programmer during the day. During the night he is a computer hacker. He sits alone at home by his monitor, waiting for a sign, a signal from what or whom he does not know. Until one night, a mysterious woman named Trinity seeks him out and introduces him to the faceless character he has been waiting for: Morpheus. Morpheus shows Neo what the Matrix is, a reality behind a reality that controls all their lives. Morpheus, Neo and their friends are fighting the artificial intelligence machines, represented by the agents, that have taken over the world. In the end, they win the fight against the agents, and Neo and Trinity fall in love.

More movies could have been mentioned and more movies keep popping up every year. The plot is always a fight between good and evil. The good here being hackers that use their computer knowledge and cleverness for a good cause, while the evil is often hackers that use their knowledge to take over the world, the system or likewise. The hackers are often presented as lonely young men spending time in front of the machine. The women are apparent in all the movies, mostly as helpers, but they also have main hacker characters. Even though the boys or men (and sometimes woman) in some ways are presented as nerds they do not fit into the stereotypical image, they are both handsome and cool and they fall in love with and become the lovers of the beautiful female main character.

In addition to movie directors, many journalists have written about hackers. Some of them have written popular books that present one special hacker or take a close look at a special community. The main bulk of this literature provides stories about how one boy or a group of young computer obsessed boys, often from MIT (Massachusetts Institute of Technology), Stanford or Caltech, does important work for the computer industry. They may have an important impact on computer developments, like the Internet. There are also stories about people breaking into networks and such.

One of the most influential contributions is *The soul of a new* machine by Kidder (1981). He tells us the story behind Data General Corporation. How, as stated on the back of his book; 'dedicated technological wizards who envisioned the impossible ... then battle time,

corporate intrigue and the odds to bring their dream to breathtaking life.' However, Kidder provides a much more positive account than books like The Hacker Crackdown. Law and Disorder on the Electronic Frontier. Here, journalist Sterling (1992) has written a science fiction novel following hackers while they plunder confidential information. He highlights the 1990 assault on hackers, when law-enforcement officials successfully arrested scores of suspected illicit hackers and other computer-based law-breakers. Sterling is given access to the Secret Service's training centre in Glynco. Georgia, and attends a hacker convention. In his book he gives a 'historical' overview from the very beginning of Secret Service in 1865, through the invention of the phone. He interviews outlawed hackers and phone freaks, law enforcement personnel, and civil liberitans, and presents a look at the people involved in the world of cyberspace and the politics of the new technological world. The aim of the book is to inform us of the issues surrounding computer crime and the people on all sides of those issues.

In Cyberpunk, Outlaws and Hackers on the Computer Frontier, Hafner and Markoff (1995) tell the story of the notorious hackers Kevin Minick, Robert T. Morris, and the Chaos Computer Club. The authors show what motivates these young hackers to access systems, how they learn to break in, and how little can be done to stop them. Kevin Mitnick has become the most well-known and famous hacker in the world and several other books have been written about him.

Shimomura, the man known to finally have tracked Mitnick down, has together with Markoff written Takedown, The Pursuit and Capture of Kevin Mitnick, America's Most Wanted Computer Outlaw – By the Man Who Did It (1996). Shimomura worked as a computer security expert at a place where Mitnick broke in. Shimomura, then, was determined to discover the identity of the intruder. With the help of the FBI, local law officials and a group of telephone technicians, he managed to hunt him down. Shimomura has later been criticised for painting a very negative picture of Mitnick.

In *The Fugitive Game: Online with Kevin Mitnick* Littman (1997), Kevin Mitnick is introduced moments before the fugitive hacker surrenders himself to FBI agents who have located him with the help of Shimomura. The book looks at the events that led up to the capture of Mitnick and the folklore surrounding the case. The book is based on 200 pages of conversations with Mitnick, most of which were transcribed while he was fleeing from the law. One of the most thorough books written by journalists about hackers is Levy's popular history, *Hackers, heroes of the computer revolution* (1984). Here, Levy describes three generations of hackers that exhibited to various degrees qualities associated with hacking's original connotation of playful ingenuity, epitomised by the earliest hackers. The first generation of hackers, *the true hackers*, were to be found at MIT's laboratories in the 1950s and the 1960s. These *aficionados* formed the first generation of hackers defined as those who were involved in the development of the earliest computer-programming techniques.

The Hacker Ethic was developed within this first generation: Access to computers - and everything that might teach you something about the way the world looks - should be unlimited and total. The first generation of hackers believed that essential lessons could be learned about the system - about the world - from taking things apart, seeing how they work, and using this knowledge to create new and even more interesting things. They resented any person, physical barrier, or law that tried to keep them from doing this. They did not belive in royalities, because software should be more like a gift to the world, somehting that was a reward in itself (op.cit.: 56). The idea was to make a computer more usable, to make it more exciting to users, to make computers so interesting that people would be tempted to play with them, explore them, and eventually hack on them.

Within this community computers were the focus. Levy presents this generation of hackers as a group that did not spend much time discussing the social and political implications of computers in society. They did not talk sport. The hackers generally kept their own emotional and personal lives to themselves. And for a group of healthy college-age males, there was, according to Levy, remarkably little discussion of the topic which commonly interested groups of that compostion, namely women. It was the predictability and controllability of computer systems - as opposed to the hopeless random problems in a human relationship which made hacking particularly attractive. But an even weightier factor was the hackers' impression that computing was much more important than getting involved in a romantic relationship. It was a question of priorities. Hacking had replaced sex in their lives. According to Levy, all this led to an exclusively male culture (op.cit.:84). Noone had any idea why there never was a star-quality female hacker. There were women programmers in the community and some of them where good, but none seemed to take hacking as seriously as the most famous hackers.

The second generation of hackers is defined by Levy (1984) as those involved in bringing computer hardware to the masses with the development of the earliest PCs. They wanted to spread the Hacker Ethic to as many people as possible. The natural way to do this was through the power of the computer. They believed that small and powerful computers in great numbers could change the world. According to Levy the second generation was a different type of hacker, more interested in the proliferation of computers than in hacking mystical applications. This second generation consisted of what Levy calls hardware hackers. The second generation of hackers was mostly found in California. They were Berkeley types, with long stringy hair, jeans, T-shirts, and a demented gleam in their eyes that you might mistake for a drug reaction if you did not know them well (op.cit.: 155). Those who knew them well realised that the group was high on technology.

The third generation was the game hackers. This generation of hackers was, according to Levy (1984), the programmers that became the leading lights in the advent of computer games architecture in the eighties. One of the main products of the era was code. Lines of assembly-language computer code written on floppy disks, which, when inserted into personal computers like the Apple, magically turned into fantastic games (op.cit.:282). In this generation you found the first group of hackers who had learned their programming on small computers, who had never bootstrapped themselves by way of community. Who dreamed not only of the ultimate hack, but also of fame, and big royalty checks (op.cit.:284). With this third generation the hacker ethic changed. People now had home computers, and many never bothered to join clubs. Instead they relied on computer-stores, where they happily paid for programs. The hacker ethic, microcomputer-style, no longer necessarily implied that information was free. Hackers began buying computers intending only to run packaged software on them (op.cit.:301). In a way, this represented a fulfilment of the hacker dream - computers for the masses, computers like record players. Even though the third generation was deeply into games, playing the games was not enough in itself. If you were hacker-born you would ask; why can't the game do this? Why can't it have that feature? So they hacked games.

As you now have seen the stories brought forward to us by journalists' strengthen to a large degree the image of the lonely teenage boy spending his time in front of the computer. Compared to the movies, these boys seem even lonelier and there is very little evidence of any romance. In contrast to the movies they are also presented more often not 'only' as the good guys fighting the system, but also as criminals. Even though they are to some degree heroes with a brilliant mind and great computer knowledge and skills, we also learn what damage they sometimes do to large systems because of their need to prove themselves.

1.2 Hackers as objects of social science

The first one to actually write about hackers was the eminent computer scientist Weizenbaum. In his book from 1976, where he criticise widespread perceptions about computers as being intelligent, he has a section where he describes hackers or "compulsive programmers" (op.cit.:116). The following passage is probably the most frequently quoted description of hackers:

.....bright young men of dishevelled appearance, often with sunken glowing eyes, can be seen sitting at computer consoles. their arms tensed and waiting to fire their fingers, already poised to strike, at the buttons and keys on which their attention seems to be as riveted as a gambler's on the rolling dice. When not so transfixed, they often sit at tables strewn with computer printouts over which they pore like possessed students of cabalistic text. They work until they nearly drop, twenty, thirty hours at a time. Their food, if they arrange it, is brought to them: coffee, Cokes, sandwiches. If possible, they sleep on cots near the computer. But only for a few hours - then back to the console or the printouts. Their rumbled clothes, their unwashed and unshaven faces, and their uncombed hair all testify that they are oblivious to their bodies and to the world in which they move. They exist, at least when so engaged, only through and for the computers. These are computer bums, compulsive programmers.

In this way, Weizenbaum provided a negative image of hackers. Who would want to be one of them? The communities most of all consisted of lonely people. It was about loving the machine for itself as Turkle (1984:202) argued a few years later, following Weizenbaum's lead. To hackers, the computer became an 'intimate machine'. Turkle describes them as lonely and different. They form the basis for a culture where people avoid relationships with humans. Instead, they prefer relationships with machines. Hackers are people that for those reasons turn to the computer.

Faulkner (2000) argues in a similar way as Turkle (1984) when she writes about the technology/people distinction. Faulkner argues that the distinction is nowhere more apparent than in the stereotype of the male teenage computer hacker or 'nerd' (op.cit.:762). She also points to Turkle's (1984) description of young hobbyists that often experience greater enthusiasm for and competence in interacting with computers rather than with people; indeed for some, intimacy with the machine is a retreat from the vagaries of intimacy with humans (Turkle 1988). On the other hand, Håpnes (1996) found that the hackers she studied were 'not in their machines'. They developed close relations with colleagues and peers who shared their fascination with technology. Faulkner also found among her software professionals that it was not so much the technology *per se*, or the intimacy with it, which they found trilling but what the technology can do (Faulkner and Kleif forthcoming).

Turkle (1984:168) maintains that a relationship with a computer can influence people's conceptions of themselves, their jobs, their relationships with other people, and their ways of thinking about social processes. In her material she distinguishes between two styles of mastery (op.cit.:102-103). The hard mastery is the imposition of will over the machine through implementation of a plan. Soft mastery is more interactive. While hard mastery is the mastery of a planner, the engineer, soft mastery is the mastery of the artist. Try this, wait for a response, try something else, let the overall shape merge from an interaction with the machine. The preference of programming style is building blocks in the construction of computer cultures'. Also Turkle distinguishes between generations of computer enthusiast. The first generation of computer enthusiast she calls the hobbyist while the second generation is named the hacker (op.cit.: 183-188). The hobbyist uses the CPU as an extension of self - it is between me and the machine. The second generation, the hackers, emerges in the 1980s when people started having personal computers. While the first generation of home computers were easy to 'open up', peer into and experiment with, the new machines tended to be closed 'black boxes'. They are built, as a technology to be exploited, not explored (op.cit.:192).

While the hardware is growing more 'opaque', a greater and more powerful variety of languages, operating systems, and other software is becoming available (op.cit.). Such systems give increased computing power, but the increased power does not lead to a sense of direct control where nothing stands between the programmer and the bare machine. Turkle has tagged two different styles of relating to the computer – one that focuses on magic, the other on transparency – by associating them with the culture of computer hackers and first-generation computer hobbyist (op.cit.197). These styles enter into programming and into the computer owner's feelings about what makes the machine consequential, what makes it satisfying and 'beautiful'. What distinguished the subcultures' members from one another was not how much they knew, but what they valued in the machine (Turkle 1996:31-32).

Missing from this description of the computer of the late 1970s is, according to Turkle (1996:32-33), the perspective of those who have come to be called 'users'. A user is involved with the machine in a hands-on way, but is not interested in the technology except as it enables an application. Hackers are the antithesis of the user. Turkle understands the terms hacker, hobbyist and user as referring to different modes of relationships that one can have with a computer, not as referring to specific people.

Turkle (1984:205-207) compares the hacker with the computerscience student. She asks why the computer-science students are seen as the ugliest men or, when they are women, women who are somewhat suspect. The self-image of engineering students is already low. Already they fear that quietly and insistently, and in a way they do not understand but through paths they dimly suspect, the world of machines has cut them off from people, that they are the 'kind of people' who demand perfection and are compelled by the controllable. The formal mechanical and mathematical systems they play with are the externalisation of their taste. In the 'computer person' they find someone who seems to have taken their taste and carried it to an extreme, someone who has taken their taste, already a source of tension, and transformed it into a perversion. These are people, according to Turkle, for whom computers have become more than a job or an object of study, they have become a way of life. Engineers rationalise the over-intensity of their relationships with machines by describing them as tools. The image of the machine as a tool is reassuring because it defines a means - end relationship. What is different for many hackers is that the means - ends relationship is dropped. The fascination is with the machine itself. The hacker crystallises an image of getting lost in the thing itself.

There are, according to Turkle (1984:216-217), only a few female hackers. This is a male world. Turkle (op.cit.) claims that though hackers would deny that theirs is a macho culture, the preoccupation with winning and of subjecting oneself to increasingly violent tests makes their world peculiarly male in spirit, and peculiarly unfriendly to women. There is, too, a flight from the relationship with people to the relationship with the machine – a defensive manoeuvre more common to men than to women. The computer, which is the partner in this relationship, offers a particularly seductive refuge to someone who is having trouble dealing with people. It is active, reactive, it talks back. Many hackers first sought out such a refuge during early adolescence, when other people, their feelings, their demands, seemed particularly frightening. They found a refuge in the computer and never moved beyond.

This becomes even clearer in a later article where Turkle (1988:41-50) looks at the social construction of the computer as a male domain through the eyes of women who have come to see something important about themselves in terms of what computers are not. Turkle believes that the issue for the future is not computer phobia, needing to stay away because of fear and panic, but rather computer reticence, wanting to stay away because the computer becomes a personal and cultural symbol of what a woman is not. Women look at computers and see more than machines. They see a culture that has grown up around them and they ask themselves if they belong. And when, in high school and college, they look at the social world of the computer expert, they see something that seems alien. In the extreme, they see the social world of the 'hacker', a culture of computer virtuosos. It is a world, predominantly male, that takes the machine as a partner in an intimate relationship. The computer offers its users a formal system, but it is also active and interactive. It is easily anthropomorphised. Its experts do not think that it is 'alive'. But it is a medium onto which lifelike properties can easily be projected. It supports the fantasy 'that there is somebody home'. It is, of course, only a machine, but because of its psychological properties it support an experience with it as an 'intimate machine'.

The men in the hacker culture see their lives as incompatible with a life with a woman (Turkle 1988:46). Computer hacking is almost pure pleasure with very little risk. But it is not a fulfilling romance because in the end you have just made a few lights blink. But you have only so much energy. You can either spend it on computers or you can spend it on people. The women who watch these men and their obsessions, observe their anti-sensuality, and observe the ways in which they have put things, rather than people, at the centre of their lives, and hence count themselves out. This does not mean, according to Turkle, that these women are not computer-competent. But along with their competence comes a fear of the machine as a potentially destructive force. In rebellion against feeling 'too much' they develop an attitude towards the computer that insists on it being 'just a tool' (op.cit.:50).

Many men are also critical towards the hacker's single-minded devotion to computers, critical of his lack of social skills (Turkle 1988:47-48). Men's reaction to the computer is similar to those of women, but there is a difference in men's reaction to the hacker's style of exploring the machine in a manner close to abandon, and which celebrates risk. Men identify with it. They recognise it as a learning strategy that they find admirable and of which they are capable. Women, on the other hand, tend to be more defensive. To use risk taking as a learning strategy, you have to be able to fail without taking it 'personally'. This is something which many women find difficult. They want to be 'good students'. The risks the women are willing to accept responsibility for are risks in relationships' (op.cit.:49). Risk taking as learning strategy demands that you sacrifice a certain understanding of what is going on. It demands that you plunge in first and try to understand later. Like with computer games: it is almost impossible to learn to play a video game if you try to understand first and play second. Girls are often perceived as preferring the 'easier' video games. It is the games where they can understand 'the rules' before play begins.

Shotton (1989) has in her doctoral thesis studied what she describes as computer dependent people. Shotton (op.cit.:8) felt Weizenbaums (1976) description was both pessimistic and damming about the people when he described compulsive programmers. While the professional was an efficient member of a computer centre's team, the compulsive programmer on the other hand was described as a person whose main aim was to have the opportunity merely to interact with a computer and rarely produced useful output. Instead of looking at it as an addiction or as something negative. Shotton has in her thesis used the term computer dependent people. The Dependent's interests were centred upon exploration of the computer system, by investigative and innovative programming, by breaking into and adapting the programs of the professionals, and by learning about the hardware and software by direct, hands-on experience (op.cit.:84). The computer was often viewed as a toy, and the Dependent was not primarily interested in producing workable programs. Their aim was self-education, gained by rising to the intellectual challenge presented when using computers, the satisfaction of curiosity and the artefact. Computing had become dominant in their lives, leaving them little time or inclination to undertake any other activities

Shotton (1989) found that the Dependent user's interest in computers did not occur in isolation but appeared to be a natural progression from their previous hobbies (op.cit.:87). All had been interested in electronics and mechanical activities, seemingly from an early age, and much of their interest in computers stemmed not only from their readings of non-fiction, but also from science fiction. In addition, none spent much time socialising and many stated that they disliked most sporting activities, especially team sports. They also stated that they tended to be the types of people who were not eclectic in their hobbies, but preferred to concentrate on just a few activities that they took very seriously and studied assiduously. The Dependents' were shown to socialise far less than any of the other groups Shotton looked at (op.cit.:92). This had been the case both before and after the introduction of computing as a hobby. They also reported to have been shy from an early age, and because of early experiences would often take pains to avoid social situations, which they would find stressful (op.cit.:105). They did not enjoy get-togethers, which they felt served little purpose, and such unstructured events as going to pubs, dances and parties were particularly shunned. Quite a number of them also confirmed that their social and family relationships were problematic, and that they somehow considered themselves to be different from other people and outside the mainstream of life (op.cit.:119).

Based on time spent on their home computer and their preferred computing activities. Shotton defined three groups of dependent computer users, Networkers, Workers and Explorers (op.cit.: 169-204). The Networker rarely, if ever, wrote their own program. The computer was seen as a toy and computing as a fascinating hobby. They were most of all occupied with different ways of communicating with others through computers, modems and computer-networks. This group was the least computer-dependent; the computer was mostly a tool for communication or games. The computer was used to gain computing information, to engage in social interaction, to play in MUDs or for hacking. Compared to the other groups, the Networkers had a more positive attitude towards people and social activities. The group was more likely than the others to view the computer merely as a toy and a hobby, used for fun and entertainment, but it was not in itself found to be of great intrinsic interest. For this group computing was not a lonely, isolated activity, but one through which they made contact with other individuals. Some had learned to become bolder socially, and friendships had developed with people with whom they had communicated in this

way. Also, the game playing and hacking undertaken by the Networkers seemed to encourage social interaction.

For the Workers the computer was a tool. This was the smallest of the three groups. They stated that their computing was centred upon work-related activities consisting of structured programming and the use of commercial software. They usually prepared themselves before starting to program. To them computing was not merely a hobby, but a means of realising ambitions by using the computer as a tool rather than a plaything. Unlike the other groups, the Workers tended to see pirating of software as immoral. Similarly they were less likely to approve of hacking, although equal proportions of all three groups had attempted the activity. They were idealistic realists for whom fantasy seemed to play little part in their life, and they had been able to realise their ambitions through hard work and effort. It was a group of people to whom the work ethic was dominant; games and 'schoolboy pranks' were of no interest.

The Explorers, which were the largest group, spent the majority of their time programming in an investigative, self-educational and exploratory manner. Their programs were usually without useful end products and many remained unfinished. They found satisfaction in exploring the computer to learn more. They used it both for pleasure and to escape from social relations. Most of them spent their time hacking. breaking copy protection and making changes to commercial programs. The impression given was that some in this group tended towards laziness and apathy and rarely seemed to strive to achieve, unlike the other groups. The Explorers were significantly more likely than the other groups to describe the computer as a friend. It was considered, in some ways, to have a personality of its own. Shotton finds it extremely interesting to note that those who personalised their computers always referred to them as male, no doubt because they felt the qualities of the computer reflected those considered to be masculine traits. This masculinisation occurred for both men and women, with one woman describing it as 'the man in my life'. The Explorers also preferred computers to humans because they were easier to handle. Computing had become an end in itself, providing them with an outlet of expression in an interaction which was stimulating, but safe, or non-threatening.

Also in Shotton's work there were a lot more boy's than girls that described themselves as computer dependent. Of 100 respondents only 6 were female. Her results seemed to confirm that girls were significantly less interested in computers than boys, in spite of the teachers' assurances that both sexes were given equal opportunity to use

computers and did use them for the same type of tasks (op.cit.:44). One of the most significant findings in the interviews, according to Shotton, was that computing was almost universally considered by both sexes to be a masculine activity which males found easy, and the more closely a subject seemed to appeal to male modes of thinking and working, the more alienated females appeared to become (op.cit.:47). The females appeared to be more oriented towards practical use of the computer and were said rarely to be interested in their intrinsic merits. Not only did the school situation inhibit the use of computers for practical purposes, because of the restrictions of the examinations curricula and lack of software. but so too did the use of a home computer at the time of these interviews. Her results indicated that females were more likely to require a useful end product from their computing efforts and expected computers to be more controllable and more easily used than in fact they were (op.cit.:60). Together with initially being more inhibited by the technology, they were more frustrated when programs did not work at the first attempt. They expressed less desire to understand the basic workings of a computer, tended to see it primarily as a tool, and expected it to produce the desired result rapidly without too much effort on their part.

Shotton concludes that it appeared that the characteristics of the majority of computing activities were more appropriate and more likely to match the needs of the male than female users (op.cit.:62-63). It was therefore understandable that females were less likely to become fascinated with the intrinsic qualities of the computers, and thus less likely to use them and buy them. When computers are used as tools they are unlikely to produce the type of behaviour, which could lead to dependency, as the computer is merely a vehicle for software and is in itself only subliminally acknowledged to exist. Conversely, when the computer is used in order to discover its capabilities and explore its potential, the computer becomes the focus of that activity and the principal object of study. Because of the wealth of activities which can be performed when writing one's own software, the computer can hold limitless potential for the people who exhibit this type of interest, and mainly seem to be male.

Nissen's (1993) doctoral thesis, Boys in front of Computers, Young enthusiasts in the world of Computer Technology is, as the title says, a study of young computer interested boys in Sweden. Nissen did his study of youngster with 'an articulated interest in computer'. With 'computerinterested youngsters' he first of all expects the user to have passed computer games and started being interested in the programs behind them (and other programs) and that he, because it is most often a he, should spend a lot of his time with computer technology (op.cit.:13). Last, but not least, he should look at the computer as one of his main interests.

Nissen (op.cit.) observed youngsters and interviewed them at a computer association, in two cracker clubs and followed Bulletin Boards and Computer Magazines. The most important thing when working with computers is to master the computer, meaning that you succeed in what you have planned to do (op.cit.:232). Nissen found that a lot of them made new friends through their computer interest, which signals, according to Nissen, that the computer interest in itself does not imply an asocial way of relating to others. On the other hand, it is very possible that one changes one's group of friends and starts hanging out with other computer-interested youngsters instead of other friends. This is nothing at all abnormal or something just happening to computer-interested youngsters. Nissen (op.cit.:234-35) also found a positive correlation between a strong interest in computers and a strong interest in subjects like physics and math. Sports, on the other hand, were less popular among them than among youngsters in general. They also looked upon themselves as shyer from an early age and not too fond of general 'gettogethers'. They preferred smaller groups of likeminded people.

Like Shotton (1989), Nissen (1993:243-272) defines three profiles, the professional, the citizen and the esteemed visitor. Nissen points out that the computer enthusiasts are not at all a homogeneous group. They relate to computers and computer activities in a different way. The Professional is 19 years old and left the Science program of upper secondary school a year ago. He chose that program so that he could avoid the practical aspects of technology as a subject. Today he works part-time in a small computer company and considers his time to be spent in a more meaningful way than it was in school. He is a member of a computer association, but he is disappointed in how it has evolved: few members care to work hard to learn new things anymore. He is quite sociable. He even sometimes goes to parties. Lately he has taken up biking regularly. Ethically he will not hesitate to 'crack' the copy protection of a program, but he considers it wrong not to buy a program that is intended for commercial use.

The *Citizen* is 18 years old and follows the technical program of the upper secondary school. He likes this program since it includes practical technological work. Even though he has played soccer and Frisbee golf, sports have never interested him all that much. He gets no income from his computer skills. His interest in computers began with computer games. He does not own a modem and thus cannot communicate on BBS. Like the *professional* he shows no scruples about 'cracking'. These are programs he would like to own, but they are too expensive for him to buy. His skills with computers are moderate, but he dreams of getting a job in the future which is associated with this technology.

The esteemed visitor is a pupil at the science program of an upper secondary school. He chose this program since it provides him with the largest number of options when choosing a university education. He is heading towards an education within engineering or economics. He is careful not to let the time spent in front of computers and with computer friends affect his schoolwork. He has not made any money through his computer skills. His father introduced him to computers by bringing computers home from work. He now knows more than his father, and most of what he knows he has learned on his own. The visitor, like the professional and the citizen does not think it is immoral or reprehensible to break copy protection.

As one can see from all of these three profiles, the illegality of their work only concerns the breaking of copy protection. Apart from that the boys did not to a large degree, know about or participate in illegal computer activities. They were also, all of them, pointing out that breaking copy protection was one thing, but making money on it was something else. That they did not accept.

Nissen (1993:356-357) argues that the boys go through a computer career. Practically all the computer-captivated boys first came in contact with the computer when they were 11 to 14 years old, in the form of computer games. The next step in their computer career is the purchase of a computer, and further along the boy starts to think about the program 'behind' the game and begins to program himself. After this point the boy seeks contact with other likeminded boys, and he will generally join some kind of club or association. Finally, some, but not all, will get hold of a modem and engage in computer-captivated youngsters, in contrast to the image of them, are not young, asocial, lonely persons isolated in front of his machine.

In a more recent contribution to the literature, Paul A. Taylor (1999:64-65) finds that the description of hacking, as a form of compulsive programming, emphasising how it is often pursued at the

expense of the ability to conduct 'normal' social relations. The stereotypical 'computer geek', therefore, is somebody who finds refuge from what seems to be a hostile world in the safety of the esoteric computer knowledge they have chosen to master. Through interviews with hackers, computer scientists and computer security practitioners he hopes to give a sketch which will contribute to what he hope will be an ongoing process and debate. Also, Taylor points to the many definitions of the hacker we find today. The present perception of hacking is. according to Taylor, the direct result of conflicts between various social groups. To members of the computer underground, hacking still refers to the imaginative and unorthodox use of any artefact; to the lay person, the phrase is likely to conjure up sensationalised images of malicious computer geeks in darkened rooms obsessively typing away; to the computer aficionado, the phrase is more likely to be associated with its dramatic fictionalisation in the movies and postmodern literary genre of cyberpunk; to the computer programmer, the term may refer to some of the earliest and most imaginative people involved in programming; and, finally, within the computer security industry, the term hacker is likely to present a cue for opprobrium to be directed at 'electronic vandals' (op.cit.:xii).

Taylor (op.cit.:33) states that faced with the difficulties of establishing a coherent hacker culture, one characteristic that does stand out is the male dominance of the activity. However, there are examples of women that are active in or at least associated with related activities. Susan Thunder: an associate of Kevin Mitnick, described in Cyberpunk; during an American radio-in program on hacking, a woman called Anna proclaimed herself to be a phone-freak, and in Approaching Zero the author describes how Leslie Lynne Doucette was once described as the 'female Fagin' of the computer underworld. As a woman, she is distinguished in being one of only two or three females who have ever come to the attention of the authorities (Clough and Mungo 1992:148 in Taylor 1999:33). Even though all the people Taylor interviewed said there were hardly any women, they found it difficult to provide conclusive arguments for the absence of female hackers' (op.cit.:34). They identified several possible reasons, such as general social trends that discourage women from computing, but did not support the claim that hacker environments were threatening, misogynous environments,

One of the most intriguing aspects of hacking is, according to Taylor, the way in which its apparently obsessive aspects give rise to pejorative portrayals of nerdishness, yet, simultaneously, the practical implications of the knowledge gained are still potentially important enough to promote continued public interest in the activity. Dominant social groups initially mythologise and then stigmatise peripheral groups that do not share their value structure (op.cit.:116). The initial awe and even respect with which hackers were originally viewed as 'technological wizards', has given way to the more frequent perception that they are instead 'electronic vandals'. The tendency towards stigmatisation has been exacerbated by the fear and ignorance that flourishes due to hacking's predominately covert nature.

In the past decade, there have been several Norwegian studies that in particular highlights the observation that the image of the asocial computer nerd is strong among groups of girls and women. Many use them as a way of defining themselves, as a contrast to 'the others'. Berg (2000) studied female engineering students. Berg found that her informants saw females' sociality as an antagonism to the image of what the asocial computer nerd represents (op.cit.:53). The women meant that the hacker was a special and not a universal figure at the computer department. He did not give a realistic picture of what working as a computer engineer was about. Still, the hacker/nerd was paradoxically an important and central figure in the womens understanding of their relationship to their subjects as female computer students. The hacker/computer-nerd became a symbol of masculinity (op.cit.:57). The women referred to the men when they talked about being obsessed with the computers, stay up all night, play around and so on. To them it was a central element in being a woman and a computing-student that they through their gender were not hackers or computer-nerds.

Buholm (1998) also found this to be true in her study of what qualifications are required as a computer-engineer and what the job is really about. All her engineers, both men and women, were negative when talking about the hacker. They meant 'he' destroyed the education. The hacker is to them most of all a person obsessed with programming. When looking at programming, Buholm found that it gave a double message (op.cit.:64). On the one hand, it looked like it was the necessary kernel of the job. You really needed to know programming. On the other hand, programming was related to low status and a job that could be handled by less qualified people than engineers. So one should know it, but not use it.

Rasmussen & Håpnes (1991) found that female computer science students used the hacker as a metaphor for all the things they did not like about computing: technical fixation, work addiction, and total absorption in computers. This lead, according to the female students, to a neglect of normal non-study relations and a concentrations on problems with no obvious relation to the outside world. The extreme male position was something the female students expressed as being the opposite of their own professional identity: using computers as tools for solving practical problems in society, and being occupied with a broader range of social and human aspects of computing.

Håpnes (1996) reports from a Norwegian study of hackers themselves. Håpnes studied a community of young, male engineering students who chose to describe themselves as 'real hackers' or 'semihackers'. Håpnes argues that by focusing on hackers' use of computers, this also provided an understanding of how they, in continuous negotiations with human and non-human elements, construct personalities and culture as well as technology.

Håpnes found that the Norwegian hackers she studied were rather different from the image of US hackers, as described by Weizenbaum (1976) and Turkle (1984). The US literature, Håpnes claims, describes a universal hacker culture, although with different emphasis. Weizenbaum, according to Håpnes (1996:124), is primarily interested in how hackers may shape computing practices, whereas Turkle focuses more on issues of identity and culture. We learn little about what actually happens in front of the screen. The borders and relations of interaction between people, machine use, and subculture may as such be understood as heterogeneous networks locally constructed (op.cit.:126). In the study of The Software Workshop Håpnes found that they primarily used the place for relaxing, discussions, and being with friends.

Both the hackers and the semi-hackers share the trait of an early interest in computers (Håpnes 1996:133). They remember very well how in their early teens they became interested in the possibilities offered by rather simple game-machines. They had an interest in how things were made and how they worked. They started off playing games, but programming soon became a main activity. Their enthusiasm for *puzzling things out* seemed to be the foundation by their interest in computers. To master programming, though, was not a goal as such, but a prerequisite for being able to design solutions or products (op.cit.: 137). The motivation power is to see how ideas can be converted into machine solutions. The hackers did, according to Håpnes (op.cit.:139), not consider their relationship to their machines to be personal or close, in the way Turkle (1984) describes the MIT hackers' machine relations'. Both semi-hackers and real hackers have domesticated the computers as a tool for work. All in all, Håpnes states that, compared with Turkle's description of MIT hackers, this Norwegian hacker culture is less extreme and more heterogeneous. 'Not in their machine' might be called their main scenario, which they, according to Håpnes, in fact signal in all their symbols and actions.

Håpnes hackers disliked the picture of hackers as asocial eccentrics' (op.cit.:143). Most of them participate in social activities outside the hacker community. They know other students and they have friends who does not study in the same place, and they do not spend all their leisure time with computers' (op.cit.:144).

1.3 Enthusiasm, community and gender

As we have seen, definitions are unclear, and different researchers, the media and people in general tend to mean different things when using words like hacker or nerd. Throughout all times, and within many occupations, we have had people that have been, if not obsessed, at least very dedicated to their work. It is about being narrowly interested in a field or a special thing. As Robson (2000) wrote in Daily Mail and Guardian: "In our society, the most profoundly influential technologies we use are those that were developed by scientists like Curie, Edison and Marconi. These were people who hacked systems and discovered things. Is it so surprising that programmers, thoroughly schooled in empirical thinking, would behave the same way in their own discipline, believing that experimentation is not only right but also a duty?" In an essay, The Hacker, a scientist? I compared the hacker and the scientist (Nordli 2000). The hacker is, in spite of 'his' interest for his 'subject' and how he works, not recognised or accepted as a scientist. The way the hacker works, his personality and looks are assumed to be different. In this essay, I considered how scientists, like Louis Pasteur and Marie Curie, were presented in books and compared this to how the hacker is being presented. I found that the hacker in most ways fitted into the 'rules' for researchers given by people like Max Weber (1991) and Bruno Latour (1987). As Pasteur and Curie, hackers seems to be totally obsessed with their work, work long hours, are oblivious to their looks and in times when working often forgetting time and place and forgetting to eat and sleep. What I most of all learned from this comparison was that the hacker usually has a work that involves working with other people to a much greater degree than many scientists do. Not only do they collaborate with others, but also very often hang out together when not working. However, while the scientist has a high status and is a

respected person, the hacker is looked upon as a criminal, mostly a spotty, lonely teenage boy.

Given a description like the one Weizenbaum (1976) gives, there is no wonder why people have a negative image of the hacker. Later studies have to a larger degree both given a more positive and diverse presentation of the hacker. Turkle's (1984) presentation of the hacker does to a large degree fit into Weizenbaums (1976) description, but Turkle also gives room for more than one culture among the computer enthusiasts. Håpnes (1996), Shotton (1989), Nissen (1993) and to some degree Taylor (1999), very much emphasise that the hackers themselves do not feel comfortable with the image given of them. They also find a culture and community that is different from what they expected. They find a community with greater diversity, which is very social and, as Shotton (1989) writes, more welcoming and open.

However, even though the images given differ in some ways, they are all consistent in the fact that there are more or less no women to be found. Some claim that women feel alienated from the computer or the computer culture, and therefore keep at a distance. Others says women to a larger degree do not feel the urge to get away from personal relationships, but are better at coping with them. Haddon (1988), on the other hand, points out that while trying to stress gender-differences, it is nevertheless clear that girls also use home computers and that there are both regular and enthusiastic female users. Berg's (2000:143) study shows that female computer-students were not only interested in 'soft' computer-classes or social studies. They had differentiated interests. More of the women had technical interests, which Berg found interesting in relation to the image earlier research have presented when talking about females being mainly interested in and occupied with societal aspects within computer studies. Berg's informants were also to a large degree interested in technical subjects, like telematics, cybernetics, programming and computer construction. They were fascinated with computer technology. There is, therefore, reason to believe that there are females out there that are fascinated and enthusiastic computer users.

While more recent studies of hackers have given us a more diverse, social and positive description of hackers, recent research on females within computing have also shown us that females can be enthusiastic computer users. This signals that the gender pattern within computing might not be as stringent as previous research has indicated.

This book is not about hacking as an illegal activity. It is about enthusiasm for technology, the technology here being computers. It is
about fun and joy, about falling in love with the computer. And it is about women that are enthusiastic users. What is it about the computer that makes people want to spend hours and days in front of it? Is it the computer itself, or is it the people that surround the computer, the community. Fascination with and enthusiasm to technology have been central themes within the STS field for many years. But most people who have been studying the computer as a technology have not been looking so much at the enthusiasm, but rather either been looking at why people do not like computers or why people are obsessed with computers. And the obsession has in many ways been a negative thing. The computer has been seen as a substitute for something missing in life.

Drawing on my experience from my earlier research and the fact that more and more females grow up having a computer around, I want to look for the women within the enthusiast community. Having them as a special focus makes them more visible. My dissertation is therefore about females and enthusiasm for the computer as a combined thing. It is about females that have fallen in love with the computer itself and also spend their time within this community. Basically, this is a story that shows how some young Norwegian women have chosen to be enthusiastic about computers. It is a story about how they have acquired impressive skills in the use of computers and what elements of the computers that fascinates them. In addition, this thesis will explore the production of gender and gendered images in the world of computing. By studying these women, I will be able to see if computer enthusiasm is something different to them than it is to men, as male enthusiasm is accounted for in the research literature. If it is something different, what does it mean to be a female hacker? By writing this thesis I hope to be able to say something substantial about what kind of pleasure women may take from a strong engagement in computers and as active participants in the world of computer enthusiasts.

CHAPTER TWO:

GENDER, TECHNOLOGY AND ENTHUSIASM

Most people usually think of technology as gender neutral. However, since the 1980s, feminist scholars have questioned this assumption (Cockburn 1983, Game & Pringle 1984, Lie et al 1988). Gender issues were particularly in focus through studies of so-called office automation. The rapid introduction of computers as a workplace technology had suggested a transformation. Technology should no longer be heavy and dirty, but clean and light, which would make it more feminine. However, computers turned out to be a male arena as much as traditional industrial technologies. Why did this happen?

Closer scrutiny suggested quite complex explanations. In many cases, more or less subtle discrimination could be observed. It is also appeared that computers held less attraction to women than to men. Such observations led to new research issues related to men's relationship to computers and to technology more generally. Why is technical competence so often a part of men's identities? Why do some men seem to enjoy technology so much? How come there is such a strong symbolic relation between technology and masculinity? In turn, this raises important questions about the nature of maleness and masculinity, and also about the practice of gender in circumstances where it could be virtual. Presumably, female computer users should have greater freedom from gender than women in most other circumstances. The development from computers as technologies of work to instruments of communication and entrance points to cyberspace should make the feminist concerns of the 1980s less pertinent.

However, as O'Brien (1999) argues, gender is such a central feature for organising personal relations that people go to great pains to reproduce gender in online interaction as well. In fact, gender is reintroduced in a more limited and stereotypical manner than in embodied interaction. According to O'Brien (op.cit.:78), the social significance of gender rests in the way in which we experience and understand our 'selves' in relation to communication with other human beings. This experience is an act of subjective interpretation using available cultural scripts. The modern cultural scripts treat the self as being located in a single, fixed point of physicality, the body. Scholarly interest in the relationship between technology and the body is not just about how technology can enhance and alter physical presence in time

and space – such as the telephone extending the presence of the voice across space – but also implies something much more pivotal, the potential dislocation of the self and the body. O'Brien argues that online interaction provides an excellent site for observing the dislocation of mind and body. The technology of online communications poses an occasion to explore the implications of interaction when the usual embodied cues for coding and responding to others are not present (op.cit.'79).

In general, according to O'Brien, there is a strain between those who view online interaction as an opportunity to 'perform' a variety of perhaps fabricated roles versus those who see cyberspace as a new communication medium between 'real people'. She argues that the distinction between the intent to 'be' and the intent to 'perform' may be much more useful than discussions about what is real versus non-real, or honest versus deceitful. When entering cyberspace, do we really leave behind and move into the realm of 'words, thoughts and ideas' where the signs somehow float free from the signified? The implied conclusion is that cyberspace is an amorphous realm in which identities are liquid; one can author oneself as a THING that one can imagine (on.cit.:85). She suggests that even if it is possible for her to conceive and author characters that defy categorisation along conventional lines, others cannot engage in meaningful interaction with her unless they too know something about the 'script' through which I am representing myself and/or characterising the situation. We cannot apprehend our environments and behave with any consistency in an uncertain world, unless we render it meaningfully 'fixed' through collective categories of representation (op.cit.:85). Because physical cues are not available, online conversants must signal everything that they want others to know about them through a text-based medium. O'Brien assumes that a majority of persons engaged in online relations carry traditional stereotypes regarding gender; they have a limited repertoire for conceiving and writing about gender. In presenting self to others in electronic interactions, it may be simpler to rely on stereotypes, especially those that are likely to elicit the desired response, than to author rich, complex composites of the gendered self. Therefore, she expects the complexity of gender cues to be reduced rather than expanded in narrow bandwidth communications.

Interactions on the ubiquitous 'chat' or 'date' lines appear to be particularly likely to reproduce gender stereotypes (op.cit.:87). Far from consistuting a wonderland of imaginative creativity, participants tend to

'wear' gender features that replicate conventional gender stereotypes of sexuality and desirability. O'Brien (op.cit.:87-88) summarises her considerations like this; Gender which is an embodied institution that requires interactional performance in order to be achieved and sustained. is not an easy thing to transport into the narrow bandwidth interactions that we call cyberspace. The proclivity for doing so, for lugging gender in where theoretically new forms of interactional categorisation might emerge in its place, suggests that gender is a dominant, shared social construction that constitutes a primary symbolic form around which we organise interaction. Despite the hype of cyberspace as 'unmarked' territory, we are nonetheless mapping this frontier with the same social categories of distinction that we have used to chart modern reality which we tend to code as based in a state of nature. Gender is foremost among these lines of distinction. Gender, as a primary category for sorting self/other, is not likely to be erased in the near future of cyberspace. Nor is there reason to assume that the constructed representation of a single physical body as the site of one true self is going to change any time soon.

Gender deception is the most classic one, especially in the MUDs and in chat rooms where sex is predominately the topic of conversation or at least a very significant subtext to discussion (Donath 1999:49). O'Brien (1999:89) asks how prevalent and acceptable online gender switching is? She finds that many users report that they have considered switching gender online, but that they are concerned about 'deceiving' potential friends that might be made during these interactions. The tacit agreement seems to be that crossing is acceptable - after all, this is a space in which one is supposed to 'experiment' - but the motives for crossing must not involve an intention to 'deceive'. Women who cross as men in order to avoid harassment or dismissal are 'just being reasonable'. Men who create female characters with the intent of understanding the 'female experience' are acceptable, it seems, so long as they provide an account when they discuss the experience of their female characters. One reported theme among men who cross as women is statements about the discovery that 'as soon as I log on as a woman, men swarm all over me with unwanted attention."

There does appear to be a strain between those users who conceive of cyberspace as a realm in which one is invited to 'perform' a variety of alternative realities and those for whom the advantage of electronic communication is the transcendence of time/physical space as a barrier to a range of personal network (O'Brien 1999:93). For the latter, one's intent is to remain 'intact' as a 'real person'. Online communication is simply a means to extend the range that this self can travel to meet others.

Thus, the practice of gender remains central in cyberspace as well, and recent reviews of gender and ICT argue that women are still excluded from important arenas and activities (see, e.g., Wajcman 1993, Faulkner 2000, Lohan 2000). This means that we need to consider the practice of masculinity and the way masculinity is related to ICT.

2.1 Masculinity as norm

Masculinity is, according to Giddens (1993:743), a characteristic behaviour expected from men in a given culture. However, it is not very likely that all men in a culture share the same masculinity. Thus, in more recent feminist scholarship, one talks about the masculine in plural masculinities. Masculinity is socially constructed. This means that there are large differences between men, partly reflecting differences in terms of ethnicity, age, economic class, place of living, bodily condition, sexuality and relationship/kinship (Hearn and Collinson 1994:108).

Still, there may be a hegemonic masculinity. This will be found within the dominating culture, among men in power. Presumably, they form the standard of what it means to be a 'real man'. He is white, middleclass, early middle aged and heterosexual. He is the standard every other man is to be compared and measured against (Kimmel 1994:125). The hegemonic man is a man in power, a man with power, and a man of power. He is strong, successful, clever, responsible and in control. Masculinity is, in accordance with Kimmel, the power that some men have over other men and that men have over women.

Kimmel (op.cit.:123-124) have in a presentation of the American tradition taken a look at how the hegemonic masculinity have emerged. In pre-industrial society he found two types of masculinities. At the end of the seventeenth century and the beginning of the eighteenth century, there existed one type of men who got their masculine identity through their work as landowners, the 'Genteel Patriarchs'. The other type of men, 'Heroic Artisans', confirmed their masculine identity through physical strength and republican virtue. These two masculinities coexisted, without challenging each other. They both agreed that they wished for participating democracy and individual self-determination, even though the pathriarcat wanted a stronger state and supported slavery. At the same time they had little to do with each other since the artisans lived in the city while the well-bred patriarchs lived in the countryside.

Around 1830 a third masculinity emerged; 'Marketplace Manhood'. They deduced their identity from success in the capitalist marked, while collecting richness, power and status. This masculinity had to prove the maleness by acquiring material benefits. Earlier, the masculine identity was expressed through work, where the private life and the public were woven together. The new masculinity was also expressed through work, but there was a strong division between public and private arenas. These men were situated in the public sphere, where they compared masculinity against other men in the workforce.

This type of masculinity is, according to Kimmel (op.cit.), the normative definition of the American masculinity today. However, it is important to understand that we still may have different masculinities that may be based on different interpretations of the norm or even be constructed in opposition to the norm. There is not one male role. Men are formed by the times they live in, by social relations, traditions, regional conditions, the terms in the workforce and class-belonging (Bengtson and Frykman 1987:6).

Lie (1995:382) says that the cultural ideals regarding masculinity do not necessarily correspond to the actual personalities to the majority of men. The hegemonic model is a norm. Ordinary men are not expected to reach this norm, but are supposed to support it as an ideal. Kimmel (1994:129) argues that the big secret behind the hegemonic masculinity, which gives it such a power to convince, is that: "We (men) are afraid of other men". Manhood equals power, power over women and other men. The masculinity is a homo-social ideology for men, filled with danger, with a risk of failure, and with an intense uncompromising competition (op.cit.:129).

In this interpretation, masculinity is largely a struggle for power. The struggle is between men. Women are not even part of the struggle, but end automatically in a subordinated relationship. Thus, masculinity is superior to femininity. However, when we focus on masculinities in plural, the relationship becomes more complex and open-ended.

2.2 Masculinisation of technology: How come?

According to Lie (1998:10), most people associate the word technology with men and masculinity. When hearing 'technology' we imagine things like bulldozers, lathes and computers operated by men. If we take a closer look at the concept of technology, we discover pretty soon that there is really no reason to define technology in masculine terms (Lie, op. cit.). Technologically speaking, there is no difference between a sewing machine and a power drill making one more technical than the other. A US survey showed, in fact, that more women than men used machines at work (Form and McMillen 1983).

One may assume that the masculinisation of technology is related to the fact that traditionally, women and men have had a different relationship with technology (Lie et. al 1988:62). The differences in these relations emerge from the sexual division of labour. Technology is, according to Kaul (1988:62), the pivot in the sexual division of labour in industrial production. Kaul's argument is that the division between male and female jobs is constructed through reference to the image of machinery, the type of knowledge and skills that are assumed necessary to handle it, and those assumed to have the necessary knowledge and skills.

Jenson (1992:149-151) argues that there are three conditions for men and women having different relationships to technology. First, machines are constructed so that they incorporate an impression that the body-size and strength of the worker is important in order to operate them. Technology becomes, in other words, gendered. Next, the managers decide who is fit to do what job. And last but not least, women and men have their own images of who fits in where.

Several studies illustrate how technology and technical artefacts play an important role in the development of masculine identity, at least among male workers that relate their impression of manhood to dirty, heavy, noisy and complex machinery (Tolson 1977, Willis 1977). Technology contributes as symbol to the presentations of the self (Lie 1995:381). In this way technology is related to social identity, or, according to Lie, a person's self-image. This is the way he or she tries to get recognition from others.

Sundin (1995: 335-350) did a study of two Swedish organisations just after they had implemented new technology in order to study gender division. In both cases the new technology was CAD (computer-aided design). The two organisations produced the same product, had the same technology, the same type of jobs and, last, but not least, the same division of labour. Because of that Sundin, expected some similarity in the result. However this was not the case. In one of the organisations the male engineers took control of the use of the CAD-machine, while in the other the CAD became the women's territory. How could it be that the same technology came to be seen as supporting masculinity in one place while in the other place it was seen as feminine?

In one of the companies, according to Sundin, one perceived the new technology as a construction tool rather than as a drawing-tool. The construction assignment was a job for engineers and architects, who were mainly men. In the other company, the CAD system was seen as a new tool for indoor work. The engineers looked at outdoor work as a more important aspect of the job. To draw and work in the office were the characteristics of a presumably female job, so it was logical that women received responsibility for the new system.

Sundin's argument is that the new technology was given different symbolic value among men in the two organisations. How they defined the new machine was decisive as to whether it was perceived as a tool for men or women. If it was defined as just a drawing tool, it was not sufficient to confirm their masculine identity. Instead it could be a threat, because it could take their possibility to work outdoors away.

Lie (1995) has also studied the relationship between technology and masculinity. She wanted to study whether it was technology in general or specific technologies that were important for men's genderidentities. She studied a sales- and service organisation delivering tractors and other machines to farmers. There was a clear division of labour, where the women worked as secretaries or office-workers, while the men were to be found on all levels within the organisation.

The men who took care of the orders had to use computers a lot. However, they still tried to define computing as female area. Among these men the ideal was to have exact knowledge about machines. This was knowledge they had acquired by touching, seeing and using machines. Their occupational background meant that they had practical experience from various machines used within farming, or at least that they would have some experience with machines from other industries. Their preferred quality was to be able to take the machines apart and 'feel' them from the inside. This knowledge was important to their masculine identity. The computer was not a symbol of the type of knowledge that could confirm their masculine identity. They tried to diminish the importance of professional knowledge.

However, among men in managerial positions the computer had a central role. One could see this just by looking at where the computer was situated. The computer had a central position in the middle of their desk so that it could easily be seen. These men had a different background and were mainly hired because of their formal qualification within leadership and economy. The computer worked to confirm their masculinity, and they very much emphasised the importance of having computer skills. It was related to management, planning and change of routines. This in contrast to the perception of sales people, who looked at it as part of routine work.

Apparently, the computer could not support a traditional working class image of masculinity. Working class men would still have their identity related to mechanical machines and skills in mastery of such machines. For male managers, on the other hand, the computer had a different symbolic value. Its symbolic content confirmed their masculine identity. Lie's example clearly shows how men in management and salesmen displayed different masculinities and that this meant that a given technology - computers - had a different impact in the two situations.

While men are expected to know about technology, females are expected to know little about the matter (Bentson 1988). Instead women are supposed to be proficient in people skills. The women see that a 'boy culture' has emerged in front of the computer and ask themselves if they belong there (Turkle 1988:42). As shown in chapter one it has been argued that women want to stay away from computers because they become a personal and cultural symbol of what women are not. As a way of not 'feeling too much' they develop an attitude towards the computer where they insist on the computer being 'only a tool' (Turkle 1988:50). This, to defend themselves against the experience of the computer as the opposite, as an intimate partner in which one may confide.

Mellström (1996) has studied Swedish engineers' work, workidentity and career. He has also analysed the culture of masculinity in the computer business. He found that these male engineers are in an environment where they can act out their love of and fascination with technology. Female engineers, on the other hand, displayed a more neutral relationship to computers. Mellström found that men had developed a more practical relationship to electronics and computers since early childhood. For them, working with electronics and computers were a natural continuation of a life-long interest and in some cases a life-long passion (op.cit.:127). However, the same pattern was not found among female employees. For women, machines were rarely part of their social and cultural identity.

Kvande and Rasmussen (1991) argue on the basis of a study of men and women in engineering that there is a strong traditional link between technology and manhood as well as between management and manhood. Engineering as a career contains both of these elements and is therefore a potent 'symbol' of manliness (op.cit.:9-10). The engineering profession has traditionally been almost without women. Men have, according to Kvande and Rasmussen, formed the professional culture in the educational as well as in the work sphere. This implies that when women enter the occupation, they challenge the existing gendered order. Thus, women will be met with resistance. This may even result in companies not employing women at all, as a way of protection (op.cit.:95). If more women enter the occupation, the result could be a decline in status as well as reduced possibilities of confirming masculine qualities through work.

These studies show how technology remains an important aspect of masculine identities. However, it is important to note that the role of technology varies. At least it seems as if masculinities differ in terms of what sort of technology has relevant symbolic properties and even what sort of properties is important. This has important consequences for our understanding of the dynamics of the gender-technology relationship.

2.3 Doing gender: From feminism to feminist studies of technology

The focus of feminist studies of technology has differed from mainstream technology analysis (Lie and Sørensen 1996:18). Since women seldom are designers of technology, feminists have directed attention toward the user side. In this way, the image of the male designer, exercising control over female users through technology, has come to be a pervasive one in feminist studies of technology (Wajcman 1991). This view has reflected, according to Lie and Sørensen (1996), a perception of the role of technology in women's life as a tragic fate rather than as an opportunity.

The concept of domestication of technology accords individuals an active position in their relationships to new technologies by emphasising that technologies need to be appropriated in a way that provides meaning, strategies for use, and opportunities for learning. Lie and Sørensen argue that they through this conceptualisation avoid the victimisation that has been a common feature of user-oriented technology studies, especially those concerning women and technology. They also note that gender easily becomes invisible to researchers in settings where women are absent (op.cit.19).

Domestication invites the perspective that gender and technology is about performance. In post-structural feminism, one has been concerned with biological expressions of gender. How do we use our bodies based on gender, and how is this culturally shaped? This perspective implies not just an interest in how things are culturally constructed. Above all it is concerned with how gender is produced through what we do. We make gender through acting, as is the argument of Butler's work on gender as performance (Butler 1999). When we apply the doing gender perspective, we have moved away from what is inside of us. The two important assumptions are; 1) we produce gender, and 2) gender is action, something we do, not something we have. We perform our bodies, our identifies and our lives.

The doing gender perspective provides a more open-ended approach to the study of gender and technology. It allows a more varied perspective and helps us observe how this relationship may be performed in a more nuanced and varied way than has been assumed in more traditional approaches. For example, there are historical studies that allow us to question the idea that technology is so manifestly masculine. As Light (1999:455-483) points out in her article When Computers Were Women, there have been women involved in the history of computers, they have just been invisible. The omission of women from the history of computer science perpetuates misconceptions of women as uninterested and incapable in the field (op.cit.:455). Even though there were six women doing lots of the work on the ENIAC, the world's first electronic digital computer, the women rarely received credit for innovation or invention. The female operators (or programmers as we would have called them today) working on the ENIAC machine, were according to Light just referred to as '(John) Holberton group' or as the 'ENIAC girls'. The women were never given a public opportunity to display their technical knowledge, crucial for personal recognition and career advancement. Light argues, in fact, that computing was feminised across a variety of fields, including engineering, architecture, ballistics, and the aircraft industry by World War II. In the 1940s, the skill of transferring information - what we now call programming - fits easily with notions of women's work.

The work that women did, however, tended to be rated as subprofessional. The ENIAC project made a fundamental distinction between hardware and software: designing hardware was a man's job; programming was a woman's job. Each of these gendered parts of the project had their own clear status classification. Software, a secondary, clerical task, did not match the importance of constructing the ENIAC and getting it to work (op.cit.:469). As civil servants, the six women computer operators chosen to run the ENIAC stood outside the system. They had to figure out how the machine worked and then figure out how to program it. They got to understand the hardware through learning by doing. So, the six ENIAC operators did not only understand the mathematics of computer, but the machine itself. But when the story has been retold, the women have vanished both in text and in photographs (op.cit.:474).

In this case, the production of femininity in relation to computer led to invisibility. However, in principle, there is no good reason for this to be the outcome. As shown in chapter one the literature, movies and books about hackers, with few a exceptions, do not present any female hackers. Female hackers might nevertheless be vulnerable to the same dynamic as Light (1999) found in the history of the computer. To be able to see through a mantle of invisibility and to clarify the position of female hackers, there are three dimensions that need to be clarified. First, there is the issue of identity: What would be the personal basis of seeing oneself as a hacker. Second, there is the issue of community. If there are female hackers, what kind of communities do they belong to, and how may these communities be characterised? Third, there is the topic of enthusiasm. Clearly, as is evident from chapter one, enthusiasm is the main motivating feature of a hacker. However, what do we mean by

2.4 Identity

There has been a lot talk about how people in different ways are playing with identity when interacting and communicating online. The resulting ambiguity concerning identity has been a source for inspiration to many who believe that because people's physical appearance is not manifest online (yet), individuals will be judged by the merit of their ideas, rather than by their gender, race, class or age (Kollock and Smith 1999:9). By studying a virtual community Turkle (1996:205) found that the contributors differed in the way they viewed their online identity compared to their 'real' identity. Some contributors have, according to Turkle, maintained that they enjoy experimenting with personae very different from their RL (real life) selves. Other contributors have insisted that maintaining an artificial persona very different from one's sense of self in RL is what one called 'cheap fuel', a novelty that wears thin fast because of the large amount of 'psychic energy' required to maintain it. These people note that they want to reveal themselves to the members of a community that they care about. Yet other contributors take a third

position: They stress that cyberspace provides opportunities to play out aspects of oneself that are not alien, but may be inhibited in real life. According to Turkle (op.cit.:231) people are actually doing what they have always done: They are trying to understand themselves and improve their lives by using the materials they have at hand. Although this practice is familiar, Turkle emphasises that the fact that these materials now include the ability to live through virtual spaces means that two fundamental changes have occurred in our situations. We can easily move through multiple identities, and we can embrace – or be trapped by – cyberspace as a way of life.

Also Stone (1996) has focused on the way cyberspace gives people the possibility to experiment with multiple identities and try out how it is to be a different gender. Compared to the physical world, it is relatively easy to pass as someone else online since there are relatively few identity cues (Donath 1999:51). The way some authors view online identity as fluid, assumes that online experiences of identity differ from those offline (Kendall 1998:130).

However, others argue that traditional status hierarchies and inequalities are reproduced in online interaction and perhaps are even magnified. Anyway, identity plays a key role in virtual communities (Donath 1999:30). In the disembodied world of the virtual community, identity is also ambiguous. Donath wants to understand how identity is established in an online community and to examine the effects of identity deception and the conditions that give rise to it. Even though identity cues are sparse in the virtual world, they are not non-existing.

Donath (op.cit.:29-59) has examined identity and deception in the context of the Usenet newsgroups. Unlike MUDs, which are intended as fantasy worlds, most of Usenet is meant to be non-fiction; the basic premise is that the users are who they claim to be. For most participants, identity – both the establishment of their own reputation and the recognition of others – plays a vital role. Trust in the shared motivation and beliefs of the other participants - in other words, their social identity – is essential to the sense of community (Beniger 1987 in Donath 1999:31). Identity also plays a key role in motivating people to actively participate in newsgroup discussions. Building reputation and establishing one's online identity provides, according to Donath, a great deal of motivation. In most newsgroups, reputations is enhanced by posting rude flames or snide and cutting observations.

In newsgroups, the Signature is of great value in being recognised and in establishing an identity (op.cit.). Signatures can be used to anchor the virtual persona to the real-world person. The Net is a great leveller: no one knows if you are male or female, boss or underling, grey-haired or adolescent: 'on the Internet, nobody knows you're a dog' (op.cit.:40). One use of the signature is to present real-world credentials; your full name, title, department, office phone number; enough information so that someone could, if the person wanted to, check to see that you were really who you claimed to be. An important new use of the signature, according to Donath (op.cit.:41), is referring to the writer's home page on the World Wide Web. The Web address may contain credentials and much more. A homepage may provide a detailed portraval of its subject: people include everything from résumés and papers to photographs and lists of favourite foods. A writer's self-presentation on the Web can provide a very enlightening context for understanding his or her posting (op.cit.:41).

Writing styles can also identify the author of a posting. A known and notorious Net personality hoping to appear online under a fresh name may have an easier time disguising his or her header ID than the identity revealed in the text (op.cit.39). Language is also an important indication of group identity: 'regarding group membership, language is a key factor – an identification badge – for both self and outside perception' (op.cit.39). Using special phrases expresses one's identification with the online community – it is akin to moving to a new region and picking up the local accent (op.cit.39).

In the virtual world, many degrees of identification are, according to Donath (op.cit.:53) possible. Full anonymity is one extreme of a continuum that runs from the totally anonymous to the thoroughly named. A pseudonym, though it may be untraceable to the real-world person, may have a well-established reputation in the virtual domain; a pseudonymous message may thus come with a wealth of contextual information about the sender. A purely anonymous message, on the other hand, stands alone. Anonymity (including pseudonymity) is very controversial in the online world. On the one hand, anonymity is touted as the saviour of personal freedom, necessary to ensure liberty in an era of increasing sophisticated surveillance. On the other hand, it is condemned as an invitation to anarchy, providing cover for criminals from tax-evaders to terrorists (op.cit.:53). Whether or not you know that other people are present or privy to a conversation, whether you can connect an online identity to a real-world person, whether you have only a faint notion of the personalities of those around you or a vibrant and detailed impression – this is, according to Donath (op.cit.:55), all determined by the design of the environment.

2.5 Communities

Kollock (1999:220-239) starts his article this way; 'The Internet is filled with junk and jerks. It is commonplace for inhabitants of the Internet to complain bitterly about the lack of co-operation, decorum, and useful information. The signal-to-noise ratio, it is said, is bad and getting worse. Even a casual trip through cyberspace will turn up evidence of hostility, selfishness, and simple nonsense. Yet the wonder of the Internet is not that there is so much noise, but whether there is any significant cooperation at all.' Kollock points out that what needs to be explained is not the amount of conflict but the great amount of sharing and cooperation that does occur in online communities. Kollock (op.cit.:224) analyses the Internet as a gift community, where the exchange relations are orientated towards the mobilisation and command of information. Any piece of information posted to an online community becomes a public good because the network makes it available to the group as a whole and because one person's 'consumption' of the information does not diminish another person's use of it. This is a remarkable property of online interaction and unprecedented in the history of human society (op.cit.: 225).

Ongoing interaction, identity persistence, knowledge of previous interactions, and strong group boundaries work to promote the creation and importance of reputation within an online community (op.cit.:228). If members of a group will not meet each other in the future, if there is no stability in the names and identities that people adopt, and if there is no memory or community record of previous interaction, it will be very difficult to create and maintain a co-operative online community (op.cit.:235). Kollock points to the development of Linux to show how collaboration in an online community can work.

Communities rarely exist exclusively in cyberspace (Smith & Kollock 1999:19). It is therefore important to investigate the ways in which social groups spill out into the 'real' world and vice versa. One needs to look at the interplay between online communities and the 'real' world. Kollock (1999:233) points out, when talking about NetDay 96, that it is important to note that while a great deal of the organisation occurred online, there were also many face to face meetings.

Silverstone (1999:8) distinguishes between different communities. A certain concentration of place bound social relations is claimed to be a real community: a community with propinguity. A certain persistence of practices related to a mediated and shared agenda or cultural event constitutes a claim to an imagined community. A certain sustained effervescence of contact on an electronic network constitutes a claim to a virtual community. Each, in their different ways, lays a certain claim on membership and belonging. In my context, the virtual community is the most interesting. According to Silverstone (op.cit.:9), the virtual community has its source in the work of Howard Rheingold (2000). through the WELL which was its stereotype, was grounded in a certain propinguity, since "[it] felt like an authentic community to me from the start, because it was grounded in my everyday physical world. WELLites who don't live within driving distance of the San Francisco area are constrained in their abilities to participate in the local networks of face to face acquaintances".

The virtual defines, according to Silverstone (1999:10), community in the *real*'s mirror image by claiming a version of communion that offers a home to the singular. It is a place for those who claim a distinct identity (if only for the moment), and as such a version of community which consists of a plurality of over-lapping, unbounded, communities, occupying the amorphous space that we call cyber (op.cit.:10). The challenge, according to Silverstone, both theoretically and empirically, is at the interface, or the claimed interface, of these two versions of community: the interface between the off-line community and the online community; the real community and the virtual community.

Communities online are claimed as new social environments that do, or can do, a number of different things (op.cit.14). First of all they are seen to be able to create new forms of sociality, and as a result forms of community that bears little or no relationship to off-line communities.

Wellman and Gulia (1999:167-189) also ask if one can find community online. Can relationships between people who never see, smell, touch, or hear each other be supportive and intimate? According to them, most of the analyse that exist so far is parochial (op.cit.:170), as Silverstone (1999), Wellman and Gulia (1999), claim that they almost treat the Internet as an isolated social phenomenon without taking into account how interactions on the Net fit together with other aspects of people's lives. The Net is only one of many ways in which the same people may interact. It is not a separate reality. People bring to their online interactions such baggage as gender, stage in life cycle, cultural milieu, socio-economic status, and off-line connections with others. With more ease than in most real-life situations, people can shop around for resources within the safety and comfort of their homes and offices (op.cit.:171-172). If the Net were solely a means for information exchange, then virtual communities played out over the Net would mostly contain only narrow, specialised relationships. However, according to Wellman and Gulia, information is only one of many social resources that is exchanged on the Net. As social beings, those who use the Net seek not only information but also companionship, social support, and a sense of belonging.

The problem of motivation for giving support in virtual community arises when we consider that many of the exchanges that take place online are between persons who have never met face to face, have only weak ties, and are not bound into densely knit community structures that can enforce norms of reciprocity (op.cit.:177). Helping others can, however, increase self-esteem, respect from others, and status attainment.

According to Wellman and Gulia, strong online ties have many characteristics similar to strong offline ties (op.cit.:179). They encourage frequent, companionable contact and are voluntary except in work situations. One or two keystrokes is all that is necessary to begin replying, facilitating reciprocal mutual support or tie partners' needs. Moreover, the placelessness of e-mail contact facilitates long-term contact, without the loss of the tie that so often accompanies geographical mobility.

Despite all the talk about virtual community transcending time and space *sui generis*, much contact is actually made between people who see each other in person and live locally (op.cit:179). Perhaps the medium in itself does not support strong, intimate relationships. Thus, Stoll (1995:24) worries that intimacy is illusory in virtual community: 'Electronic communication is an instantaneous and illusory contact that creates a sense of intimacy without the emotional investment that leads to close friendships.' Walther (1995) argues that online relationships are socially close, suggesting that groups of people interacting on the Net become more personal and intimate over time. He points out that most research experiments analyse social interactions within a limited frame, missing the nuances of later interaction and the potential for relationships to grow closer over time. Walther argues that the medium does not prevent close relationships from growing but simply slows the process. Relational development takes longer online than in face to face interactions, because communication is usually asynchronous (and slower) and the available bandwidth offers less verbal and non-verbal information per exchange. Walther's experiment comparing groups of undergraduates online and in-person meetings suggests that over time, online interaction is as sociable or intimate as in-person interactions. In other words, the Net does not preclude intimacy.

People do not really divide their worlds into two discrete sets: people seen in-person and people contacted online (Wellman and Gulia 1999:182). Rather, many community ties connect off-line as well as online. It is the relationship that is the important thing, and not the communication medium. Email is only one of multiple ways by which a relationship is sustained. Just as community ties that began in-person can be sustained through email, online ties can be reinforced and broadened through in-person meetings (op.cit.:183). In absence of social and physical cues, people are able to meet and get to know one another on the Net and then decide whether to take the relationship into a broader realm.

Wellman and Gulia (op.cit.:185) suspect that people are generally drawn to electronic groups that link them with others sharing common interests or concerns. Online relationships are based more on shared interests and less on shared social characteristics. The limited evidence available suggests that the relationships people develop and maintain in cyberspace are much like most of the ones they develop in their real-life communities: intermittent, specialised, and varying in strength (op.cit.:186). Even in real-life, people must maintain differentiated portfolios of ties to obtain a wide variety of resources. But in virtual communities, the market metaphor of shopping around for support in specialised ties is even more exaggerated than in real life.

People in the Western world are spending less time in public spaces waiting for friends to wander by and to introduce friends to other friends (op.cit.:188). Instead by-invitation, private get-togethers and closed telephone chats have become the norm. This dispersion and privatisation mean that instead of dropping in at a café, a pub, waiting for people they know to drop by, people must actively get in touch with community members to keep in contact. The result is probably a lower volume of contact among community members. Wellman and Gulia suggest that virtual communities provide possibilities for reversing the trend to less contact with community members because it is so easy to connect online with large numbers of people.

2.6 Enthusiasm

People do not want to spend time in front of the computer just because they are lonely. Something else motivates them to use the computer in an intensive way. For example, one may talk about computers holding power (Turkle 1996:30-31). By this Turkle means that we should look at what it is that attract us to the computer and how the computer seduces us. According to Turkle the computers' holding power was once closely tied to the seduction of programming, while it today is more tied to the seductions of the interface. We need to look at what it is with the computer that makes people spend hours and days in front of it.

Most of all I am interested in looking at what it is that makes some people become fascinated computer users, compared to being just a user or a non user. We hear about dedication, we hear about addiction, we hear about unhealthy use of time. But there must be something else. Where are the stories about technology as fascinating and fun? Faulkner and Kleif (forthcoming) ask this question. They suspect that experiences of pleasure and play, and perhaps even pain, explain in part both why new technologies continue to be developed and why particular technologies get developed. Faulkner (op.cit.) found in her study of professional software developers that most of them used the language of thrill and excitement.

Kleif (1999) has in her master thesis Making Machines. Pleasure, Play and Power studied people that are into robot-building. She wanted to look at the affective aspects of the interaction between people and machines (op.cit.:2). One of her main points is that one should look at the fascination and fun part when talking about people's interest in technology, a part often left out within the sociology of technology literature. She finds that in much of the STS literature, the affective aspects of engineering culture seem under-theorised (op.cit.:4). Kleif focuses on technology hobbyists, more precisely robot-builders building robots for Robot Wars. What Kleif most of all found was that she was having fun hanging out with the robot-builders, and that they were having fun doing what they did. When talking about fun, the robotbuilders emphasised the process of building the machine (op.cit.:13).

Kleif was inspired by the work of Hacker (1989:5) where she looked at the work as pleasure, play and power. Hacker found that rather than the onerous tasks men dream of automating, work can be thought of as an opportunity to express yourself fully. Hacker takes Marx's more hopeful definition as a goal, that work can be an expression of human creativity and a source of freedom (op.cit. 1989:5). When she talks about technology and work she is thinking about the backyard. Machines and systems are designed, developed, and applied by people. They do not fall from the sky. They are designed and used with a great deal of passion (Levy 1984, Kidder 1981, Mellström 1996).

Kleif's (1999:38) main conclusions were first of all that robotbuilding is an activity filled with pleasure and passion. The robotbuilders take pleasure in problem solving and in making things work. There is a joy, generally, in knowing how things work, and specifically in knowing their own machine, as well as being recognised and appreciated for having the skill and knowledge to build a robot. Kleif also found that the robot-builders have an intimate relationship with their robots, and that they are proud and passionate about it, as well as protective; they like their machine. Next Kleif claims that building a robot is a hobby and it is play. It is an activity abounding with paradoxes: it is an activity with room for imagination, fantasies and creativity: the machine encompasses order and uncertainty, and building is work and play, serious and fun. The robot-builders' play transcends dualism and is much better described by paradoxes than by dichotomies such as work/play, tool/toy. Last but not least Kleif found that robotbuilders have an ambiguous experience of power. They experience control - controlling the whole building process, controlling the problem solving - and lack of control - uncertainty when the machine is 'on', being in the competition, losing control of their image.

2.7 Female hackers

Today more or less everybody has a computer at home or at work. Nowhere else in the world do so many people have an Internet connection as in the Nordic countries. More than two million Norwegians have access to the Internet today. In 200,1 34 % of the population used the Internet on a normal day. This is a rapid increase compared to ten years back. Earlier research also shows how it used to be young boys or men that owned a computer. With more home computers and more use of computers at school one should expect a change in who and how many people that are familiar with the computer. Statistics show that even though men are still the main users of the Internet, the amount of female users have increased rapidly. In 1999, only 12 % of women and 23 % of men used the Internet on an average day, while in 2001 the numbers had increased to 27 % for women and

41% for men.¹ The numbers for use of a home-computer are almost similar.² This gives us reason to expect a computer culture where girls and women to a larger degree are active participants.

I expect to find female 'hackers' and will through my research seek to find out more about who they are. My aim is to answer the following questions.

Are women today included in the enthusiastic computer community?

As the computer has changed meaning to become a machine for information and communication, I expect the content within computing to have changed. Are other contents more important today? Has programming lost some of its importance?.

How do the women use the computer? How important is the computer in their lives? Is the computer a friend or a tool? What is their style of work? Do they spend hours and hours in front of it, forgetting about everything else? How do they look upon themselves? What does it mean to be a hacker, according to the women? And do they feel or wish to be taken for one?

Is women's use of the computer different from what we have learned of in the hacker studies? Is this a female way of using the computer, a girl's room, so to say, or is it a consequence of the changed machine and the way everybody, both women and men, to a larger degree uses the computer of today? What do they find fascinating? What is the computers' holding power?

My hypothesis is that these women represent a new hacker. While the 'earlier' hackers focused on programming, I expect my informants to mainly be into communication and information. As has been shown in this chapter, there has been more than one way of looking at identity in cyberspace. While some researchers look at identity as multiple and fluid and cyberspace as a place to play with new identities (for instance Turkle 1996, Stone 1996), others have more emphasised that there is not much difference between the online identity and the offline identity (Donath 1999, Kendall 1998). In chapter five I will look more closely at what would be the personal basis for seeing oneself as a hacker. I will here, and in later chapters, use the concept of co-construction of gender and technology (Berg 1996, Faulkner 2000, Lohan 2000). How are gender and technology co-constructed and mutually influenced? How do the women construct their identity as a woman and a hacker?

¹ http://www.ssb.no/emner/07/02/30/medie/sa53/internett.pdf

² http://www.ssb.no/emner/07/02/30/medie/sa53/hjemmepc.pdf

Technology and society shape each other mutually, and we can therefore also see a co-construction of gender and technology. However, to 'add gender and stir' is inadequate (Lohan 2000). At the same time as we cannot understand technology without a reference to gender, we cannot understand gender without reference to technology (Faulkner 2000). When gender and technology is seen as co-constructed we avoid problems of essentialist understandings of both gender and technology (Gansmo 2002:14). By this they are seen as procedural, not as given and unchangeable (Faulkner 2000). With this perspective it is possible to see that technology can be domesticated (Silverstone et al. 1991, 1992). Both technology and users, and by that also the perception of gender, can be changed in the process (Aune 1992, Berg and Håpnes 1992, Håpnes and Sørensen 1995, Berg and Lie 1995, Lohan 2000). Using this way of thinking makes room for seeing technology as flexible, meaning that technology can have different meaning to different users or in different contexts (Berg 1994). This means that technology and gender are seen as integrated in the process of construction or as co-constructed where one is produced by the other and the other way around (Berg and Lie 1995, Berg 1996, Lie and Sørensen 1996, Lie 1998). The women will have to construct their position towards gender, what it means to be a woman, and also what it means to be a man, femininity and masculinity. And, they have to construct what a hacker and what computer enthusiasm is. In addition to their own constructions, they also have to relate to constructions of themselves and others made by everybody else. By putting all these constructions together they construct their own position and everybody else's.

This chapter has also shown that there exists a discussion on whether or not we can use the term community when talking about cyberspace. It was argued that it is impossible to separate cyberspace from what has been called the real world, because they usually converge. The community does not exist only in cyberspace, but will also often exist when people meet face to face. In chapter four, I will present a computer enthusiastic community, namely a computer party. In addition to describing the community and looking at how they can be characterised, I will follow up by looking at the women's role in the enthusiast community. In chapter six, I will look more closely at what kind of activities these women are occupied with. Is it the use of the computer for information and communication that is their main use? As shown in chapter one, and also in this chapter, the fact that users feel pleasure, and play with the computer, is what makes enthusiasts. chapter seven, I will look at how my informants have come to be computer enthusiasts and what it is that makes these women spend time in front of the computer.

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CHAPTER THREE:

SEARCHING FOR THE FEMALE HACKER

When I started my Ph.D. project in the summer of 1998, the idea was to study female hackers, in order to get a better understanding of the hacker community in Norway and the women working within it. I did not really know a lot about where to find these women or about the hacker community in general. In many ways, I had to start from scratch. There had been a couple of studies in Trondheim some years earlier (Rasmussen and Håpnes 1991, Aune 1992, Håpnes and Sørensen 1995). They, together with studies done abroad (Levy 1984, Turkle 1988, Shotton 1989, Nissen 1993, Taylor 1999, Katz 2000), described a community practically void of women. Even the programme board at The Norwegian Research Council who gave me money for my project, said in their grant agreement that they doubted the existence of female hackers. So, well, I was not given much hope of success in finding the field.

However, I was not inclined to give up, but I had to develop a search strategy to find relevant arenas and informants. There is no standard approach to follow. It is important to notice that my aim was not to describe the typical or average female hacker or computer enthusiast. Rather, I wanted to be able to show that they existed and to show what female hacking or female computer enthusiasm might be about. Thus, I did not have to worry about formal selection criteria. Rather, my main worry was to be able to find suitable informants. What follows is an account of my searches.

3.1 Acts of searching

My first strategy to find informants was to go through the universities. According to previous studies of hackers in Norway, this was one of the places where hackers would be found. In January 1999, I started out at the Department of Computer Science at the University of Oslo. Here they had a group called Verdande, a group of female computer science students that wanted to do something for their fellow female students.³ They do this, according to their web page, by recruiting more women to computer science, as well as giving the women that are already there a reason to continue. As a way of recruiting more female students the

³ http://www.stud.ifi.uio.no/~verdande/

members of Verdande say they want to inform women of what it is really like to be a computer science student. They felt that a lot of women did not know what it is really about. To give the women that are already there, a reason to stay, they organised seminars as well as social events for female students. That way, the female students could get to know other female students.

I first got in touch with Verdande by e-mail, and made an appointment to stop by their office. I met some of them and received information about the group, what kind of work they do, and talked about my research project. Later on I e-mailed the board of Verdande and asked for interviews. I received lots of positive responses and chose to interview some of them. My informants in Verdande also gave me names of other potential informants whom I later got in touch with and interviewed.

Through reading old newspaper articles. I also came across a computer party called The Gathering. I found more information on their web-page and decided it would be worth going there, to see what it was all about and whether there would be any females attending something that definitely looked like a meeting for young computer enthusiasts. I emailed the organisers in advance, saying I was coming, but did not get much of a reply. So, I bought a ticket like other participants and just went there without knowing anyone. I spent three days at The Gathering '99. I walked around and looked at what people were doing. Every now and then I would ask someone if I could sit down with him or her, and we would have a chat. Most of all, I was looking for girls and women that I could get in touch with and arrange to meet for an interview later. I talked with the women that I met, asked them questions about why they were at The Gathering and talked with them about their relationship to the computer. Using that strategy, I tried to find informants, but I did not really succeed. I guess this was partly due to the fact that The Gathering is a huge event, so it is hard to get a good overview of the event. This makes finding the 'right' people very hard. In addition, I did not know anyone that could introduce me to the field. So, in many ways, I just stumbled about in the dark, hoping to bump into someone that would fit into my project.

Even though my visit to The Gathering '99 did not yield more than one woman that I wanted to contact later, the experience in itself was interesting. I felt I needed more time to get to know the field, before I had a clearer view of what was happening. After The Gathering '99, I e-mailed one of the organisers to get more information about the participants and people that worked in the crews. In addition to e-mail correspondence we did some online chatting. In the beginning, he did not really answer my questions and was not being too informative. He also kept asking me questions like what I meant by hackers, why I was doing my project and what I thought I would find, and so on. Afterwards, I got to understand that he was testing me. He was trying to find out whether I had, what they see as the 'right' definition of a hacker. In some ways, the computer enthusiast community is closed for outsiders. A lot of them have had bad experiences with journalists, and feel misunderstood by society at large. Since I did not know they were testing me, I did not play a 'game' convincing them to accept me, but told them honestly what I was looking for. That I, by hacker, meant someone that spends most of his or her time in front of the computer and is very good at what he or she does. And, that I did not look for someone engaging in illegal activities.

After being accepted in this manner, things were a lot easier, and I was introduced to this computer enthusiast community. Chapter four is entirely devoted to The Gathering, so you will get more complete information about it there. As a reward for their contribution to making The Gathering happen, the people working as crewmembers were invited to a one-night boat cruise in May 1999. I was invited to come along on this cruise, so that I could get to know the people and especially the women. The cruise was a party cruise where they were going to celebrate one week of hard work. I spent some time in advance thinking about what kind of role I ought to take. Being open about the fact that I was a researcher and what I was there for, was not an issue. I would most certainly reveal that part. I did, however, expect people to be a bit sceptical towards having a researcher hanging around, so I wanted to tune down my appearance a bit. I decided to leave my notebook in my cabin, and instead of making a formal appearance as the 'researcher', just relax and party with them. My basic strategy was to just join them and play an as informal role as possible.

This turned out to be a good way of doing it. I joined the party together with the person I had been e-mailing with. He introduced me to the others, told them my name, and that I was there as a researcher. He also, in some way, said I was cool and had the right way of looking at the hacker. Then, I was given three shots, a hard liquor drink, and was told that I was not allowed to talk to anyone until I had finished them. This was mostly for fun, but I also felt they relaxed a lot more as I drank and joined their party. During the evening I got to know some of them little by little. I will not use the information given to me there directly in my research. However, it gave me a good introduction to the enthusiast community, and I established contact with quite a few of the women whom I interviewed throughout 1999. Today, three years later, I still communicate with some of them online. We chat about my work, or just about anything. Most of them I also met at The Gathering '00. I have also spent time with some of these people socially elsewhere, every now and then, in the years I have worked on my project. By keeping in touch with them, I have seen more than just the computer enthusiasm side of them. It has also given me an opportunity to discuss my findings and ask more questions, as my project has progressed.

My encounter with The Gathering made me think that computer parties could be interesting research sites. At the end of June, I packed my sleeping bag and got on the bus to Årdal to join Årdal Gathering '99. Årdal is a small town situated on Sognefjorden, right next to Jotunheimen, in the western part of Norway. I was ready for my second computer party. Before the party, I had e-mailed with the person that organised it. He met me when I arrived, and gave me some basic information about the party. He also showed me around and introduced me to some of the key people there. There were also some people that I knew from The Gathering, so this time I felt a bit more 'at home'. It was a small party, and most of the participants came from the nearby area and therefore knew each other already. This made me very visible. To avoid people feeling suspicious when I walked around, the organiser introduced me to all the participants over the speaker-system. He told them I was a researcher that would hang around and talk with them. As a result, most of the participants 'knew' who I was. This made them kind of curious, and they came up to me to chat, ask questions about my work and what I was looking for. That way, I got much more information. During my two days there, I walked around and talked with all the female participants and a lot of the boys and men. None of the females fulfilled my criteria for informants, so I did not do any formal interviews. In that way, the trip did not pay off. Nevertheless, it was interesting to be a part of a small party like this, as well, to see something so different from The Gathering. The contrast made me more aware of what was so special about The Gathering and it also made me reflect more upon the concept of computer parties in general.

At this point, I had become fascinated with computer parties as a phenomenon, so I decided to make that a part of my research and not look at them as just a means to get more informants. The phenomenon interested me in many ways, and I wanted to spend more time exploring it more thoroughly in order to get a better understanding of the field. As a result, I flew all the way up to Lakselv in September to participate at a computer party just called The Party '99. Lakselv is in the middle of Finnmark, the northernmost county of Norway, and has about 3000 inhabitants. This was the second largest computer party in Norway. Again, I brought my sleeping bag and just hung around and talked with people. I found four women whom I interviewed during the party. At this point, I started to feel more comfortable hanging out at a place like this. I met people from The Gathering, and I felt that I had gotten the hang of some of what was happening, when it was happening, and who to talk to. I felt that increasingly I was getting an understanding of why people wanted to join in on a computer party and what they were doing while they were there.

I had now been to one university and three computer parties searching for informants. I was starting to feel that I had a good collection of people, but still felt that I should try out other strategies to get in touch with females within other enthusiast communities. One day a journalist from the Norwegian newspaper 'Computerworld' contacted me. We talked about my work and my search for female hackers. I did not feel ready to give an interview, talking about my findings, but we agreed to meet and talk about what we could do. She came up with the idea to write an article where I asked for people to get in touch with me if they were, or knew someone who happened to be, female and a hacker. In the beginning of October '99 they printed an article called: Apply box: Female hackers - where are you?⁴ The article was an interview with me where I talked about my research project. I talked about what a hacker was to me, and what I was looking for. It also included some preliminary results of what I had found so far. The article contained my e-mail address, as well as my ICQ⁵-number, so that people could easily get in touch with me.

The article resulted in quite a few responses by e-mail, from people who had read it. Most of them were from males that found my topic interesting. They had comments about it and gave me more

⁴ Interview in Computerworld Norge, 8th of October 1999. Originally: *Bill.merk.*: Damehackere - hvor er dere?

⁵ ICQ (often pronounced I seek you) is an Internet program that notifies you of which of your friends and associates are online and enables you to communicate with them in real time. You can use ICQ to chat, send messages and files, exchange Web page addresses, play games or create your own homepage. <u>http://www.mirabilis.com</u>

information on some of the issues that were brought up. Some also said that there were no female hackers in Norway, so I could really stop looking. Nevertheless, I did get some useful tips on females to contact. In Some of them I already had on my list and was planning to contact. In this way, I got supporting information about how they were perceived by others. In addition, I got two more informants that I do not think I would have gotten to know of, if I had not used this method.

In addition to providing me more with informants, I used the interview to test my preliminary results. I did this by asking the women I had interviewed so far, to read and respond to the interview with me in the newspaper. Their responses were all positive in that they all confirmed feeling comfortable with my preliminary findings. It reassured me that I had started to develop insight recognised from within the field.

About the same time, I felt it was time to go back into the universities. I had done all the interviews that I wanted to do in Oslo and started to look for informants at the University of Trondheim. In Trondheim there are two computer clubs. I went through their lists of members and sent e-mails to the females I had heard might be interesting for my purposes. Most of them also had a private web page where I could get more information about them. Since I am a student in Trondheim myself it was easier for me to get in touch with the enthusiast community and find female informants here compared to in Oslo. I had asked around and felt I had a pretty good idea about whom to get in touch with. It was, therefore, easy to find more computer enthusiastic females to interview at NTNU.

After this round, I started to feel that I had enough informants. However, I still felt a need to spend more time at a computer party. This time I wanted to do it the 'real' way and not just stop by for half the time like I did the year before. I wanted to bring my computer, and I wanted to be there all through the party. At The Gathering '00, I participated as a crewmember. I wanted to experience the whole thing from the inside. I did not think I could become an insider, because I was still there mainly as a researcher, but I wanted to take part in a more substantial way. Through participant observation, I would be able to give a thicker description (Geertz 1973). Through my contacts, I was given a job in the press crew. The press crew's job was to take care of journalists. It was a small crew with only four members. I was placed in this crew basically because it would allow me to spend most of my time working with my research. Meaning, I would help out as a crewmember whenever they had a lot to do. Otherwise, I would just observe and do interviews as a researcher.

As a crewmember, I had to arrive at the party the day before it started, to help getting things ready. Tuesday morning, on the 18th of March 2000, I took a bus put up for crewmembers from Oslo to Hamar. There had been people working in the hall for some days already, but this was the day when all the crewmembers had to get there. Not much happened, really, that day or the next, before the party started, but for me it was an excellent opportunity to get to know who was working in what crews and to see what was going on. Some of the crewmembers I had met on the cruise the year before. In addition, I got to know a lot of the new crewmembers. This made it easier to hang out during the party.

As the party started I got to see how it changed from being an almost empty hall at five o'clock in the afternoon, to being stuffed with more than 4500 people and even more computers five hours later. I was able to take a closer look at how people moved their stuff in, got it all set up, and then started to move around to meet up with friends. What most of all excited me was to see their enthusiastic and expecting faces as they arrived. How eager they were to get started! It was an atmosphere you can only understand by being there from the beginning, or more precisely, from before the beginning.

As the party went on, every now and then I would need to take care of a journalist. My job was to show them around, answer questions about The Gathering and introduce them to or put them in contact with people they wanted to meet. During my stay, I also did four formal interviews. They were all with women I had come to know of since the previous Gathering, and we had arranged to meet at this The Gathering, since we were all going there. However, most of all, I was just hanging out. I did like most of the other participants. I played on my computer. worked a bit, but most of all I talked to people. I walked around in the hall, looked at what people were doing, asked them questions about their work or just chit-chatted. I spent time in 'the kitchen' where the crewmembers came to eat, and relax and talk with others. Some of the time. I just stayed in the press room where lots of people would stop by. When the party ended after five days, I stayed for another day. We had to tidy the hall and put things back were it belonged. When leaving The Gathering '00, I felt I had enough experience from computer parties to be able to write about it.

By now, I felt I had accomplished my task as far as collecting material. I had by now accomplished formal interviews with 24 women and 2 men. I therefore ended my interviewing and observations after The Gathering '00. It was time to sit down and take a closer look at what I had actually found.

It took me a year and a half to collect data. I really enjoyed it and would have continued if I had had the time and the money. What most of all surprised me, was that people were so willing to talk to me, to give me of their time, and also how open and welcoming the computer enthusiastic community turned out to be. My experience very much supports Shotton's (1989:xi) experience when she set out to do a study of computer dependent people in England:

Early readings of 'computer junkies' and 'hackers' suggested that if I pursued this research I might spend my time with people who were barely human and who were unable to converse with others on any meaningful level. How untrue this proved to be. I met some of the most fascinating people of my life. They were intelligent, lively, amusing, original, inventive, and very hospitable.

Only one interesting potential informant has not wanted to meet me for an interview. Her reason to reject was that she did not like genderstudies. She was sceptical toward all research that studied gender-related topics. Apart from her, people have been really interested in what I wanted to do, and have been helpful in most ways. This has made my fieldwork a wonderful experience. In many ways, I never wanted to stop and would have liked to continue travelling around participating in computer parties, meeting new people, and doing interviews with more women. I am sure there would have been more to learn, and I would have liked to experience more of it. But at some point I had to stop, since time and money were running out. However, at that point I felt I had spent enough time in the field to have a good understanding of the phenomenon.

A qualitative project like this will always be open to changes as it moves along. The field will not be as you expected. You do not find the informants you thought you would find, or other questions came to be more important than you expected them to be. This is also part of my story. Most of all the changes came with how I presented my project. Instead of talking about hackers, more and more I talked about computer enthusiasts. The reason for this was, above all, that people in general tended to think of a hacker in a different way than I did. For most of them, it meant someone using their computer knowledge to do illegal things. Within the enthusiast communities, where I did my research, this was not the case, but they were aware that most other people looked upon hackers in this way and suspected that I did the same. To avoid this problem my project therefore came to be about computer enthusiastic females. Not necessarily because there are no female hackers in Norway, but because it was a difficult term to work with.

This has also had an effect on my writing. I do not present the communities as hacker communities. I use the word 'community' because this is how they present themselves. It is a group of people that are together because of a common interest and enthusiasm for computers. There is not one community, but many. To avoid presenting them as illegal communities, I do not want to name any of the communities hacker communities. Additionally, they are not communities of people sticking together because they enjoy the pleasures of hacking, but because they are active and enthusiastic computer users. To call them computer enthusiastic communities is therefore a more accurate term.

Another thing that troubled me when writing was whether I ought to present my female informants as girls or women. As I started writing, I presented them as girls. But as the work has progressed, I have ended up with a decision to present them as women instead of girls. My informants are from the age of 16 to 32 years old. For many of them it would be more natural to be presented as girls and not women. It is quite common to a lot of Norwegian women to present themselves as girls even when they reach 30. However, using girls instead of women, my study could easily be mistaken as being a study of teenage girls and their use of computers. My informants are all young women, and I wanted this to be obvious. I therefore ended up presenting them as women and not girls.

3.2 My Choice of Method

The aim of my project was to find female hackers, females that were enthusiastic, skilled and active computer users. As mentioned in chapter one, research of hackers has, with few exceptions, presented a totally male-dominated community. When I started my project, there existed no studies of Norwegian hackers that included females. I therefore had no previous studies that could provide me with information about my research object. However, my suspicion was that they existed, so I wanted to find them and take a closer look at these women. By doing this, I wanted to show their existence and make them more visible. I wanted to gain knowledge about how and when they started using a computer, their experiences with it, its importance in their life and what impact the computer had on their life in general. Only qualitative research could provide me with answers to these questions. I knew the population would not be large. Counting them would only prove they existed and not give me the information I needed.

I decided that in-depth interviews and observation was the best way to learn about the enthusiast community and the women within it. The benefits of using in-depth interviews is, according to Kalleberg (1982), that the researcher may have a conversation or an interview with a person that has first-hand-knowledge of the phenomenon or the social systems being studied. In-depth interviews are informal in their form, and the interviewer has not constructed standardised questions in advance. Thus, the interview will just follow the conversation (Halvorsen 1993). The informants are able to control how the conversation is developing, while the interviewers main task is to provide the thematical framework and make sure to get answers to relevant topics (Holme and Solvang 1991).

The first five interviews were taped. The advantage of using a tape recorder is that you can pay more attention to the informant. In addition, you have something to go back and listen to later. I used a recorder while doing my interviews for previous research and found it very useful. This time it did not really work, so I stopped and started taking notes instead. There were several reasons for making this choice. First of all, the location where I conducted a lot of my interviews influenced my choice. Many of my informants were quite busy, so I had to be flexible as to when and where to meet them. Very often we ended up meeting at a cafe after work. Using a recorder at a cafe is not ideal. There is usually too much noise there, so it is hard to hear what they say when you are transcribing afterwards.

In addition, tape recorders very often make the informant uncomfortable, because people around will pay extra attention when you have a recorder on the table. Interviewing at cafes without a recorder seemed to something most informants were quite comfortable with. I always asked them to suggest a place, which meant we ended up at a place they knew and liked. I took notes during the interview, which of course would take some time, and sometimes the informants would have to wait for me to finish what I was writing. In many ways this turned out to also be an advantage. By writing things down as the interview was progressing, I became more aware of what the informants were saying. I also, to a larger degree became aware of issues that were not really clear, that I did not understand, so that I could ask more questions about it to make sure I got it right. Additionally, as an 'added value', the informant got time and maybe inspiration to think while I was writing.

Another reason for not using a tape recorder was that it was a more effective way of working. I saved both time and money. In the beginning I taped the interviews and got someone to transcribe. I got a very long interview transcript back, which in itself was fine. Less fortunate was it that the transcriber, who did not know the topic, had misinterpreted a lot of what was said. As a result, I first had to pay a lot of money to get someone to transcribe the interview, and then had to go through the whole interview myself and rewrite substantial parts of it. I could of course have transcribed the interviews myself, but felt that this would be too time-consuming.

In addition to my notebook, I used an interview-guide.⁶ In the guide I put down the themes that I wanted us to talk about during the interview. A guide helps you to bring the conversation to the themes you want to know more about. After my first interview, I did some major changes to the guide. Some of my questions did not work at all, and others had to be added. In the beginning, the guide was of great help, but the more interviews I did the less I used it. And for the last interviews I did not even look at it. The guide was important as I got to know the field. Things I did not know would be important, seemed more important and the other way around. The guide was therefore always "under construction". In many ways my guide was work in progress. In the beginning, the changes could be seen on my written interview guide, but as the project developed the work happened in my head and not on paper. Therefore, the guide in the Appendix A1 will not give an accurate description of how my interviews ended up being, but describes what I was interested in initially.

As I described in the first part of this chapter, a lot of my time was spent observing. It became a lot more important to my way of getting to know the field than I had expected. There are a lot of things one can learn by talking with people that has first-hand knowledge about the subject, but some things you cannot really understand without participant observation. A computer party, I would say, is one of those things. My experience as a researcher was that I had to spend a lot of time in this field to get an understanding of the phenomenon. When being in the field, like being at the different computer parties, I was always open about who I was and why I was there. Of course, I did not wear a badge

⁶ The interview-guide is presented in the Appendix A1.

saving 'researcher', but whenever I talked to people. I told them about my reasons for being there. I also announced to the organisers that I was coming. I never considered working 'under cover' since I do not think that is a good and ethically sound way of doing observation. To inform about who I was, turned out to be definitely more of an advantage than a disadvantage. In that way, people would come and discuss and tell me things that they would not have done otherwise. At the same time, one can of course ask if this is just an advantage. Literature on observation points to the fact it is a risk that people might start to act or to play in a different way, because they know they are being observed (e.g. Hammersley and Atkinson 1983, Laine 2000). Especially is this true if they think the researcher expects them to act in a specific way (Widerberg 2001:113). However, since there were so many people involved in the computer parties I took part in, this never felt like much of a problem. The only disadvantage was that I was seen as a good person to tell 'gossip' to. Though, in many ways this was useful information as well, as it told me a lot about internal conflicts.

As a preface to this thesis, I wrote about how I became a computer enthusiast myself. This has mostly been a process that has evolved as I have worked on this project. In order to be able to get a better understanding of what my informants were experiencing, I felt I had to get to know some of it myself. Most of my informants were telling me about chatting, and in some ways I had problems understanding what this was all about. To get a better idea, I figured I wanted to try it myself. Thus, through this project I have become a chatter. As I have been chatting, I have experienced problems regarding who I am when I am chatting. Is it me, as a researcher, doing it, or is it me as a private person.

From the very beginning when I entered the chat-room, which came to be 'my room', I was open about my profession, my research project and why I was hanging out there. It is not like I have actually done research there, in the sense that I am saving the conversations or taking notes about what people say or how they act. In that respect, I have just been a 'normal' inhabitant of the chat community. I just participated as a normal chatter. At the same time, I went in there because of my research, and I was most definitely analysing my own experiences while I was chatting. In many ways, I have been somewhere in between the two roles, the observer and the native, me, the researcher, and me, the private person. However, as time passed by, my personal experience and pleasure from hanging out have become the main reasons for spending time there. Nevertheless, my interest in chatting will always be partly motivated by being a research topic and not just me being a normal participant.

My fieldwork has, as you have now seen, mostly been conducted me being a participating observer. It has always been open, and I have taken an active part in the communities I have been observing. In the chat-room I have managed to become one of them, because I ended up being there based on personal choice and interest, and not as a researcher. At the computer party, my role started out as being an outsider, but as I spent more and more time there, I became a bit more of an insider, but were never fully initiated.

Literature on observation warns us that we must take care not to become the object (Hammersley and Atkinson 1983, Jorgensen 1989). Even though my own relationship with computers has changed during my studies, and I have been involved with different enthusiast communities in a closer way than I guess would be 'normal' for a researcher. I do not feel that I have become the object. I still feel I can distance myself from it and be able to analyse it as an outsider. Of course, in some ways, my somewhat close relationship with informants will make me more anxious about saving things that might 'hurt' or insult their community. But I think the extra knowledge I have gained through my involvement is worth the risk. It has most certainly made my work much more interesting and fun. To a large degree I also think it would have been impossible to write this thesis if I had not gotten as close to the field as I did. It is hard if not impossible to really understand the attraction and the feelings one can get through chatting, for instance, if one has no personal experience with it. I did, of course, not have to experience this for myself, but since I found it hard to understand what my informants were telling me, it helped having a personal experience. The same is to be said about computer parties. In the beginning, I asked my informants to explain to me what a computer party was. However, it was only after I had spent quite a lot of time there myself that I felt I understood the dynamics of computer parties.

3.3 Choice of 'Fields' for Observation

All in all, I spent a bit more than two weeks observing computer parties, three weekends and one full week. My choice of computer parties can in many ways be seen more as a random choice rather than as predetermined since I did not intend to do it when I started my project. My method was more like the snowball method. One thing led to another, you learn as you go along. I think that by going to the three
computer parties, I have acquired a good knowledge of the phenomenon. The Gathering, where I spent the most time, is the largest and most well known computer party in Norway. The Party in Lakselv is the second largest, and is also interesting because of its location in the far north where the population is less dense. And Årdal Gathering is a good example of how smaller computer parties keep popping up everywhere at schools these days. There are other parties in Norway that I could have chosen to go to. Some of them also a bit different in content. But by choosing the ones I did, I feel I got the most out of it. I know a lot about one type of computer parties, and this type is the most frequent one, it involves the largest number of people and is growing in size and frequency.

My project has been restricted to Norway. Every now and then this has felt a bit like a hindrance. First of all, I have been told that there are more females that would be characterised as hackers in Finland, Germany and the Netherlands. More women within the community would make it easier to find informants. This made me want to go abroad to search for informants. My informants, and others, have also told me a lot about computer parties in Sweden, Denmark, Finland and Germany. In Sweden they have Dreamhack, in Denmark Summer Encounter, in Finland the Assembly, in Germany Chaos Communication Congress, and HAL (hackers at large) in the Netherlands. Parties that I really would have liked to go to. However, there are limits as to what one can do, and going abroad would have made it a different project. Instead, I chose to stay within the borders and focus on computer enthusiastic communities in Norway.

3.4 My informants

Originally my idea was to present all my informants, one by one, in an appendix. I wrote the appendix, but I decided that it did not work. If I were to present them in a way that would actually provide any meaningful information they would be easily recognisable. Being a female within the computer enthusiast community is still quite rare. Several of my informants are people that every one in the enthusiast community knows. Not only because they are females, but because they are skilled, enthusiastic, fascinated <u>and</u> females. This makes them stick out. I tried to make a version without the kind of information that made the informants easily recognisable. I ended up with a description that did not say anything at all. I also tried to switch information around, mix the

different informants. That did not work, either, because their stories then ended up without logic.

Part of what I found important, and wanted to show, was how the computer for some women has been part of their life since early childhood, for some as long as they can remember. I wanted to show how this had affected them later in life and how these women ended up with more technical knowledge than the ones starting later. I wanted to show how the different women dressed, which varied from nerdy to boring to vulgar, which was also a part of their place in different enthusiast communities. I would also have liked to tell you how some of the women have used the net to, in different ways, work out or present different sexual aspects. How the net for some has been part of finding information and becoming a member of a SM-community, for others getting to know and later meet other bisexuals, and others again, to promote their porn movie. But, with all this information, everyone knowing the women would recognise them. I did not feel that this was ethical.

Thus, it became impossible to give a thorough presentation of each and every informant. In that way, I do not give you the possibility to get 'to know' my informants through my biographies. It is more important to protect and respect the privacy of my informants. Instead, I will present my informants in a collective way as in the table in Appendix A2. The information given in this table is of a rather abstract and formal character, but it should provide a reasonable overview of some aspects of my sample. However, the fact that I cannot present the full stories, has not limited my work. Even though I cannot give you all the information I have about my informants, their full stories still take part in my text.

The table in Appendix A2 presents what I find to be important basic information about my informants. In the first column you find a name. As a way of making the informants anonymous, I have given them all new names. Since I am writing in English, I thought for a moment about giving them names that would be easily pronounced in both English and Norwegian. I chose, after some thinking, to give them simple and traditional Norwegian names. This because it is a point to show that it is a Norwegian material and not informants that could have been found anywhere. They are Norwegian, and that should be evident. Moreover, I will use the names when I give interview quotes in the text to show from which interview the quote has been taken.

In the second column you find their age. The youngest one being 16, the oldest one 32. The distribution within the group is not even.

There are more informants at 20, 23 and 24 and less among the youngest and the oldest. This is a consequence of the fields where I have chosen to search for informants, namely universities and computer parties. At computer parties the participants are on average between 17 and 23, you will rarely find people much past the age of 30. Almost the same may be said about the universities. The youngest here, of course, not being younger than 19, but rarely a lot older than 27. It has not been a point for me to find a certain age group. My project, and my goal, were studying females that were enthusiastic computer-users. Computer enthusiasm among younger informants, I had already studied in my master thesis, so I did not particularly look for informants among this age group. For this project I could have chosen to search for older informants than the ones I ended up with, for instance by searching through computer companies or other computer-related workplaces. I have never excluded older females from my project, they have just never been visible for me or participated in the fields I ended up focusing on. Therefore they are not in my material

"Initiation of enthusiasm" is the time when their computer interest really started to bloom, or they got hooked, as my informants usually called it. Quite a few had access to a computer before this point and used it every now and then. Still, it was first at this age they really became interested and started computing with enthusiasm. I have chosen to divide this initiation point into three categories. "From childhood" consists of females that have been computing more or less as long as they can remember, up till the ones that got hooked before the age of 12. The group of adolescent starts at age 13 and lasts till 19. The rest is from age 19 and up. I have called this "from student" although not all of them started to study, it is more an indication of the period in life.

The category "Support of enthusiasm" tells, as it says, who was important for the informants' development of their computer interest. For some, the computer interest was an interest they had developed without support from others. With others, mostly the ones being enthusiastic since childhood, there were members within the family that also were enthusiastic users and supported them. The support may have been as a teacher, as a person to borrow or get computing equipment from, or a person to play on the computer with. I have chosen not to distinguish between the different members of the family. In some cases, the whole family has been involved, in other cases, it is just the father, the father and the brother, the brother or just the mother. My interest with this project is not to go deep into background variables that might or might not have been important for their computer interest. That is more of a psychological project. However, I have found it useful to have some knowledge about who helped shaping their interest.

In the fourth column, you find what kind of interests the women have had at school or study. This is mostly based on their interest during high school, but also on what they might have studied before they started working or before doing what they do today. It is meant to say something about interest, since there is very often expected to be a connection between an interest in math or science and an interest in computing. The next column looks at what they are doing at the point of interview. As a way of making my informants anonymous, I have chosen to standardise this to some degree. This means that I have put M.Sc. computing on everyone that is a student in computer science at the university. I have not differed between those doing a degree in computer engineering and those being a Masters student in computer science at universities. Some of them are also students that have not started their Masters yet, but plan to do so. For those working within computing I have not been too specific in telling where and with what they are working.

The next column provides information about what kind of enthusiast community the informant belongs to. These are communities they both belong to "naturally", by being a student at the university, and communities they are a member of actively. My informants come from two different universities, the University of Oslo (UiO) and the Norwegian University of Science and Technology (NTNU) in Trondheim. At these two universities there are different enthusiast communities in which one may participate. I presented Verdande earlier in this chapter. 'The Networking Group' (NVG)⁷ and 'The Software Workshop' (PVV)⁸ are student organisations at computer science departments.

Outside the universities there are other communities to take part in. Internet Relay Chat (IRC) is not itself a community. IRC is the first chat program that made it possible for more than two people to participate in the same conversation. It is built up of many small channels or rooms where people chat in real time. IRC can therefore be described more as many small communities rather than one community. When I say that an informant belongs to an IRC community, it simply means that she is active in a 'stable' online community. The online

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⁷ http://www.nvg.ntnu.no/

⁸ http://www.pvv.org/

community exists on the net as well as face to face. It is a group of people that have come to know each other online, or at a face to face meeting, and keep in touch by meeting on the net regularly. There are regularly organised IRC parties for different channels. It is a community existing both in virtual life and real life, if one likes to use those terms. In addition to these communities, I have included computer parties as a community affiliation. There are many computer parties. Some of my informants only participate at one computer parties. Some of my informants have participated in The Gathering, Årdal Party, The Party (in Lakselv), and Dreamhack (Sweden), in addition to a lot of smaller computer parties. One person also has a Quake-clan as her community.

The last column is about the informant's partners. The interesting thing here is not, as I see it, whether the person has a partner. I have chosen to present this because I find that having a boyfriend who is as computer enthusiastic as the girlfriend often makes a difference. It is not a matter of the boyfriend bringing the women into the community. This is the case for just one of my informants. Having a partner with the same interest has often proven to be an advantage. The fact that many of the informants have boyfriends, even within the community, also shows that computer enthusiasm does not have to be an alternative to forming partnership, as is often said about hackers.

In addition to these 24 women, my material consists of formal interviews with 2 males. These interviews I did, not so much to get information about the person itself, but to get information about a computer enthusiast community they had a good knowledge of. I interviewed Erik, a 22-year-old boy doing a MSc in Computing, about Bush Parties. Erik has been an organiser and participant at both Bush Parties and other computer parties since the age of 14. He enthusiastically answered my questions and shared his insight into and knowledge about the computer party scene.

I spent about three hours with Trond at a computer lab at the university where he was a student. Trond was, by the female students I interviewed, presented as 'one of the hacker boys'. He was one of those that often spend the night at the computer lab. I had heard quite a few of the female students mention him. Trond also sent me an e-mail after the interview with me in Computerworld. Trond showed me how to make a hack, and we talked about hacking and the enthusiast community at the university.

I have also spent hours talking with the organisers of The Gathering. Because of their business. I was never able to sit down and do a formal interview. I tried a couple of times, but we usually had to give up after half an hour or so. Their mobile phones were ringing at all times, or they had to run to sort things out. Instead, I used a more anthropological approach. I used the opportunity to talk with them whenever there was time for it. Sometimes just a five-minute chat as we passed each other in the hall, other times an hour-long chat over 'dinner' at five in the morning. All in all, this resulted in a good deal of time and information. This was also the case for the organisers of the Ardal Party and Party'99 in Laksely. When one spends as much time as I have done at computer parties, there is always room for informal interviews. In addition to talking with the organisers. I spent hours and days talking to the participants. In addition to the formal and informal interviews and conversation. I have used the net to collect information. By e-mailing, looking at web pages and chatting to people with knowledge, I have been able to get an even more complete story.

3.5 To get them talking

As I said earlier, I used an interview guide and a notebook during the interviews. The themes in the guide were developed from theory and earlier research in similar fields, like for instance the guide that I used doing my Masters thesis (Nordli 1998), and I looked at guides that others had used doing similar projects. After the first couple of interviews, I rewrote the guide completely, adding new themes, leaving others out. The interview did, as mentioned before, often take place at a cafe or wherever it was convenient for my informant to meet me. We usually started up by chatting about other things while ordering something to eat or drink. Even though I had informed them about my project, and the form of the interview, in advance of the meeting, I started by telling them more about my background, the project and the form of the interview.

I started the interview by asking the informants to tell me about themselves. At this point we had 'broken the ice', and the informants felt comfortable with the situation, which is very important in order to establish a good conversation. After that I usually followed up on whatever the informants had been saying that I felt like knowing more about. One thing led to another, and after an hour or two we had usually covered the themes I wanted to gain knowledge about. My informants were from the age of 16 to the age of 32. Most of them were comfortable talkers, meaning that they knew how to express themselves and did not have difficulties answering my questions. My questions were also mostly centred around topics they had given some thought to earlier, so it was not like they had to face completely new questions right there and then.

During the interviews, I extensively used myself, my own experiences and my knowledge of the field. I used this to make them talk about my themes and to check if their experiences would be similar to or different from mine. Before starting to interview, it is important to be aware of one's own assumptions (McCracken 1988). There is nothing wrong with having them, but by being aware of them one becomes a more careful listener. One way of doing an interview is to check if your assumptions are in accordance with how the informants feel.

There is, of course, always a risk that one affects the informant. Membership in social groups, as well as personal style, influence the patterns and power relations that develop when interviewing (Rossman and Rallis 1998:126). I never felt that I, as a person, affected the informants to a large degree. During the first interviews, though, I had problems defining my role. Because I am so close in age and, to some, also close in terms of life situation, certain issues proved hard to talk about. Such problems were especially prominent when I interviewed females doing Masters at the university. As a way of solving this, I tried to develop a very professional attitude. I dressed up in a skirt and jacket, and tried to be formal. I thought that this would distance me from them and make it easier for them to talk to me. This was not a good solution, though, so I soon dressed down and tried to a larger degree to be more of a friend rather than a 'professor'. This worked much better. Mostly, I guess, because I felt more comfortable in this role, being myself. When I relaxed, it was easier for my informants to relax, as well,

However, interviewees may be unwilling or uncomfortable sharing all that the interviewer hopes to explore (Rossman and Rallis 1998:125). Sometimes I had a feeling that the informant would over-communicate her relationship with the computer, or that she would do the opposite. Since I had told them what my project was about before of the interview, I sometimes got a feeling that the computer would come up as a subject when it should not have, if it had not been for this information. Nevertheless, this was not a major problem. And it became even less of a problem for all those informants that I kept on meeting, talking to and discussing my findings with over the time.

I did a lot of in-depth interviews for my Masters, as well, so I already had quite a lot of practice. The hardest part then was to get the girls, who were at the age of 14-16, to talk about some of the themes I wanted to talk about, because they had not thought about it, and some of them were not comfortable at expressing themselves. In this study, I did not have that problem, but every now and then I have felt the problem being the other way around. Some of them were very good at expressing themselves, and I sometimes felt that they in many ways made certain assumptions either about what I wanted or about what would be the proper answer to give. I have found that the more education my informants had, the harder it was to get them to discuss certain issues. It sometimes felt like they knew what would be politically or academically 'right' to say and not to say. Usually we were able to get passed this as the interview progressed. The more I relaxed, and the more they relaxed, the easier the conversation went. Every now and then they provided important information as we just chit-chatted after the formal interview was over, or when I met them the next time.

3.6 Representativity, validity and analysis

The researcher making a qualitative study is engaged in getting as much information and knowledge about all relevant features, in contrast to getting a population large enough to be able to generalise from it (Repstad 1993). To be able to answer my research questions, I have made a strategic choice of computer enthusiastic females and computer parties. The females will not be speaking on behalf of females in general and not for all enthusiastic females, either, but they will give important information regarding themselves, constituting a group which may say something of females in general. The information can be useful, for instance, when making policies about how to get more females into the computer community or to study computing.

According to King (1994), the instrument used for the data collection in qualitative surveys is valid or of high quality if it really studies the theme one has set out to analyse. Another important issue is related to the validity of the interpretations. This involves, among other things, whether or not the researcher's conclusions about what should be the main theme in the interview, may be seen as correct or adequate. There are different criteria from which to evaluate validity. Kirk and Miller (1986:20-21) say that "Validity is the degree to which the finding is interpreted in a correct way (...) a question of whether the researcher sees what she or he thinks she or he sees". So the validity is about how

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one interprets the data. It is always a good thing to involve more people in the interpretation process, to ensure its validity (King 1994).

I have done this in more than one way. First of all, I have discussed and talked about my interpretations with my professor Knut Holtan Sørensen and other colleagues. In addition, I have asked my informants what they think about some of my interpretations. While working on this project, I have been interviewed by different Norwegian newspapers and on the radio several times. The content has not always been directly focused on this project, but has sometimes been based on general discussions on what it means to be a nerd, about chatting, the use of Internet, and such. I have always asked my informants to read or listen to my interviews and give me feedback about what they think. In this way, I have been ensured that I have not misinterpreted their voices. I have also talked to, chatted and e-mailed with them during the process.

A lot of time has been spent reading through the interviews. Putting on different 'glasses' and looking at it from different angles. All to make sure I present and interpret the information given to me in the best manners. All in all this has given my survey validity. In addition, I have used quite a lot of interview quotes in my empirical analysis. This gives the reader some opportunities to evaluate my interpretations.

To analyse qualitative interviews is a time-consuming process. The work of analysis may be seen as stages of a process of getting to understand the phenomenon under scrutiny. The first analysis starts as the interview is being done. There is not just one way to analyse, but many. Not a lot is written about techniques for analysing qualitative data. The process of proceeding from the collecting of data to a publishable product is therefore often called the invisible part in the discourse of methodology (Solberg 1985, Yin 1989, Hoel 1992).

I had analysed qualitative data before, so I was not without experience when I started. Yet, the work has taken a lot of time, and I have had to do many rounds to make sure I have understood my informants. A lot of the analysis has been going on all throughout my work with the project. It took me more than a year to collect all my data, and during that time I did a pre-analysis. I have also given talks about it and been interviewed about it both in newspapers and on the radio. This forced me to start interpreting my material from the very beginning.

When I began to write my thesis, I did in many ways start from scratch. Even though, as I just said, I had made interpretations all along, I started out with empty documents and put on 'clean' glasses. I did this to make sure I did not become stuck in one way of interpreting the material, which might not be in accordance with how the informants see things. First of all, I spent time reading through my interviews carefully. I then spent time writing summaries of all of them. In this way, I could more easily get an overview of what I actually had. Next, I started thinking about what kind of themes I saw and how they would fit in different chapters. Then, I made different drafts of what chapters to have and what to put in them. At some point I had something that looked like a good and logical outline. Writing a thesis like this is very much about construction, the different themes being bricks that have to fit together to create bigger blocks which again have to be put together to establish a larger whole. There are many ways of putting the bricks and the blocks together, one way is not necessarily any better than the other, but some ways are more logical than others. Finding a good architectural plan takes time, but if you find it you get a beautiful result. In the end, I am happy with how the themes and the chapters have come together.

The analysis has been about coding and categorising my material over and over again. What you read in my thesis are my interpretations. Alvesson and Sköldberg (1994) call attention to the fact that interpretation is not just a problematic reflection of reality. The interpretation is more a cut or segment of the reality, which can provide important knowledge about an area, rather than an answer. The interpretations provide a possibility to understand a phenomenon, rather than a 'truth'. It has been important for me to present a picture of the informant that she herself can recognise. To be able to do that has taken a lot of time and a lot of effort.

My choice of research topic emerged as a result of my interest in and fascination with hackers and hacker communities. In that regard, my dissertation work has very much been driven by my interest in the empirical aspects. Still, to find out more about my research topic, I chose to turn to the literature. First, literature on hackers, computer nerds and enthusiasts. Second, literature that looks at why women are not engaged in technology and why men, on the other hand, are so fascinated by it. However, despite being driven by my interest in the field, I found significant support and inspiration in the literature before I started collecting my data, while I was collecting my data, and as I analysed my data. In addition to that, I searched for other literature that could help me understand and explain my findings. Data collection, analysis and reading of theory have thus been ongoing, parallel processes. The chapters are therefore not a presentation of how the research process has progressed. Even though the theoretical explanations came in advance of the empirical material, the theoretical tool for analysis has been developed and adjusted in the meeting with the empirical reality.

CHAPTER FOUR:

THE NET IS NOT ENOUGH: COMPUTER ENTHUSIASTS AT A COMPUTER PARTY

The hacker culture is a culture of loners who are never alone. It is a culture of people who leave each other a great deal of psychological space. It is a culture of people who have grown up thinking of themselves as different, apart, and who have a commitment to what one hacker described as 'an ethic of total toleration of anything that in the real world could be considered strange'. Dress, personal appearance, personal hygiene, when you sleep and when you wake, what you eat, where you live, whom you frequent – there are no rules. But there is company. (Turkle 1984:219)

This quote from Turkle is not unique in its content. As I showed in chapter one, a lot of the literature has described the hacker in a somewhat similar fashion. The hacker is characterised as an asocial boy. He is either fat or extremely thin, in any case, he is supposed to look unhealthy. He does not shower or care about clothing or appearance. The culture of hackers is a culture of asocial, unhealthy-looking boys. Even though the stories describe hackers spending time together, either in front of the computer or when going out for a pizza or a movie, they are still said to be asocial. It seems like the way they are socialising is not accepted as a way of being social. Two or more boys in front of the computer is not social.

When I first heard about computer parties, I was surprised in more than one way. The existence of computer parties is in itself a paradox. Since nerds and hackers are said to be asocial, why would they ever want to go to a gathering together with hundreds or even thousands of other people? Furthermore, if there is something like a computer party, it has to be a sad thing. Imagine a lot of people together in one room, but everyone in front of their own computer. Last but not least, a computer party would definitely not be a place where you would find any women.

In many ways, these were my expectations when I first learned about The Gathering, a computer party organised in Norway every Easter holiday. I expected to find a big hall full of computers and spotty teenage boys in front of the computers. Big was my surprise when I first participated in 1999. Contradictory to my expectations, computer parties turned out to be the place to search for female hackers.

In the last five to ten years the computer has changed significance from being a machine of calculation to being a machine of information and communication. The World Wide Web and the Internet have given people an opportunity to connect to other people, no matter how far away they are. You can work and connect from wherever you are. Many have asked if this transformation would give us a new sociality, where social contact increasingly is done electronically through the Internet. This also makes phenomena like computer parties interesting subjects to study. Especially computer parties will give us a chance to analyse three phenomena. First of all, we are able to study different types of computer enthusiasm. Next, to look at different strategies of inclusion and exclusion. Third, to study a phenomenon like sociality.

Computer parties is not a new phenomenon within the hacker culture. Through Aune's work we have learned about the Amiga hackers (1992:92-99). The Amiga hacker groups of the late 1980s got together in what they called copy- or demo-parties. At these parties, the main objective was to exchange demos and to make copies from each other. The parties were put up by an Amiga group and were held at schools. People got together for a couple of days, brought their own machines and discs with demos and software. It was open all night, and those who did not want to go home to sleep, could sleep next to the computer. The machines were constantly on, and people would walk around, looking at other people's programs and demos, and show others what they had made themselves. People made contact with others sharing the same interest. They also had competitions, often with prices for the winner. The parties were organised in different cities in Norway, but also abroad. People got their invitations through their networks of other computer interested people or through BBS (Bulletin Board Systems).

4.1 The Gathering⁹

The Gathering is an annual event organised to get computer-interested youngsters together at the same location. The idea is that they then can exchange experiences and opinions, and be social through face to face interaction, as opposed to communication through digital media.

The Gathering was organised for the first time during the Easter holiday in 1992. At that time, Internet was something private homes rarely had access to. This meant that most of the communication between computer-interested youngsters would take place in their local environment or through BBS. A computer club named the Crusaders and other computer enthusiasts wanted to create a larger meeting place for

⁹ http://www.gathering.org/espresso/

the youngsters and decided to organise the first Gathering. The event was held at a sports hall just north of Oslo.

Right from the beginning, the party was a success, and it has been growing in size every year. The first years the party was organised at different places, mostly around Oslo, but once in Stavanger. In 1996 the amount of people wanting to participate was so high that the organisers had to find a place that could house more people. After having looked around they decided that the Viking Ship (Vikingskipet) would be the place to be. The Viking Ship is a huge indoor skating hall, built when Norway hosted the Olympics in 1994. It is situated in a small town called Hamar, about a two-hour drive north of Oslo.

The party is now as large as it can be, considering the size of the Viking Ship. The Gathering'00 (2000) had about 4500 participants. The tickets were sold out more than three weeks in advance, and a lot more people wanted to get in, but could not. In the last couple of years, the organisers have tried to find a new place to organise it, but have not yet succeeded. They cannot find a place that is large enough, is situated in a 'central' location, and is affordable. They want a place where they can gather all the participants in the same room, so that one can have an overview of the whole event. They feel sceptical about having it in Oslo, because they fear it will attract criminals, people wanting to steal computer stuff, or sell drugs. And, because they want attendance to be as cheap as possible, they do not want to pay a lot in order to rent a place. So, they still have not succeeded in finding a better place. The Gathering '01 and '02 were also organised in the Viking-ship. In '02, the tickets were sold out less than a day after they were put out.

From the modest beginning, as an impulsively organised 'copy party' put together by a small group of friends, that all belonged to the computer group Crusaders, The Gathering actually ended up in the Guinness book of records after The Gathering '99. Never before had as many as 4300 people been connected to such a huge temporary network at the same time.

4.2 The organisers - KANDU

In the beginning, The Gathering was organised by people from the computer club Crusaders, together with other people within the computer enthusiastic community. More and more people took part, and at some point, there was a need for an organisation that could be in charge. KANDU was started in 1996. The name KANDU has more than one meaning. First of all, in Norwegian it is short for *creative and active*

Norwegian computer youngsters.¹⁰ Secondly, the word KANDU is in itself put together by two words, 'kan' and 'du', which together means, "can you?". In many ways, the name says a lot about what KANDU really is. The aim was to show people on the outside, the trade and industry, and potential sponsors, what a computer party was really about and the importance of an arrangement like that.

One of the organisers behind The Gathering says that KANDU wants to contribute to increased interest among young computer enthusiasts. They want to promote the idea that all the equipment that they own should be shared with others. They help others who want to put up smaller computer parties by sharing their expertise and computing equipment. Their goal is to get all computer-interested boys (and girls) out of their rooms and into a computer enthusiast community. That way, they can meet others, make friends, learn, and have fun. In addition, KANDU also works towards schools and youth clubs. They receive 'old' computers from the Norwegian trade and industry. They bring these machines to schools and youth clubs, and help them getting the system up and running.

KANDU is a non-profit organisation. Everyone working as a crewmember at The Gathering automatically becomes a member of KANDU. However, KANDU is run by a board, which is in charge inbetween the annual meetings. The board consists of 10 people with different functions. They have meetings every now and then, but mainly they communicate through e-mails, IRC, or phone. KANDU also has its own bus. It is quite an old one, but they have put a lot of effort into making it work, so these days it is in pretty good shape. The bus is used when they travel around to different parties, either in Norway or in other Scandinavian countries. That way, they can get their people around cheaply, while the same time they have a way of moving all the network equipment from one place to another. KANDU also has a small office downtown in Oslo. This is where they hold their meetings, but mostly it is used for storing computer equipment.

KANDU takes care of the preparations ahead of The Gathering. However, more people are needed to actually make the party run. A crew of about 150 to 200 volunteers takes care of that. The crew is divided into different groups that have special areas, which they are responsible for. Each group has a leader. If the crew is large, sometimes level two

¹⁰ In Norwegian: Kreativ Aktiv Norsk Data Ungdom. http://www.kandu.no

leaders, as well. On the top is KANDU, which operates as the administrative unit during The Gathering.

The administrative unit takes care of all the administrative work. This is where the 'big guys' are located. In addition to the preparations preceding the party, they have the superior responsibility during the party. The Crew-Care takes care of all crewmembers. They are usually about 8 to 10 people, and it is the only group dominated by females. They make dinner for all the crewmembers every day, in addition to making sure that there is warm soup, bread, tea and coffee in the kitchen at all times. Then we have two groups that take care of the competitions. The Democrew, according to their web page, is in charge of the demoscene-related competitions. They put up the schedule for the various competitions, receive the contributions from the people attending and set up the jury to pick the top contributions to be shown on the big screen. The Gamecrew organises different game-playing competitions. The Medics take care of people that are not feeling too well. The Net crew makes sure that the net runs smoothly all throughout the party. The Security Crew is, with its 50 members, the largest group. They take care of security. They make sure that no one enters the hall that should not be there, and keep control of what the participants are doing in regard to porn or other illegal stuff. They co-operate with the local police, which also have at least one representative present at all times. The Press Crew takes care of journalists and media. They answer questions, show people around and put people in touch with the ones they need to speak to. The Tech Crew keeps the physical network up and running at all times. According to their web page, they 'are they guys'n girls you'll have to interact with if you've got some 'technical' problems during The Gathering'. They are also the crewmembers that arrive first before the party, to put out switches, cables and everything necessary to get the network running. The Vision Crew is the audio-visual unit at The Gathering. They provide entertainment and information on the TG-TV, on the stage, and on the big screens. The Film Crew takes care of what movies are to be shown during the party. Last but not least, there is the Info Crew. They are responsible for collecting and distributing information about The Gathering. This crew is divided into web, IRC and info booth. The web people keep the web page updated at all times. The IRC people run the IRC-channel for the party. And the info group answers all kinds of questions at the information-stand.

4.3 Getting high on computing

I entered The Gathering for the first time one the evening of Good Friday during the Easter holiday in 1999. This is what I wrote in my notebook after having been there for about half an hour:

This is just fantastic! It can't be described! A giant hall packed with computers. There are quite a few girls here. Not as dominated by boys as I had expected. Another thing that strikes me, is that it's not as nerdy as I had thought. A lot cooler, kind of hip hop really. Today it's cool to be a computer-nerd!

After having been there for just half an hour, I felt that my expectations from beforehand were misleading. I was totally overwhelmed by the sight and the atmosphere. Many of the participants had more or less the same experience when they first entered the party. Like Ina says:

I remember the first time I was at TG. WOW! I sat at the podium in the evening and saw all the lights from the monitors. I met friends whom I'd only met through IRC. It was a meeting place where one both could meet up with old friends and make new ones. A lot of the people that I'm in touch with on IRC live far away, and we don't meet very often. TG becomes a meeting place.

Now, three years later, the thought, or the sight, of this still overwhelms me. It really is something special. Even people that are attending The Gathering for the fourth or fifth time cannot get used to the sight. One of the crew leaders who was there for the sixth time said this:

Every time a new TG starts I get startled. By the first night of the party I know that all the preparation and work preceding the party have been worth it. Looking out onto the party during the night is like looking at the sky on a starry night.



Picture 4.1. The hall during night time.

What you see is this huge hall packed with computers. A picture can never fully do justice to the sight and atmosphere, but it will give you an idea. As you can see, it is all dark, except for the light coming from about 4500 monitors. In addition, some of the participants have brought along small, cosy lamps to give some extra light to their places. Once in a while, the whole place is lit up by laser shows. The sound is overwhelming. Loud music comes from the main speakers at more or less all times. In addition, people have loudspeakers by their computers, to play their own music or to hear the sounds from the computer games. The music being played is mostly a kind of house or acid music. Because of all the noise, some participants wear earplugs or walk around with other kinds of ear protection. After a while, one either just gets used to it or gets exhausted. The Gathering '01 was a 'silent' party, which meant there was no music played, and people were not allowed to play music aloud on their computers. However, the organisers found that the party atmosphere to some degree disappeared without the noise.

To give you a better idea of the party, I have also included a photo of the hall during the daytime.



Picture 4.2: The hall during the daytime.

There is also a special smell at the party. Try to imagine a smell coming from a combination of pizza, hamburgers, french fries, sweat, wet towels, socks that stink, bad breaths, deodorants, after-shave and perfume. People live inside the hall for five days or more. The participants sleep there, shower there, eat there and work there. On the first day the air is fine, on day three, you start to sense the smell, and on day five, one should try to avoid going outside, since going inside again is quite brutal.

The activity is at its highest during the night - from around six in the evening till three or four in the morning. Between six and twelve a.m., they turn down the music. This is the time when most people get a few hours of sleep. They bring along sleeping bags or a duvet. Some even bring fold-up beds, like sun beds. You find them all over the place, some sleep outside the computer area, like on the podium, but quite a lot just fall asleep where they are, like the two boys shown in picture 4.3:



Picture 4.3: Boys taking a nap.

At my first party, I could not believe that people were able to sleep in such noise, but after I had participated at some parties myself, I know the noise is not a problem. It is just a matter of being tired enough. Most of the participants will go on for as long at they can the first night and then sleep as little as possible during the rest of the party.

The parties are non-drug/non-alcoholic. The organisers are very strict about drinking and the use of drugs. Many participants are under the legal age for drinking, and the organisers behind The Gathering do not want a reputation for being a place where youngsters get drunk for the first time. They have had some incidents with people who try to get into the party being drunk and drugged, but only a few. If you are found inside drinking or taking drugs, you will not ever be allowed into another party. And people do not want to risk that. In addition, being drunk makes it hard to compute. They are there to get high on computing, nothing else. One of the female participants says this about drinking and computing: I'm not really a party person. I'm not into drinking. In that way, I'm a typical nerd. It is so hard to write when one gets back home drunk and sits down in front of the computer. I don't like drunk people, they really make a fool of themselves. I never get drunk. (Bente)

Because the activity is at its peak during the night, people tend to get too little sleep. In order to be able to stay awake, people drink lots of caffeine. Coca-Cola is the most common drink. In addition, some people take caffeine pills. However, the organisers very much encourage the participants to get enough sleep and food, and to be careful with the caffeine. They send out messages over the load speakers, or the message board, that people must remember to sleep and not have too much caffeine. People should instead go outside for a walk and some fresh air. Every now and then a participant still needs to be taken care of, because he or she has collapsed as a result of too little sleep and food. This applies mainly to the first-timers, though. Those that have participated before know how important sleep is and tend to sleep more to be able to be human, as they say, all through the party.

After a party people are really exhausted and sleep for days:

It is really just major stress. After The Gathering, your head is just like a disco. You are totally exhausted after having worked day and night for so long. When you come home, you hate the computer and decide not to touch it ever again. Usually you just sleep for a couple of days. And a few days later you go on again. (Bente)

4.4 The party from start to finish

As mentioned in chapter three, I worked as a crewmember at The Gathering'00. Being a crewmember means that you share a responsibility to get the party up and running. The crewmembers have to meet a day or two before the party. The local sports club is hired to put up the tables before most crewmembers arrive. And there are a lot of tables. The organisers say that if you were to put up the tables, one after another, they would stretch from the Central Station in Oslo, all the way up Karl Johan and into the King and Queen's dining room, a distance of about 1,6 km.

The most important job is to get the network up and running. Cables, switches, and so on have to be put out. To illustrate the length of cables the organisers say that if you stretch out all the cables in use, they would run all the way from Hamar, where the party is held, to Oslo. That is about 120 km. The day of the opening, people start queuing outside the hall around six in the morning. The doors do not open until five in the afternoon, but people want to be among the first ones in. Some have been driving all night and are eager to get their computers up and running as soon as possible. For quite a few, this is the major happening every year, which they have looked forward to and planned for a long time. A seat number is included with their ticket, bought in advance of the party. That way, computer clubs, or just friends can make sure they will sit next to each other when they order tickets. So, the order in which they get inside has nothing to do with the seating. It is more a matter of getting the party started as soon as possible.

As the evening approaches most of the participants have gotten their computers up and running. The biggest issue is always whether or not you manage to get online. The network people are under a lot of pressure, but for the last couple of years, the network has worked very well. It breaks down every now and then, but this is in many ways part of the game. Building a temporary network for 4500 people is quite a challenge.

After people have gotten their computers working, they start walking around. They meet up with old friends, people from last year's party, or people they have met and become friends with on the net. They look at other peoples' machines, their programs, and chat or maybe flirt. The social aspect of the party is very important.

And then the party is on. For five days and nights, people mainly stay inside the hall. Every now and then a group will leave the hall and go out to get a pizza, a hamburger and more Coca-Cola. However, there are many activities going on in front of the computers, as well. In the beginning, I had problems figuring out what people were doing when they were actually paying attention to their computers. Most people are running at least two tasks at a time. Playing games and chatting are, of course, the most frequent activities. ICQ¹¹ and IRC (Internet Relay Chat) are the most common chat programs. The Gathering has even got its own IRC channel, so all participants can talk to each other online as well as face to face. This channel opens a couple of months before the party, so

¹¹ ICQ (often pronounced I seek you) is an Internet program which notifies you which of your friends and associates are online and enables you to communicate with them in real time. With ICQ you can chat, send messages and files, exchange Web page addresses, play games and create your own homepage. http://www.mirabilis.com

participants can discuss the forthcoming event and get to know each other. The number of games played is large. However, various action games like Quake are common. A lot of time is also spent downloading mp3 files (music) or other programs. For some of the participants, this is a great opportunity to be online 24 hours a day and not have any restrictions whatsoever as to how much time the person spends on the net.



Picture 4.4: Participants in front of their computers.

In addition to socialising with other participants and playing with their computers, the participants engage in other activities. A group called Norwegian Nerds organises activities and competitions for 'nerds'. One of their competitions is called 'do you want to be a millio<u>nerd?</u>'. The organisers emphasise that the questions should be about general topics like politics and geography, as well as computing. They have also organised a Pringle competition. Who can build the highest tower from small boxes of the chips Pringle? Besides competitions like these, Norwegian Nerds organises something they call 'nerd-gymnastics'. The participants are all given a keyboard. Under the instructions of the

representative of Norwegian Nerds they all start swinging the keyboards around as they do different exercises. In the end, every one of the participants have to turn around to the person next to him or her and say; you are a nerd! The organisers behind The Gathering also arrange concerts as the party goes on. The concerts are either by people within the enthusiast community or bands they hire. As the music starts playing, the participants soon head to the scene to listen and dance.



Picture 4.5: Participants dancing.

However, some participants complain that the party has changed to a form they do not like:

It used to be a party that made things. A creative and challenging community. It has started to be about IRC. But The Gathering is still a demo party. People still make demos, and at the last party, the interest in it was larger than the year before. So, it is still a demo party, but it is a lot more, as well. (Bente)

Having a network that actually works is one of the reasons for this change:

'99 was the first year the network really worked. The spirit of The Gathering used to be that one should not be occupied with IRC. So, this network thing has not really been that important earlier. But now everything is different. Earlier compos and demos held the centre of the stage, while today IRC and games are what most people are occupied with. (Sara)

A compo is a competition. As said in the beginning of this chapter, there are two types of competitions, game compos and demo compos. The game compos are about computer games and goes on all through the party, day and night. People sign up individually, or as a team, in different competitions. The competition usually goes on until there is only one person left. Different computer games are played and the participants play against each other on the network.

A demo is a demonstration of what a computer club can make, using programming knowledge, graphic design and music with the help of a computer. The different groups compete against each other within different categories, divided according to type of computer being used and the size of the file. The size of the file says something about how advanced the program is. Sometimes a program cannot be larger than a certain size. They also have competitions for music and graphics. The amount of people being involved in making demos is not very large, considering the total size of the party.

The participants at The Gathering are mainly between 17 and 23 of age. Yet, you can find participants that are no older than 10 or 11 years old, participating with a parent or an older brother. And there are quite a few people older than 23, as well. There is a group of people that have been involved since the beginning. Some of them are still involved in the organising and have now reached the age of 28 to 35. So, even though you might get the impression that it is only teenage boys that go to computer parties, this is not the case. The amount of females attending has also increased in the last couple of years. At the last two Gatherings, about 500 females were attending. Even though the females still do not make up more than 10 percent of the participants, this is a huge increase, considering the fact that not so many years ago there were no females there at all. So, being there as a female, aged 30 did really not feel

4.5 Computer parties in general

Other computer parties are also organised in Norway on an annual basis. Some are as old as and even older than The Gathering, while others keep popping up every year. As I mentioned in the beginning of this chapter, computer parties have been a common means of getting together within the computer enthusiastic community since the very beginning. However, in many ways the parties' contents have changed. Computer parties known as copy parties, were mainly a place where you would meet to, as the name implies, copy from each other. The participants copied programs, games and also videos. Another type of computer party that has been around, and is still in existence, is the scene party. In many ways, this is what the gathering used to be about, making demos.

The scene or the demo-scene¹² is a collaboration of people divided into groups, using their creative skills to make and perform digital art. The groups make music, drawings and design in general. According to Erik, a male informant, you can compare the scene with sports. Every player has his or her own task within the team. The team prepares for its next championship, competing in different leagues. In addition to competing in a team, the artist has the chance to compete individually at these championships. The championships are known as "demo-parties". In many ways a demo can be compared to a sort of music video. The difference though, is that the demos are made solely with computers and with no human voices. The key elements in demos are programming effects and computer graphics, but also the music.

Today the demo scene in Norway is smaller. *The Bush party* has been one of the most active scene parties. All together six Bush parties have been arranged. It is an annual event that takes place the first week of the school's summer holiday every year. The Bush party has also changed over the last years. One of the former organisers told me that it is hard to get people together that is really interested today. The scene community becomes smaller in size every year. At the last party 90 % of the participants were mostly occupied with games, mp3 and IRC. The person I talked with doubted that there would be a Bush party 7, since so few people were interested in making demos.

According to my informants you have to go to the other Scandinavian countries if you want a party that is more scene- and demo-oriented these days. Sweden has their Dreamhack, organised in November each year.¹³ This party is starting to get rather large, but is still more oriented towards demos and scene. The organisers from The Gathering are also involved in the organising there. Denmark has a party named Summer Encounter, and in Finland the most famous party is

¹² See for example: http://www.neutralzone.org/home/starfish/

¹³ http://www.dreamhack.org/

called Assembly. These parties are for a more professional crowd than The Gathering, as Maren, a female participant explains:

I was at the Dreamhack in Sweden last year. It's not an IRC-party. It's a real computer party. It is totally clean. So peaceful and pleasant. Here the compos were at the centre, and not games and IRC like at TG. It took place the same weekend that the fire at the discotheque in Stockholm took place. We had a minute of silence because of that. You can try to imagine us doing the same at TG! It was quite a lot of people here, as well, more than 1500. The party is a lot more peaceful and full of a lot of really funny people.

In Norway more and more computer parties pop up every year. They are organised at schools or other places where youngsters hang out. In 1999 I visited two of them. The Party was the second largest party in Norway and the largest in the northern part of the country. It was organised in Lakselv, a small town in the very north of Norway. The party had about 500 participants, which must be considered a large number, considering where Lakselv is situated. Lakselv is in the middle of Finnmark, the northernmost county of Norway, and has about 3000 inhabitants. About 15 % of the participants were women. Most of the participants were from the northern part of Norway, but because this part of the country is really stretched out, most people had travelled far to get there. Quite a few also came from more central parts of Norway. Laksely is not far from the Russian border, so they had organised for 40 participants from Murmansk to join them. They were brought there in a bus and were sponsored by the Barents Euro-Arctic Council (Barentsrådet), as a way of integrating Norwegian and Russian youngster. The party also had some participants from Lapland. Thus, all information was given in Russian, Norwegian, English and Lappish. In many ways, The Party is The Gathering in miniature. However, more of the participants at The Party came there primarily to meet people and were not so engaged in computers.

The second party I visited in 1999 was *Ardal Gathering* which was organised for the second time that year. It was quite a small party with its 100 participants. Here too, the number of female participants was about 15%. Ardal is, as Lakselv, a small town, and it is situated at the head of Sognefjorden at the start of Jotunheimen in the western part of Norway. The participants came mostly from Ardal and were pupils at the school where the party was being held. The other participants came from the surrounding areas. Ardal Gathering did not have the same atmosphere as either The Gathering or The Party. In many ways, you can say that it was a very 'clean' party. It did not have the smell, the noise, or the amount of empty Cola cans and Pringle boxes. Even though you could sleep there, a lot of the participants went home when they needed a few hours of sleep. There were also more chaperones, like parents, stopping by to see what their kids were up to.

4.6 The Net is Not Enough!

People at the outside often imagine a computer party to be somewhat different compared to how it is experienced from the inside. This becomes clear when reading articles in the newspaper covering the event, asking around what people think of it, and also from the reactions I got when telling people I was going there. To a large degree they had the same perceptions as I did before going there. However, it is not just outside the computer enthusiast community that people have a strong idea regarding the meaning of a computer party. Ingunn, a female computer science student, has this to say when asked about The Gathering:

The first years I thought about going there, but I don't really see a reason for going there. My impression is that it's just a bunch of people sitting behind their machines tapping at the keys. The more people having a machine at home, the less relevant an arrangement like this will be.

However, in general The Gathering and computer parties are about much more than tapping keys. Most of all, it is a social event, a place to meet other people with similar interests as yourself. A phenomenon like computer parties is interesting in more than one way. One important aspect is concerned with the net. It is a paradox that a technology that is constructed so people can work from wherever they happen to be, actually is the reason for people getting together. They pack their computers and all the other equipment and bring it to another place so that they can put it next to lots of other people. It is not like Ingunn assumes, that the more people having machines at home, the less we will need events like this. On the contrary, the greater the number of people having machines and a net-connection at home, the more people seem to have a need for these kinds of events; a place where you can meet face to face the people behind the machines. The net, and the ability to communicate with people virtually, is not a substitute for the 'normal' form of communication. It rather intensifies people's drive in order to communicate. In many ways, the discussion now turns from; 'what a

computer can't do' towards 'what the net can't do' (Undheim 2002). Although the net gives us a unique possibility to meet new and interesting people, make friends and establish relationships, we still want to meet face to face. The net thus generates new meeting-places.

An arrangement like The Gathering first of all shows that enthusiastic and active computer users, often called nerds or hackers, are not necessarily people who prefer spending all their time alone in front of their computer. They want to meet others face to face and hang out. However, a lot of the socialising also happens in front of the screen. From reading other literature and the media-coverage, I got the impression that even though more than one person sits in front of the screen, they are still asocial. This makes me question what it means to be social. As a contrast to earlier studies of nerds, I will make a strong claim that this is a very social community. Both when being together at events like computer parties, but also when hanging out together online. From my perspective there is not a great difference between talking with people through the computer and talking with people on the phone. True, you do not hear the other person's voice. However, the communication can consist of even more information about the other person's feelings and expressions by proper use of the 'chat-language'. The nerdy computer enthusiasts are different from their reputation.

The community is also a lot more diverse when you look at age and gender compared to the common myths. Even though there are a lot fewer female participants than male, there are a considerable number of females there. You find quite a few females that come to compute. And you find many females among the crewmembers. The nerd, or hacker, community is not any longer an all-male community, contrary to previous research (e.g. Weizenbaum 1976, Levy 1984, Turkle 1984, Rasmussen and Håpnes 1991, Aune 1992, Nissen 1993, 1996, Håpnes and Sørensen 1995). When looking at age, there is of course, a majority of people between the age of 17 and 23. However, as previously stated, there are other age groups as well. Therefore, it is not just a teenage phenomenon, but a phenomenon, which includes different age groups. One of the most striking features is actually how people both co-operate and become friends in spite of differences in age, gender, social background, education, sexual preference and handicaps. They are so used to being together with different types of people that such issues, which seem important in most other communities, are not so relevant here.

Many of the participants tell stories about how they felt they had found a home when they joined the computer enthusiast community. For the first time in their lives they were accepted as who they were. They did not have to pretend or hide aspects of themselves, because people were so open-minded and inclusive. The net gives people a chance to get to know each other in a new way. I do not mean to say that variables like age, gender and social background do not matter on the net, because they do (Bromseth 2000). But they are not as visible as they are in other contexts, and this creates a new framework for communication. When people finally meet, face to face, they have already established a bond.

As I have shown here, the nerds are not at all that asocial, and the enthusiast community also includes women. This represents a contrast to the image often presented by the media and earlier research. However, it also seems that the nerd is starting to become a more popular 'person'. In many ways, it looks as if being a computer nerd these days is quite popular in Norway. Sara, a female participant, explained the change this way:

Today it is cool being a computer nerd. In '97 it was the worst ting one could be, while today, in '99, it's almost better to be a nerd than to be pretty. Today everyone knows what the Internet is, and it is commonly accepted. People have understood that nerds make good money. This has sent a signal to the world that nerds are skilled. Earlier very few knew what it was all about, so I guess a fear of something they did not know was the reason for the negative stamp the nerd received.

The computer enthusiast community itself claims to have contributed to changing their reputation. Especially one group has worked to change the negative image, namely a group called Norwegian Nerds.¹⁴ This group was started within the community in '96, and today it has 3867 registered members. Ina, one of the members of Norwegian Nerds said:

It started before TG '97. It was a group of men around the age of 30. At TG they were selling T-shirts and stuff. Suddenly it was cool to be a nerd. The reason for starting Norwegian Nerds was that they wanted to show that the normal nerd did not correspond to the perception people had. Usually you are presented with a picture of the nerd as thin and ungainly, wearing a cap, dirty, with lots of spots and really thick glasses. They wanted to show that a nerd was a normal person. It was also a matter of putting the social aspect in focus. Even though you are a nerd you are a social person.

14 http://www.nerder.no/

Ina sums up what I in many ways have wanted to share with you by writing this chapter. I have gotten to know a community that does not consist of asocial nerds. It is in most respects an open, gentle, communicative and social community. They are not only interested in computers, but have different interests like most other people. However, an enormous interest in computing is of course what brings them together. They will call on each other whenever they have a problem. computer related or personal, and try to sort it out together. Even though parts of a computer party is about competition, the computer enthusiast community in itself is very much concerned with gaining as much knowledge as possible, and claims that that can only be achieved by sharing their knowledge with each other. And it does not stop there. They are very good friends and will stick up for one another, if they get into personal trouble or have problems. Some of them are familiar with the feeling of loneliness, of being left out, or of feeling different. This chapter started with a quotation from Turkle (1984). In some ways Turkle sees what I see, but as opposed to Turkle, I see a community consisting of people that to some degree have been lonely, but are united in social interaction through that community. They are no longer lonely. They are no longer asocial. Some have never been either lonely or asocial, but have joined this social community as one of many social communities they take part in.

People that have been involved with TG for a long time even refer to the community as their family. Katrine, a female participant and one of the organisers, says it this way:

We are all a big, happy family. In many ways, I feel that TG is my baby. It means everything to me.

The Gathering shares many similarities with the communities that Faulkner and Kleif (forthcoming) studied. Both the professional engineers and the technology hobbyists building robots are driven by their fascination with technology. It is a community of enthusiasts which shares the experience of pleasure and play with technology. Most stories about technology as fascination and fun have been about what Oldenzieal has called 'men's love affair with technology' (Oldenzieal 1999:) in Faulkner and Kleif forthcoming). However, Faulkner and Kleif find that women and men's accounts of their pleasure appear to be more differentiated (in predictable directions) than their actual practice. The few women involved in their study suggest that women might share the same kind of pleasure regarding and love affair with technology as the previously described male love affair. In chapter six and seven I will look more closely into the relationship my informants have to the computer.

Computer parties and enthusiast communities in general, as I know them, are very inclusive communities. In many ways, they show how girls and women have been included in the world of computers. In spite of research claiming that computers, and technology in general, is an all-male environment, we do find women in this community, and they participate and work side by side with the males. How is it though, to be a female within a context like this? This is what the next chapter will address. (1) We describe the second problem of vertices on the second s

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CHAPTER FIVE:

SITUATING ONESELF IN THE WORLD OF HACKERS

Chapter one showed how the hacker has been presented in the media and by researchers. We see how the hacker has become a cultural image when presented through movies that are mostly about how a young and very intelligent boy manages to fight the system or the evil guys, through his computer knowledge. The same image has been provided in books written by journalists. However, there the hacker is more of a loner. They are all men, they are intelligent, they are extremely computerskilled and they are heroes. Most researchers do not present them as heroes to the same degree, but give a more negative picture of a group of asocial, spotty boys with computing as their only interest. But, for instance Shotton (1989) and Nissen (1993) give a more diverse and positive description. Nevertheless, both in the social scientist's story and the media's story the culture is filled with boys and men. The hacker is without doubt a masculine figure. Women are assumed to take almost no part in this world of active and enthusiastic computer users. The hacker figure, as described, constitutes, symbolically and practically, a contrast to women's use of computers.

Several studies have observed the negative impact the image of the asocial computer nerd has among groups of girls and women (Turkle 1988, Rasmussen and Håpnes 1991, Buholm 1998, Berg 2000). The computer, or even more the community around the computer, is argued to represent something women do not feel they belong to. They see an intimacy among the hackers towards computers that they themselves feel only belongs to relationships between humans. The hacker represents a masculinity where men can be totally obsessed by technology instead of human beings.

A large amount of research shows how men and women have a different relationship to technology (Tolson 1977, Willis 1977, Bentson 1988, Kaul 1988, Lie 1988, 1995, 1998, Kvande and Rasmussen 1991, Jenson 1992, Sundin 1995, Mellström 1996). Technology has become an instrument to support and symbolise masculinity. Because technology, like the computer, has changed from being heavy and dirty as opposed to light and clean, one would expect differently. However, computerenthusiasm has been gendered. Men and boys seem to be active both in producing and playing with computers and computer technology. Women are often shown to be more reluctant, especially when it comes to having an enthusiastic relationship to computers. The notion seems to be that the computer is only a tool, not a toy to play around with and have feelings for (Gansmo 1998).

However, in chapter four I showed how a computer party could be a place were both men and women play around with their computers, even though, according to previous studies, one would not expect to find women there. Thus, females can be fascinated by and attracted to technology. Women, too, may thus be into using computers for pleasure and play. Still, they are a minority and research does show that they are more critical regarding the hacker figure and reluctant regarding their own role within computing (Håpnes and Rasmussen 1991, Buholm 1998, Gansmo 1998, Nordli 1998, Berg 2000). I would therefore expect to find that my informants show ambivalence towards hackers and define themselves in contrast to them. The hacker is someone they are not and someone they do not want to be.

As a way of analysing this, I will follow up on what Berg (1996) started with and Faulkner (2000), Lohan (2000), and others have developed. According to Lohan (2000:895) feminist studies and science and technology studies, for the most part, can completely theorise either gender relations or technological relations, but neither has the theoretical wherewithal to tackle the co-construction of genders and technologies. As a way of solving this Berg (1996), Lohan (2000), and Faulkner (2000) have put together theories from science and technology studies and feminist studies. Drawing from these two theoretical strands they have started doing analysis where they combine the two.

I will use this concept of co-construction to analyse the material in this chapter. As written in chapter two, technology and society shape each other mutually, and we can therefore also see a co-construction of gender and technology. However, to 'add gender and stir' is inadequate (Lohan 2000). At the same time, while we cannot understand technology without a reference to gender, we cannot understand gender without reference to technology (Faulkner 2000). When gender and technology is seen as co-constructed we avoid problems of essentialist understandings of both gender and technology (Gansmo 2002:14). By this they are seen as processual, not as given and unchangeable (Faulkner 2000). With this perspective it is possible to see that technology can be domesticated (Silverstone et al. 1991, 1992). Both technology and users, and by that also the perception of gender, can be changed in the process (Aune 1992, Lohan 2000). Using this way of thinking makes room for seeing technology as flexible, meaning that technology can have different meanings to different users or in different contexts (Berg 1994). This in turn means that technology and gender are seen as integrated in the process of construction, or as co-constructed where one is produced by the other and the other way around (Berg and Lie 1995, Berg 1996, Lie and Sørensen 1996, Lie 1998). In this chapter, I will look at how gender and technology are co-constructed and mutually influenced. This means that the women in my material construct who they are in accordance with several notions. They both have to construct their position towards gender, what it means to be a woman, but also what it means to be a man, femininity and masculinity. And, they have to construct what a hacker is and what computer enthusiasm is. In addition to their own constructions, they also have to relate to those of themselves and others made by everybody else. By putting all these construct together they construct their own position and everybody else's.

5.1 Constructing the hacker

The very first interview I did was with Elin, a 23 years old female computer science student. I want to share a small part of the conversation I had with Elin with you to show her thoughts and feeling towards the hacker.

Me: What is a hacker to you?

- Elin: A hacker is someone that sits and tries to figure out things. Someone that, well maybe peeks into what others have done, and who tries to get into places. Just that. To get in, nothing more.
- Me: Nothing more?
- Elin: No. Then it is a cracker.
- Me: A cracker is something else?
- Elin: Yes, that's those who break in and do a lot of nasty things and run off again. That's the difference.
- Me: But a hacker, does he do anything wrong? You say the hacker peeks and gets in, but do you consider that to be wrong?
- Elin: If things are left open, I don't think it's wrong. But if he breaks in, then he does something wrong. A hacker only does it to prove to himself that he can do it, and maybe to tell others where he gets in, like: "Hi, I got in. You should do something about it". Like that. So it is actually something wrong. It is something illegal.
- Me: Do you know any hackers or crackers?
- Elin: No.
- Me: Have you read about any in books or likewise?
- Elin: No, nothing like that.
- Me: Would you say that it is an honour to be called a hacker or is it something
negative?

Elin: It depends on who says it. If they know what they mean by it, meaning the same that I do, then it is not negative. A hacker is after all someone who explores things, so there's nothing negative about that. However, I know it sounds negative to others.

- Me: What is a nerd, then, in comparison to a hacker?
- Elin: A nerd is the classical, he has larger quadrangular glasses than I do and is pale, and a boy. His hair is untidy, he wears an old T-shirt and sits in front of the computer at all times. That's a nerd.
- Me: And a hacker?
- Elin: He is normal. Well, he can also be, a computer nerd can also be a hacker or a cracker, because he does not bother about his appearance.
- Me: So being a computer nerd is about the look?

Elin: Yes, the way I look at it. I'm sure many think of me as a computer nerd, since I'm studying computing and such. I felt that a lot when I was at a stand and gave information to youngsters about how it was to study computing. A lot of girls just said no.

- Me: Would you say that you are a hacker? Do you fit into your own characterisation of a hacker?
- Elin: Maybe half a hacker, because I've never really tried to get into places, hack into others, in a way, I've never tried. Totally different machines, you know. But, of course I poach into others peoples' files. When you, for instance, are to make a new layout, or such, on a Unix machine, I would go and poach on other peoples' files to see how they have done it, and such. But not really.
- Me: Why don't you hack into others'?
- Elin: I don't have any interest in it.
- Me: Could you have managed if you wanted to?
- Elin: I don't know (laughing)
- Me: If you had tried?
- Elin: I think I could have made it after a while, but I think it would have taken me some time.

After the interview I did with Elin, I most of all felt confused. I felt I had not really understood what she meant. First she says that a hacker is someone that would peek into what others have done, but he would not break in. It is also okay if the hacker goes in when it is left open. Getting in through holes that are left open is according to the law still as illegal as breaking in. She defends the hacker by saying that he only does it to show that he can do it. He is not a bad person, or someone who wants to do something bad. Even though Elin does not think you should do illegal acts with your computer knowledge, she thinks it is fine that someone goes in as long as he does no harm. When talking about the hacker, Elin keeps saying he. When speaking she refers to the hacker as a male, although she later in the interview says that a hacker can be a woman or a man. Elin says that hacker is a name of honour and something positive, as long as the name is given by someone who knows the real meaning of it. Elin knows that to others being a hacker is negative. Elin also wants to distinguish between the nerd and the hacker. The hacker is not given the stereotypical image that she gives the nerd. She still sees that to some degree the hacker can also be a nerd, since he might not bother about his appearance. However, Elin herself does not know any hackers and have not read about anyone. Symbolically, the hacker is a central figure in her world although she does not know anyone personally.

Elin's own role in this world is also kind of confusing. She says others possibly look at her as a computer nerd, since she studies computer science. Especially she has felt this from other women. However, she just before said that being a nerd is about appearance. Elin herself says she is half a hacker. She has never tried to hack into places. Nevertheless, she says that she poached into other people's files. There seems to be an inconsistency. Elin present herself as half-a-hacker, but she still says she has no interest in trying to hack. She thinks she might have been able to, though.

The conversation I had with Elin is not unique in its ambivalence. In fact, all the interviews were like this. It was more the ambivalence in what one person said than the ambivalence between the different womens' definitions. It took me a while to grasp the ambivalence that the women felt, and to get a better understanding of how they negotiated their own position and identity in this world of hackers. The results in themselves did also surprise me to some degree.

In this interview and in my other interviews, I asked my informants to define a hacker, a nerd, a cracker, and sometimes also a geek. Hacker and nerd were two familiar words for them, while not all had any opinion about cracker and geek. Even though most of them differentiated between the hacker and the nerd, they also to some degree tended to use the concepts interchangeably. I will therefore here focus mostly on their definitions of both the nerd and the hacker, and not so much focus on the difference between the hacker and the nerd.

Me: You say hacker and you say computer nerd, is that the same person?

Berit: I don't really know. What I mean is that a nerd is quite a positive word. In many ways it is the same, about computing. It is a person that is skilled and interested in learning, and because of that, well, they have a peculiar interest. And well, socially unintelligent and strange clothes, I don't know about that.

Me: Does it come together?

Berit: It is not about being socially unintelligent anymore, it is just another way of

living. A lot of the people I like are quite strange people. A lot of them are nerdy, but I think that's okay. I think it is totally fine. So a nerd to me is someone that is very interested in learning. My father, I would call a nerd.

In contrast to my expectations based on earlier research, my informants all had a positive attitude toward the hacker. As a way of speaking of the hacker, they all agreed that the hacker concept was misused by journalists and people in general, and they all stuck to what was said to be 'the old definition' or also 'the real definition'. Still, a hacker can be defined or constructed in many ways depending on who defines him or her and to whom you define him or her. Four dimensions appeared in the way my informants constructed the hacker. The first one is qualifications or skills. Next they talked about something we can call philosophy, how the hacker approaches computing. Third, the culture among hackers related to style of work. And last but not least, their personality, what kind of people they are. Within all these dimensions of construction, there exists ambivalence.

That a hacker is a skilled person is very much emphasised in the literature and in movies about hackers. The dimension of skills is also one of the first things the women point out.

A hacker is a skilled geek. One that has nerd tendencies. He needs to know programming well and has programmed a lot of different things. It is about status. It is about being considered to be skilled at what you are doing. We have models like Eric S. Raymond, Richard S. Stallman and Larry Wall. A hacker is someone that is into computing. He could make a living of it if he wanted to. I say him because I have never heard of female hackers. (Sissel)

and,

A hacker should be a clever programmer. He should be able to hack into systems without being caught. Most of all, it is about finding mistakes in the system that make some doors open. However, today there exist a lot of mailing lists through which you may gain knowledge about security holes. I was on a list like that for a while, but I got 30 - 40 mails a day, so I had to sign out. It was just too much. However, Petter (her partner) is there and goes through it every day, so you get a pretty good overview of what's going on. (Anja)

Sissel and Anja say that being a hacker is about being skilled, about being a person who knows a lot about computing. This knowledge is partly connected to having a good general knowledge about computing. A knowledge that enables you to figure out things others can not figure out. But more than that, the knowledge is about programming, and about programming difficult things. This also fits with what we find in the literature about hackers. As mentioned in chapter one, *The new hackers dictionary's* definition of a hacker most of all point to being a skilled programmer (Raymond 1996). As I will come back to later, knowledge about programming seems to be of highest importance within computing.

All of my informants also point to the fact that hackers are known to hack into other people's systems. Some of them very much emphasise that this is not about doing something illegal, while others say it is illegal, but emphasise that they do not do any harm. It is just a way of getting to know more, to prove your skills. And even though the women say they are against using your computer knowledge to do illegal things, they in many ways accept this way of breaking the law. It is not 'really' doing anything wrong, because you are just having a look. As long as you do not take advantage of your knowledge or steal something, they can accept it. Being able to do it is about skills, it is about proving to yourself and others that you can do things that are not supposed to be possible. And one can definitely understand their need to defend what the hackers do, since they think being a hacker is about status and knowledge and considers him a person to look up to.

My informants have different understandings of what a hacker does. Some of them are quite specific when talking about what kind of tasks you need to know to be considered a hacker, while for others it is more of a black box. Common to all of them, though, is the fact that they emphasise that it is the knowledge they look up to and to some degree admire:

A hacker is someone that breaks into computer systems. It is the boys at the shed They make scripts. I have always wanted to do what they do. Have always admired the ones being able to hack [...] I admire things like that, even though I don't understand it. I can't even look at it as something illegal. It just ends up that way, when you become so good, it is hard not to break the law. (Anja)

So, they admire what the hackers do even though they admit to not knowing what it is all about. To some degree we all want to be skilled at something. Being the expert will always make you special. At the same time, it might even be easier to keep your reputation as the expert, and being more skilled than others, when others do not even know what it is all about. The fact that it to others is kind of a black box, something they have little understanding of, makes it even more heroic. A hacker, the way I see it, is the good, old definition. It is people that sit and hack into systems. They don't do it to do any harm, but as a performance. It is a great performance to get into systems illegally. It is about getting into NASA and FBI, and such. One needs to know a lot to be able to do it. One's got to be very smart. That's how the old hackers were. (Mette)

As we can read from this quote, hacking is also about a dimension I have called philosophy. There is something about the way the hacker, according to the women, approach computing. There is a philosophy about what is right and what is wrong. Even though things are wrong, it is 'right' for the hacker to do it, because it is what he is supposed to do. It is the way he can prove and become a hacker. In many ways, this is also a philosophy concerning the big guys versus the small guys, but even more the old hacker. The old hackers come together with the right definition of a hacker or the old definition of a hacker. It represents a history or a myth about how it used to be. None of the women I interviewed had any knowledge about things like 'the hacker ethic' (Levy 1984), or had read any stories about hackers. Still the women had a strong opinion about how it used to be. It seemed more like it was an opinion that was strong within the whole community, and that being a part of the community, gave you a set of 'rules' to follow.

This also became clear through how my informants took sides in the 'war' between Microsoft and smaller companies. More or less all of the women disliked co-operations like Microsoft and Bill Gates, while Torvald Linus, the main man behind Linux, is a hero. Some of the women do not know what this controversy is really about, but they have heard others talk about it. Others have a better knowledge and talk enthusiastically about how much they dislike programs like Windows, because it never works and they do not like the big corporations in principle.

It is a kind of Microsoft justice. I'm against everything that is in their favour. They twist anything to their own advantage. The attitude is; 'we are the largest and therefore we are to decide'. I use Microsoft myself; because I don't know how to use Linux. I have nothing against their product per se, but the way they run things. With the prices they charge they have to accept that people copy them, at least students and youngsters. (Eva)

Even though Eva does not like Microsoft products, she still uses their products. Her reason for doing this is that she does not know how to use Linux. The same ideas I found among the some of the other Microsoft users. They would very much like to use Linux instead, but did not have the knowledge of how to use it. Within the computer enthusiastic community, being a Linux user generates higher status than being a Microsoft user. Even though a lot of them use Microsoft, they have a common opinion that one should not use it. More advanced users have gone all the way and have stopped using Microsoft products all together.

One is dependent on copying Microsoft products. There is no way one can afford to buy them for home use. I myself don't use those kinds of programs any longer. I don't use programs like that consciously, but stick to programs that are put out and one does not have to pay for. I don't use Microsoft products at all. There are for example a lot of problems using Word. It makes a lot of choices for you. It might work for the normal user, but I can't stand their attitude. They have as a starting point that the user is stupid. If one instead uses WP (word perfect), one learns more. At the same, time you increase your skills all the time and develop yourself. Microsoft just throws everything at you, and you get a lot of nasty things that I at least do not want. It's a lot better with programs like WP, where one starts in a corner and then can take on more and more the better you get. (Sissel)

However, most of my informants are Linux and Unix users. Partly this is due to the fact that some of them are students at computer science departments and through that have had to learn to use Unix. Still, as just mentioned there is more status in having the skills needed to use Unix or Linux than Windows. It is a way of differentiating those who are 'just users' and the more advanced users. As part of this, I was also interested in how they felt about the Open Source movement, and if they had any connection to this.¹⁵ Only some of them had knowledge about the Open Source movement. However, several of the women that did not know the name 'open source' still knew and supported the principle behind it. The women felt that programs should be free and available for everyone to adjust according to their own use. While Linux has an open source code degree this goes together with the informants opinion about piracy.

In principle, the women feel it is ok to copy programs for home use, especially when it is Microsoft programs since they consider them do be too expensive for home users to buy. However, the women feel

¹⁵ The idea behind open source is, as the name suggests, that the source of a program should be open. Software should be distributed in source under licenses guaranteeing anybody rights to freely use, modify, and redistribute, the code. To learn more, see for instance: <u>http://www.opensource.org/docs/definition.php</u>

that the people that make programs should get money for it. So their policy is often to copy a program in order to find out if they like it and want to use it. And if it fits their needs, they will pay for it by buying a legal copy. However, even though piracy for home-use can be accepted in certain instances, they feel ambivalent about it. First of all, one should only piracy them to check if one likes the program. Then, if one feels like continuing using it, one should pay. Next, there is no acceptance for selling off programs that you have a piracy of. One should not make money from other people's work.

I think it is wrong (to piracy), but I do it anyway. If it's something I use a lot, I don't mind buying it. I would like to sponsor the programs I like. However, I keep aloof from sale. It is wrong to take money for what others have made. (Maren)

In addition to the skill and philosophy dimension there is a cultural dimension related to style of work. The hacker is looked upon as having a special and peculiar style of life and work. Being a hacker means you are obsessed with what you do. You can sit for hours and hours without any thoughts for other people, food or sleep. It is the boys in the shed, the boys in the garage, the boys at the computer-lab or the boys in their rooms. There are the stories about boys and how they come to school in the morning, always running late, with no time for breakfast or a shower in the morning. All because they have spent the whole night making some fancy program. This cultural element is also highly visible in both books and movies. You can see the hacker sitting in front of the computer for hours, very often working against a deadline. If a hacker does not make a deadline something terrible is going to happen, but the hacker always makes the deadline and saves the world.

Berit: There are some, but only a few exist. It's like this guy we have got here, he's Polish. He just programs, and he programs, and he programs, and he programs, and he programs. He doesn't ever want to stop. I think it was after a party here at the U before Christmas. We were drinking beer and talking. Suddenly he came rushing in from the lab and started talking energetically about something. We said something like; "Hey it's half past twelve." Of course we have got some of those. We just shake our heads and think, go home and shut up, you know. Don't go on like that.

Me: Are there any girls like that?

Berit: No one is like that. But there are a few girls who hang out with the group of those very skilled boys. There are not many, though.

All the women have stories like this, stories about someone being so occupied with what they do that they do not care about other things. However, the women are first of all reluctant to say that this is how it is. They very much emphasise that this is more the image people on the outside have and that it does not fit with how it really is. At the same time, they do think that one needs to spend hours and days in front of the computer to become really good. Working day and night is part of being a hacker. The computer enthusiast community also very much appreciates this working style. Just think of The Gathering that I presented in the previous chapter.

Among most people the hacker usually is the opposite of a hero. In addition to being a criminal, he is also described as having very peculiar and negative personality traits. In my former project on computer enthusiastic young girls, I also found that they to a large degree described the hacker in this stereotypical way. The same description is often found in literature on hackers. They are teenage boys, with spots, greasy hair, short trousers, they are asocial and do not know how to communicate with others. Their personality is largely described in a somewhat negative way. I expected to find this also among my informants this time as well, but my expectations were once again not confirmed.

Me: So what does a hacker, cracker or a computer nerd look like?

Hilde: Well, you have a typical nerd-image stemming from when you were a kid. It's all the boys that have greasy hair and thick glasses, you know. But I don't think I have that image any longer.

Me: Oh?

Hilde: Well, in this community (at the university) they are more normal, but maybe they are not among those who are most concerned with their looks. There is a clear difference between HF-people¹⁶ and computing-people, if you know what I mean. It's more like you can come to school in a pair of tracksuits, and it's okay. At HF they wear more black and dress up. But, I think this is more about hard science and mathematics versus non-hard science, and not directly about computing.

All of the women were very much opposed to the image of the stereotypical nerd. They recognised the image and told me how most would describe the hacker, but all said that this was a typical image given in the media and also among people from outside the community, but that it was not at all something they recognised from within. For

¹⁶ HF-people: people at the Faculty of the Humanities.

them, it was important to recognise the hacker as someone 'normal'. They very much claim the image is wrong and say that the hacker is a normal person. Or they say that the hacker is, of course, someone who is kind of obsessed with computing, but as far as they are concerned this is no worse or better than being into sports. They emphasised how the hacker was misunderstood by society and not appreciated for his knowledge and skills.

More or less all the women say 'he' or 'him' when they talk about the hacker. They do this without thinking. When asked, most of them say that the hacker might just as well be a woman, but they have problems naming any female hackers. Some of them, though, say there are female hackers, but not so much in Norway. They say there are more women within the hacker community in countries like Finland, the Netherlands and Germany.

Since my informants do not want to accept the stereotypical image of the hacker, I was interested in finding out who they looked upon as a hacker, and if they actually knew anyone. As a first response to this, a lot answered like Ingunn:

Most of the people that call themselves hackers are just wannabes. The ones that are real hackers do not call themselves that. It is not a concept used in the community any longer. The media likes it a lot, but when we see how they use it, we get upset. Mostly it is crackers or script kiddles they are talking about.

In this way, they do not have to answer the question, but can avoid it altogether by claiming that the ones claiming to be hackers are not hackers. And the person the media and 'everybody' talk about, is either a cracker or just a script-kiddie.¹⁷ They do the illegal stuff and have no real knowledge of computing. At the same time, the women say this and accept the fact that hackers sometimes do illegal things.

All in all, the women viewed the hacker as a kind of a hero. It is a person that is generally skilled and knows a lot about computing.

¹⁷ 1. script kiddies do mischief with scripts and programs written by others, often without understanding the exploit. Used by people with limited technical expertise using easy-to-operate, pre-configured, and/or automated tools to conduct disruptive activities against networked systems. 2. People who cannot program, but who create tacky HTML pages by copying JavaScript routines from other tacky HTML pages. (http://www.tuxedo.org/~est/jargon/jargon.html)

Hacking is about getting into systems and about adjusting programs to fit one's own needs, or just to prove oneself. Even though they all know that it is illegal to break into other people's systems, the women do not view it as something really illegal. Because, as they say, the hackers do not destroy anything, it is just about getting in. They will leave the systems the way they are, but will often tell the systems administrators about the hole they found. In that way, the women think one should rather be grateful for the work the hackers are doing.

Most of the women distinguish between the hacker and the cracker, and say that the crackers in many ways are the bad guys. But others say a hacker can either be good or he can be malicious. But all in all, being called a hacker is an honour. And the women very much emphasise that the media misuse the concept and blame the hackers for things that are not hacks at all, but mostly just script kiddies playing around. An important aspect of being a hacker is that it is not something you would go around and call yourself. It is a name that others give you as a way of showing respect for your knowledge. The women say that these days there are so many hacker wannabes, young boys going around calling themselves hackers, but who do not even come close to actually being what the women consider a hacker.

It is interesting to note that among my informants, there is little knowledge about famous hackers that live today or have lived. I asked them if they had heard about Kevin Mitchnick or the Danish hacker Paolsen. They were both unfamiliar to most of the women. Some had heard about the Kevin case, if I gave them some more information, but this was not something that engaged them a great deal. At the time I was doing parts of my interviews, we had a Norwegian hacker-story going on in the media. Jon Johansen became famous when he cracked and published codes to view and copy DVD files. Entertainment industry giants including Sony, Universal and MGM sued the Norwegian teenager, accusing him of hacking his way through the codes meant to control viewing and copying of their videos and CDs. Within the enthusiast community, DVD-Jon, as he was called, first by the media and later by everyone else, was well known and much discussed.

What DVD-Jon did was not much of an achievement. I can see that case from both sides. I understand those who want to punish him, as well as those who think it was a great thing. He said all the time that he was only a spokesman for the group and not the one that had done it. But the media blew it out of proportions. I don't think he should be punished. The fault was the dvd-producers! Is one to be punished just because one finds a file? However, if one is into selling it, that's a different matter.

One can compare it to finding a loophole to cheat on taxes. (Eva)

However, quite a few of the women doubted dvd-Jon was a real hacker. In their eyes, he was just a kid that represented a group of people. He himself had not done much. He had just been the only one 'stupid' enough to put it on his web page, so that he could be traced. According to the women, a hacker worth his salt, would never be traced. That is part of being a great hacker, you are able to hide your traces. Even though the women were not very familiar with the 'famous' international hackers, they all knew of people within their community that were perceived as hackers. All of the women could tell stories of hacks done by friends of theirs or other people in the enthusiast community.

I've heard about three boys here at the department (computer science) who hacked into Interpol. They were thrown out of the department, but after that they got job offers. They were hired by FBI to find some boys in Finland. They were going to get a lot of money. I admire people that can do things like that, even though I don't understand what they are doing. I can't even see it as something illegal. Very often it just ends up like that. When you are that good, it's hard not to break any rules. The community within hacking is very small. Everybody knows everybody. I've heard that DVD-Jon did not do anything by himself. That he just got it from someone else. But I don't know. Actually, I can't believe that it can be that hard. If one gets the source, everything is possible. (Anja)

My informants feel that the hacker-concept has been so misused that it has lost its real meaning. Because of that, they have more or less stopped using it, at least when they talk to people outside the enthusiast community. But still, as we can see, the word hacker and the hacker figure are of importance. Within all the four dimensions; skills, philosophy, style of work and personality, there is a great deal of ambivalence among my informants. They look up to the hacker as someone brilliant. They defend him towards misrepresentation and they refuse to perceive him as an asocial, spotty teenage boy. At the same time, they very much see it through other people's eyes. And since they cannot accept what they see there, they instead refrain from using the concept. It has been misused to the extent that it is no longer in accordance with its original content. When we observe that the women very much admire the hacker and do not think of him as an asocial loner, it is interesting to see how they place themselves in the same discursive terrain.

5.2 What am I? And why am I not a hacker?

Me: What is a hacker?

- Maren: It has had all sorts of meanings. However, the right meaning is someone that finds problems within the systems. One that breaks into something. This in opposition to a cracker who is someone who just cracks programs. The hacker knows the technical part of the system.
- Me: And a nerd?

Maren: That's someone who cares about computing.

Me: And a geek?

- Maren: That's more someone who blocks himself indoors. Computer nerd is more positive. The nerd uses the computer a lot and knows a lot. The geek is, in many ways, how one looked upon the computer nerd five years ago. However, the meaning one attributes to it depends on who says it.
- Me: Have you done any hacks yourself?
- Maren: I guess I 've hacked a bit, but I have never broken into places. I'm very much against that sort of thing. I only do simple hacking, try to break in, but not in a professional way. I'm sure a lot of people want to do it. It gives status within the community. If one has done a hack one knows a lot. But there are a lot of wannabes. I've been hacked myself once. By some kids who called themselves ACNE, kids we had given free space to make a homepage. It was only a couple of script kiddies. No harm done.

So when we know that my informants look upon the hacker as a kind of a hero within the community and do not want to characterise neither the hacker nor the nerd in a negative way, where do they themselves think they belong?

When asked how they described themselves, the women to a large degree were reluctant to place themselves at all. They just were themselves. They did not want to put themselves in a particular category.

I don't like to characterise myself as anything special. Don't like to be placed in a category. I'm just myself. But I wouldn't say I'm a hacker. I don't have enough knowledge to be one. Not enough honour. (Sara)

To some degree this is something most of us are familiar with. We do not like to be placed in a category, but feel that we are unique, diverse and not like everybody else. However, the work of situating themselves seemed even harder for my informants than for most of us. There were a lot of negotiations going on, as they had to construct themselves in relation to the hacker figure as well as in relation to being a woman and being into computing. In contrast, they had no problems placing other girls in categories. One of the main problems, though, turned out to be that they felt there were no categories they really fitted into.

There is some kind of hierarchy. At the top are the scene people. They are creative when computing. They make demos and do programming. Next you have the gamers. They play, as the name suggests, games. Then you have Warez puppies. They make, distribute and sell illegal programs, mostly software. And on the bottom you have the IRCs. [...] I'm a combination. I can't really be placed in any of these groups. I do a bit of everything, but on too low a level to fall into any of the categories. I download quite a bit, but most of all I'm social. I'm engaged in social relations. (Mona)

Mona and others talk about a hierarchy within the computer community. They have different suggestions as to how this hierarchy works, but they all put things like IRC (chat) on a lower level. What really matters is to be able to program and be creative. The hacker is someone who is creative and brilliant at programming. A hacker could very well belong to the scene people when using this definition. When looking at the different hierarchies they are similar in that they are all divided by skill. According to my informants, you need more skills to be a hacker than a cracker. The higher up in the hierarchy, the more knowledge and skills you hold. Skills is also the first dimension I will look at when analysing how they construct their own position in relation to the hacker.

When asked if they considered themselves a hacker, most of the women said they did not know enough about computing to be called a hacker. However, none of them considered it something negative, if the right people called them hackers. And the right people are the people within the computer enthusiastic community, those who know what a hacker really is. If it came from people outside the computer community, it would be an insult, since they then would feel people referred to them as a criminal.

As stated in the previous part, being a hacker is most of all about being a skilled programmer. The women differed to a large degree in how they present their computing knowledge. While some said they did not know much about programming at all, others said they were competent programmers. For those who did not know programming, being a hacker was impossible. For them hacking was a black box, they looked upon it as something boys knew. Because everyone they had heard of, were boys or men. However, these women were very much attracted to it and would have loved to learn. Some called one, but they had too little knowledge to really be one. In the future, though, they hoped they might become one.

On the other hand, quite a few of the women said that they had enough knowledge to do it, but still did not. Why do those who have the skills still not do it when they all think of the hacker as a hero and consider it a status symbol?

I have neither done a hack nor a crack. I could have done it. But I don't think it is worth the trouble. (Sissel)

Sissel says it is not worth the trouble. But what is the trouble? What transpires is that the trouble is mainly that it takes so much time. Being a hacker is something you can only do if you are willing to spend more or less all your time doing it, and it seems like they do not want to go that far. However, it is not just about that. It also has a lot to do with hacking being illegal. Even though the women defend the hacker and characterise some of the activities as not being illegal, they know it is against the law. They themselves are not willing to cross that line. They want to use their skills for something else. The more knowledge they have, the less they feel like using their knowledge to pursue hacking. It seems like the hacking part looses its charm when it is no longer that mysterious.

Still, quite a few of the women have done hacks and do smaller hacks regularly.

Katrine: I took part in a hack once. We hacked into a radio-station and left a message so that they would see that someone had been there.

Me: Weren't you afraid you would be reported?

Katrine: We could have been, but they would never have been able to prove who it was. Everyone who has a clue about hacking knows not to use your own ipaddress when doing a thing like that. So, they're not able to trace it back to us.

Me: Would you have been able to do a hack by yourself?

Katrine: Yes, I can do it on old systems, but I would probably not be able to get passed firewalls and stuff.

To some degree it still felt like a contradiction to me that the women so much valued the hacker and supported what he is doing, when the women who had the knowledge to become one, did not want to go there. It definitely goes further than skill issue. One of the women's arguments for not being a hacker is that they want to spend their time differently.

I am a 'Quaker' and a nerd, because I'm into computer games. For me a nerd is

someone who spends too much time in front of the computer. One that for instance is into chatting and becomes totally obsessed. Some time passes before you see that that's not the way to live. But, I like to sit in front of the computer and tinker on my own. But, it is hard in social contexts. There is a problem, because one doesn't learn anything if one doesn't spend a lot of time in front of it. I would have liked to live on my own, so that I could spend more time in front of the computer. If I do it now, I become an asocial person. And I don't like to spend time at the computer lab in the evenings. I'd rather come home and sit here. But, as expensive as it is now, there is no way I can live on my own. (Anja)

In many ways, Anja sums up a lot of the ambivalence that the girls struggle with. On the one hand, they argue that there is nothing wrong with being a hacker or a nerd. It is just about being particularly interested in one thing, it might as well be sports as opposed to computers. Next they feel that this is not the way one should live. One becomes asocial when spending too much time in front of the computer. At least people around you look at you as being asocial and strange, unless you have friends that are also into computing. Still, if one wants to become really good, and they all do, they know that spending time in front of the computer is what it takes. Anja has spent a lot of time in front of the computer throughout her life. She is a great Quaker, meaning she is big within the computer game Ouake, and has been playing regularly on a team for many years. I heard rumours about her within the community. about her being one of the best Norwegian Quake-players. She got into the community through her brothers. But these days she does not play on a regular basis. Now she is sharing a flat with two girlfriends. She says that they think it is strange enough that she actually wants to study computing. They cannot understand anyone wanting to spend a lot of time in front of the computer. Anja wants to be with them, and at some point she says one misses out when spending too much time in front of the computer. However, at the same time she wishes she could have a place of her own, so that she would not feel guilty or asocial when she spends time computing. She is also a big admirer of the boys that she sees as hackers and would really like to be like them.

In addition, being a hacker takes too much time. Moreover the women also have problems with the illegal aspects of hacking. For instance, when talking about hacking in general, they are willing to allow hacking into other peoples systems, as long as one did not do any harm. They did not really see this as something illegal. Still, to them, part of not being a hacker is about not wanting to do something illegal.

Anja: First of all, I stay away because it is illegal. Next, I know what it involves. I

think it is cool, but at the U it is just too simple. It's something else with people like the guy in the States, what's his name again?

- Me: You mean Kevin Mitnick?

Ania: Yes, that's the one. He is really, really cool. And it's just nuts that they punish him by not letting him use a computer for a certain amount of years. They should rather take advantage of all his knowledge

So to some degree the women actually make up their minds not to be a hacker. It is a conscious decision they make on their own, not to break the law just to prove their computing skills. They choose to define themselves outside of it, because they do not think breaking the law is worth it

One could say that there are two groups at the computing department that differ. You have those who learn everything that is in the syllabus and then goes home. And then you have the ones ... well, some both learn the syllabus and are skilled at other things. as well. But. you also have those that only do the things on the side and never do schoolwork. [...] I'm kind of like these that don't do that much schoolwork. (Hilde)

At the Department of computer science where Hilde is a student, there are different groups of people. They differ in the way they learn programming and how much time they spend at the university. It is also a question about at what times they are at the university. It is the last group who has most in common with the hackers. This group consists mainly of boys. They spend the nights working in the computer-lab and sleep during the day. Because of that, they rarely show up at any lectures and are not occupied with work directly connected to schoolwork. This group is in many ways similar to the one Rasmussen and Håpnes (1991) found in their study at the University of Trondheim. They are hackers, a group of young men, who spend all their time computing, but not on schoolwork or their exams. However, Rasmussen and Håpnes found that even though this group of students was not passing their exams, the professors still paid attention to what they were doing. The female students could see that the professors appreciated the fact that these men worked so passionately. Even though the female student did not want to be like this group of men, they were a significant group. Mostly significant as someone 'we are not'. For my informants this was different. A lot of them already belong to the group of students that rather hang out in the computer lab doing their own projects than focus on their exams. And the others do not so much refer to this group as someone 'we are not' even though they themselves do not take part.

Instead they, as the professors, admire the way they work and the effort they put into it.

However, even though the women to some degree want to be part of the hackers, they still have doubts as to whether it is the kind of lifestyle that they want for themselves. One moment they claim the hacker is just like everybody else and that there is nothing asocial or strange about him. Next, they say that hackers or nerds are asocial. And then they define themselves as one:

I would take it as a compliment if someone called me a nerd. That's how I usually present myself. (Katrine)

Still they make it clear that there are other things in their life than computing. They have made rules about not spending all their time in front of the computer. One has Sundays as a computer free day, others say they spend so much time in front of the computer at work that they try to stay away from it at home. They would rather spend some time with their boyfriends and be with friends. It is about being social in 'real life'.

I won't call myself a hacker. I am a normal user. I guess I am maybe a bit more interested. But it isn't a goal for me to do it just to have done it. I don't know anyone that would call themselves hackers, but maybe some people think they are. [...] I guess I was a computer nerd at some point. A nerd is someone that spends a lot of time in front of the computer. The computer gives you a lot of pleasure. But, it is not valuable to sit there all the time. But, there is nothing negative in being a nerd. But if one can't relate to other people, then it has gone too far. A lot of people get problems with that after some time and then it becomes negative. (Mette)

Like Mette, some of the women claim to have been a nerd, but not any longer. Today they look back on it as something not too healthy. They spent too much time in front of the computer. Now, on the other hand, they have a more healthy relationship to computing. But these are the same women that also say that there is nothing wrong with spending time in front of the computer and admire the hacker.

Every now and then I call myself a hacker, too. That is when one dilutes the standard. Manipulates what normal people don't care about. However, that's mostly a boy thing. Women have computing more as a part of life instead of the whole life. So, I would not call myself a typical hacker, but a hacker in between. I'd rather call myself a computer person, at any rate NOT an IT-consultant. [...] I am not a computer nerd. I have had the tendency, but won't say I am one now. I will claim that I have a social intelligence, and the nerd doesn't. But it is kind of cool to be a

female nerd. Then one stands out from the group in many ways. The boys look a bit up to female nerds. But according to my definition of a nerd, it is nothing one really wants to be. It is a lot more important to go out and meet people. If your entire social interaction is on IRC, that is too much. (Karina)

Says Karina who works taking care of the network within a computer company. It is clear that the hacker is a boy and that he spends more or less his whole life in front of the computer. There is nothing wrong with this, but it is 'not me'. Even though the women very much emphasise that being a hacker provides status, that they would have wanted to be one themselves, they nevertheless distance themselves from this figure. As Karina here says, and we could also see Anja saying it earlier in this chapter, they admit to having been like that; spending all their time in front of the computer at some point, but not any longer. Today, they say that they have discovered that there is more to life than that. It seems as if the women feel a pressure from somewhere outside or maybe even more from within themselves. Something tells them that it is not 'right' to spend so much time in front of the computer. However, it seems like the women that have boyfriends who are as much into computing as themselves, feel more comfortable spending time there than others.

The women talk about their boyfriends spending most of their time in front of the computer, at work as well as at home. The women do not complain at all, but tend to emphasise that it is a good thing to have someone with a similar interest. If not, they would not have been able to spend as much time with their hobby as they want to. At the same time, they emphasise that they make time for boyfriends and friends. One of the reasons for the women not wanting to be a hacker, and this is in many ways an active decision, is that they think there is more to life than just the computer. They do not want to spend that much time in front of it, but want to have room for other things, as well. So they do not want that kind of lifestyle.

The way I see it, it is an honour, 'cause it refers to those that are really clever. There is status to it, at least among the men. A bit among the women as well, but that's more peculiar. A couple of the women look quite peculiar, and I'm not very normal myself. But I'm far from being a hacker. (Berit)

A lot of them proudly also call themselves a nerd. Consequently, it is more important to give the nerd concept a more positive meaning.

Me: What is a nerd?

Gro: A computer-nerd is someone like me. One that is interested in computing and

have that as his or her main pursuit. There is nothing negative about the concept nerd. It is to some degree about being a bit narrow in interest, but it's not worse being into computing than other things. However, usually it is understood as something negative. In the newspapers one can regularly read stories about the asocial nerds who live their lives on the net. I hang out in the nerd community, so I see people physically, as well.

Me:

e: How would you characterise yourself?

Gro: First of all I would say I'm a nerd. And also a little bit of a hacker. However, programming is not my big thing. And I believe that being a hacker is most of all about programming. That one is a skilled programmer. Still, I like to hack a bit on the system, but that's not what I feel like doing day and night. However, I think it's positive to be called a hacker. And I want to be seen as a hacker, but since I have got this definition, I define myself outside it in most ways.

So, even though Gro very much wants to be seen as a hacker, she decides to define herself not as one. And the reason for doing this is that she does not have the kind of qualifications that she believes is required of a hacker. However, Gro is by others, actually seen as a female hacker. I have more than once had her pointed out to me when I have been telling people about my project.

5.3 Boundaries and ambivalence

Analysing the way my informants construct the hacker along the dimensions of skills, philosophy, culture and personality brings out a lot of ambivalence. Due to the ambivalence, the picture easily becomes blurred. It makes part of it hard to explain. The women say that they really admire the hacker, some says they really wish they could be one. Moreover, they do not doubt that they could learn to be one if they put their mind to it. But why is it then that they do not go all the way? They say they do not look at it as illegal, and they believe we should be grateful that the hackers hack. But then, the women do not want to do it themselves, because it is illegal. What is it that is stopping them?

It is pretty clear that the hacker is "not really me" to the women I interviewed. This might be a matter of identity. You could also say that what these women are doing is what has been called boundary work. Boundary work occurs when people contend for, legitimate, or challenge the cognitive authority of science – and the credibility, prestige, power, and material resources that attend such a privileged position (Gieryn 1995:405). But not only in professional organisations can we look for boundary work. We can also investigate 'social worlds' to see what kind of boundary work goes on. A common kind of boundary work involves insiders' effort to expel non-real members from their midst (op.cit.:432). If we look at the different computer enthusiast communities that my informants belong to, we can see how they have to negotiate their position in relations to the hacker. The hacker is to them the professional. Even though not everybody within the enthusiast community is a hacker, 'he' is the norm and the person everybody, including the women, admires. So not only is the hacker such a significant figure within the community, but the hacker's style of work and computer activity is seen as the norm. In addition, the women have to consider the enthusiast community's view of the hacker along with what other people think of the hacker.

In addition to doing boundary work, the informants have to coconstruct themselves in relation to the hacker and to femaleness. How can the women situate themselves in a way that feels comfortable? The women construct the hacker as someone brilliant at what he does. Since they construct the hacker as a very skilled person, they have problems constructing themselves as hackers. They are not that skilled and thus do not deserve the name of honour. While they admire him and make the hacker some kind of hero, they can see 'him' the way people from the outside see him. People on the outside see him as a criminal, but not only as a criminal. He is also seen to be asocial and with bad appearances. To be described as asocial has always been worse to women than to men. To be social and a good communicator is very much connected to being a 'correct woman'. So not only do the qualifications they give the hacker make it hard for them to construct themselves as one, the attributes given to the hacker also makes it hard being a woman and a hacker. However, some of them are on their way to constructing themselves as being something close to a hacker. They are wannebe hackers, half-a-hacker or nerds. As Karina said, it is cool being a female computer nerd. Proving themselves as competent computer users, is an important issue for these women, a way of making them stand out in the crowd.

What kind of role does this actually give these women, being a woman and seriously into computing. One strategy for finding a place is presenting themselves, as quite a few do, as tomboys. They say they have always liked being with boys and like doing typical boy things. So, in some ways they invent a different femininity to allow room for themselves, the tomboys. Others solve this in another way, by using their traditional femininity for all it is worth. They enjoy being females and doing computing, because they are not expected to know anything and they take advantage of that. They do not need to struggle with expectations, but are more free to ask whatever questions they want without having to worry about being viewed as stupid.

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CHAPTER SIX:

THE PAINS AND THE PLEASURES OF COMPUTING

We saw in chapter five that the hacker label is difficult to use for female computer enthusiasts for a number of reasons. We saw how female computer enthusiasts constructed both the hacker and their own position in the world of hackers. Most of all, that is a negotiation between enthusiasm, style of work and computing activity. Being an enthusiast does not cause too many problems for the women. They admit to being into computers, they like belonging to the enthusiast community, and they are even, to some degree, proud to be nerds. However, they struggle harder to find their place when talking about lifestyle and computing activities. The women are ambivalent about the lifestyle, because they feel there is more to life than computing. Most of all they feel ambivalently about constructing themselves as hackers, because they feel they are not skilled enough, especially when it comes to programming. The hacker concept elicits a view of computer skills that emphasises programming as the core competency. For my informants, programming constitutes to a large degree what it means to be a hacker. The women do not have programming as their main activity. Even though some of them are skilled programmers, they are still ambivalent about the computing activity necessary to become a hacker. In this negotiation process the relationship with the computer, and the way it is used, becomes a central issue. Do female computer enthusiasts construct their own concept of computer enthusiasm, symbolically as well as practically? And if so, may we observe a gendered practice of enthusiasm - where the women construct a computer enthusiasm for women in contrast to the one for men?

Earlier research on gender and computing has to a large degree pointed towards different working styles between boys and girls, women and men. Turkle (1984) distinguished between two working styles, *hard* and *soft* mastery. It was about differences in programming styles. While some used the bricolage style, which came to be known as soft mastery, others programmed more from bottom up. Turkle felt that the bottom up style was the one favoured within the science, and that the bricolage style had never been appreciated. Turkle's different styles did not present a distinction between boys and girls, but the tendency was that girls to a larger degree preferred the soft way, while boys preferred it the hard way.¹⁸ When looking at why women to a lesser degree than men were fascinated by the computer, Turkle (1988) observed that women feared the intimate machine. Rasmussen and Håpnes (1991) also found that it was the mens' intimate relation to the machine that made the women turn away. Kvande and Rasmussen (1991) found that female engineering students looked at computers as something useful to have knowledge about. They thought of it as a tool, and learned about it simply because it would be a smart thing to do. Gansmo's (1998) study of young girls' relationship to the computer support their findings. Aune (1992:20) argues that it was something about the working style that made more men than women fascinated with the computer. They established a userpattern 'reserved' for men. By this she meant that it was more 'legitimate' and possible for men to spend long hours in front of the computer. Computing was defined as a hobby for them and therefore a legitimate way of spending time.

All these studies point to a difference between girls and boys, men and women, and their relationship to the computer. Faulkner (2000) and Kleif (1999) tell to a large degree stories about boys and all their fun. Faulkner looked at software professionals, while Kleif was looking at people making robots and participating in Robot Wars. And the research has pointed to the fact that women are excluded from all this fun. While women have an instrumental relationship towards the computer, or technology in general, boys have all the fun.

However, the computer has, according to Turkle (1996) changed its position from being a machine for calculation to becoming a machine for communication and information. The computer itself has changed in the way that you now need a lot less knowledge to be able to operate it. You can get around by clicking on easily recognisable icons. Ten years ago it was just you and the machine, and you navigated by writing commandos. The goal, when working with computers, was to get an understanding of how the computer worked. One wanted to get down to the zeroes (0) and ones (1). Today it is more about understanding how to work the computer. As Turkle (1996) puts it; it is a changed meaning of transparency. One might expect this change to also have an effect on what is acknowledged as important computer activities and skills.

¹⁸ I know, after discussions with professor Turkle, that she has come to regret her choice of terms. By calling them soft and hard, claiming that the soft was more feminine than the hard, she is in many ways caught by the stereotypically gendered way of looking at things.

This chapter analyses how this group of enthusiastic women have domesticated the computer (see, e.g., Silverstone, Hirsch and Morley 1992). Strategies of domestication take place along three main dimensions: (a) practical, (b) symbolic, and (c) cognitive (Sørensen, Aune and Hatling 2000:240). In the practical dimension, domestication entails a pattern of usage. Symbolic efforts are about the production of meaning and the relationship between meaning, identity, and the public presentation of self. Cognitive work pertains to learning about an artifact or to the intellectual appropriation of new knowledge.

In Appendix A3, you will find a table with a systematic presentation of all the informants and their use and level of different computer activities. This chapter is based on that information, but will be readable without studying the table itself. Since programming has turned out to be such an important computing activity both through the history, and among my informants when constructing the hacker and their own position in the world of hackers, I will start with a discussion of programming as a computing activity.

6.1 The Goal of Programming

As I showed in chapter five, programming is closely connected to the hacker. For that reason programming as a computing activity, also became an ambivalent project for my informants. What we saw in the previous chapter was that those who do programming feel that they are still not skilled enough to be called hackers. It seems to some degree like they feel that they are not as enthusiastic and skilled programmers as they should be. This could lead us to expect that they would compensate for this by being more into other computing activities like games, chat and web.

As already mentioned, previous research has indeed found that females have a different attitude towards programming than what has been established as a hacker's attitude (see, e.g., Berg 2000). While hackers program for fun, female computing students only program if they have to. It is not thought of as a fun computing activity, but as an activity they engage in if they see a reason for doing it. In light of this and of my previous chapter, one would therefore expect my informants to view and talk about programming as a chore. I was expecting a story focussing more on pain than pleasure. I was therefore surprised to hear answers like the following, when I asked about programming: It was most of all programming that I found fun. But I didn't sit at home in front of the computer all day. I exercised a lot, as well. It was mostly in combination with homework that I used the computer. ... The fact that you create something. You can say: "Look, I've made this". It is fun to just sit and fiddle. To think; how can I make this even better. In many ways you never finish a program. There are always new challenges. (Karina)

and,

Programming is fun, but difficult. Yet, it is great fun when you make it! (Hilde)

Like Karina and Hilde, a lot of the women spontaneously said that programming was fun. They did not at all talk about it as something painful or something they just did because they were told to do it. Programming was filled with pleasure and they talked enthusiastically about it. As you can see from the table in Appendix A3, only five of my informants did not have any programming skills at all, eight mastered simple programming, seven programmed at an intermediate level while four were advanced programmers. Their level of programming skills is based on their own judgement and my interpretation of their answer to questions about their programming knowledge. The five girls that did not have any programming skills at all very much wanted to learn it. However, they felt it would take long to learn it, because everyone else, according to them, knew it so well. In addition to that they all thought of it as extremely difficult.

Yes, I really want to learn to program, but it's hard to learn by yourself. Among the crew only men know programming. I can't understand how they've picked it up or why boys know it. It could be because men to a larger degree dare to just try it out and learn it that way. [...] There are so many questions I want answers to, but I don't feel I have time to sit in front of the computer for hours if I can't work anything out. It could very well have something to do with the way I prioritise. I'd rather give priority to friends than being in front of the computer if, I can't create anything. (Hedda)

For this group of women the threshold for learning programming feels almost too high. It is something they want to learn, but they cannot really see how they would have to go about gaining the knowledge they need. However, they do have a feeling that it requires long hours in front of the computer fiddling and trying things out. They do not mind spending long hours in front of the computer, but they feel the time is wasted if they still are not able to actually do anything. Therefore they would rather engage in other computing activities while they sit in front of the computer. Things they, according to themselves, can figure out on their own. The women that know simple programming also want to learn more. They do not see any problems regarding learning more, though. They already have some knowledge and feel they could develop that knowledge if they wanted to. And every now and then they do sit down to fiddle and learn more. However, they do not do this just for the sake of learning more, but because they need to know more to create something. They have already figured out what they want, and then turn to programming to see how they can make that exact thing. In the process, they often pick up other things as well:

- Me: Do you program?
- Sara: Yes, I know C++ and Visual Basic among others. Mostly I use C++. And then I know how to do simple things with Pearl. I do that when I make web pages and such. Pearl is better to use in relation to web.
- Me: What do you think about programming?
- Sara: I think programming is really cool. I'm kind of frustrated, because I want to learn Sockets at school, but we don't learn that. I'm most interested in learning to program in relation to other machines. Machine to machine, if you know what I mean. That's what I first and foremost want to learn, but I guess I've got to learn it on my own. Next year we're learning Java.

The intermediate and advanced programmers have mostly learned to program little by little and developed their programming skills becoming more advanced. However, a lot of these women have also learned programming through their education. They have taken classes that have involved programming, and have therefore not only learned it on their own, since they also have been given lectures in the art of programming. This has given them a better opportunity to learn programming languages.

I have programmed quite a bit in the classes I've taken. Of course, I work with trees and data-structures. However, I rarely program just for fun. I enjoy programming though. In addition, I think databases are fun. (Anja)

Previous research has very much focused on women being sensible and rational students (e.g. Rasmussen and Håpnes 1991). They learn programming when they see the benefit of it. This is interpreted in a way that present female students as nice women doing what it takes to get where they want to go. They do not enjoy programming or computing, but they have chosen it, because they know it is a smart choice, and a way to secure their future. However, this is not the way I interpret the voices of my informants. To me they seem to like programming, in fact, they would love to know more programming. But, they do not program just for the fun of programming itself. They program when they have a goal. They learn programming when they have a certain goal, something they want to make, and they do not have enough programming skills to do it. It is about being goal-oriented.

As a contrast, research on hackers has emphasised that programming is a goal in itself (e.g. Weizenbaum 1976). What we might see is therefore a difference between programming as a goal in itself and the goal of programming. However, when one reads the stories of hackers and their relationships to programming, one may also easily understand them as having a goal. They program because they want to make something. Furthermore, the thrill of programming lies in seeing that their programs actually work the way they have planned it.

For some of the women, programming had been something they spent quite a lot of time doing when they were younger. As they grew older and acquired more computing knowledge, other computing activities became more important. However, they would all program every now and then. The thrill of programming is also about making something for them. We learned this in the quote from Karina earlier in this chapter. Elin also states:

To make things work, to make programs. To show my mother and say; "I've made this! You see?" It's about making things work and seeing if it works the way you wanted it to. To make the machine do as you please.

However, not just to make it work, but also to be able to show it to others. Making a program often takes quite a bit of work. It does, of course, depend on what kind of a program you want to create. But often, it is a process that can go on for quite some time. You test it out. It does not work. You fiddle some more with codes. You try it again. And so it goes until you actually get it to do what it is supposed to do. And then you can start improving it. As Karina said before, a program is never really finished. It can always be better. Karina explained to me how a program in different ways may be improved. You can use a different code to make it more efficient. You can make it more tidy and readable to others. You can compress it, so that it does not take up as much space. For my informants, though, the thrill lies most of all in trying to make about showing it to others, so they too can see their creation. Still, there is something in the women's relationship with programming as a computing activity, which is hard to figure out. They do not seem to be totally comfortable with neither their skills nor the time they spend programming.

I know Internet very well, better than most people. Know different protocols and such. And IRC, web, news and e-mail. And I know Win 98, 95 and NT. I master Linux and Freetext. I've learned it all with a little help from friends and acquaintances and figured out myself. I don't know much programming. I know some Java. I'm good at html-coding, but that's not accepted as programming. It is code and not a programming language. The difference concerns what limitations they have regarding what they can do. I feel like learning to program when I get the time. Few women know programming. There is a very traditional gender pattern within computing. Men know so much, it's not very motivating for women. I don't know any women that know how to program. (Ina)

Being enlisted in a computer enthusiastic community has provided the women with a standard as far as what it means to be computer skilled. Being good at programming does not just have to do with being a hacker. It also has to do with being a skilled computer user. It is still a very significant thing to know. It has deep symbolic meaning. It is considered a status to know it. In many ways, it refers to what is thought of as The Knowledge. Not only is this so in the enthusiast community. but the same ideas may be found among Norwegian politicians (Gansmo 2002). Today one does not need programming knowledge to be able to operate a computer. In that sense, programming knowledge is not really that important any longer. At the same time, its symbolic significance has not changed. So, being a good programmer is still something that generates status. Even though the girls to some degree say that they do not see the point in spending time programming just for the fun of it, some of them envy those that are doing this. Some of the women would have wanted to spend day and night programming in front of the computer. The people spending day and night are the ones people admire. They are the ones everyone within the enthusiast community talks about. And even though the women do not really want to be like that, there is still a part of them that wants to be. Not knowing a lot about programming makes them to a certain degree feel left out, left out of the good society. The good society refers here to the world of computer enthusiasts. The women want to be part of this community. And, in a sense, the women are a part of it, but some of them feel they are not totally appreciated or regarded as full members because of their inferior programming skills.

I don't use it (programming languages) now, because I don't program these days. I'm anti ... done with it. I have chosen system design as my field within computing. So, I don't do programming any longer. But I have used ... in high school I programmed in Pascal, and here¹⁹ I have used Simula and C. And in my job last summer I programming and I've always had plans to make different programs at home. And I want to learn more Java, and such. But I never seem to get the time to do it. (Elin)

Elin first says she is anti programming and therefore does not program. She has chosen to do a different kind of computing. At the same time, she says she knows a lot of programming languages, and that she likes it and wants to learn more, if she gets the time. Part of what Elin and others are saying is that they do not have the time it takes to program and develop their programming skills. It takes too much time. They give priority to other aspects. In addition to that, it looks as if their standard for what they actually need to know and what it means to know programming is pretty high.

- Berit: Well, those that are skilled in computing, are usually good programmers. They can program in a few different languages. And they have had to learn these languages by themselves. And they know some Unix, and know what is inside the computer. And if you have a computer at home, you need to know about hardware, as well. I didn't have a computer at home, so I can't do that. You know, to go home and install this and that. I can't do that. Therefore, I have never had a need for it, and never had the chance to learn.
- Me: Do you take any programming classes now?
- Berit: No, not really. Or, I guess I take some. I take a class in communication. Actually, pretty interesting. It's about network-stuff, and then I will have to program in C. However, we haven't started that yet.
- Me: Have you learned any other languages?
- Berit: We started with Simula. So I know Simula. And then I've learned some C, and I've had to learn Pascal and others. C is a pretty difficult language, but it's used a lot so I have to learn it properly one day. I can understand C and write some, but not a lot.

Me: Do you like programming?

Berit: Oh yes, I do. I don't think I'm very good at programming though, cause I haven't done a lot of it. I mean, I've only done what we had to do through classes. I love making things work and to create things.

and,

¹⁹ Referring to the Department of Computer Science at the University.

Hmm, I don't know any programs within the isp-family. And, I should. To be good at programming, one needs to know languages from all families. I'm best at different variants of Pascal and C. You become the most skilled if you program in different languages. I've programmed quite a bit, but within too narrow a field. I would have loved to do more of it. However, I would never work as a programmer, because you are treated as shit. Mostly you are kicked out before you're 30. At that point you are worn out. (Sissel)

To be able to say you can program, you need to know more than one language, more than one language family, you need to know objectoriented programming in addition to non-object-oriented programming.

I haven't really programmed that much. Or I write all my html by hand. I've also used quite a lot of script for Pearl. Did that a lot when I changed to Linux. I mainly program when I wish to make a program for something I need. And then I use Pearl. I've made programs that get my machine to run mail immediately when I start it. Got the machine to call up. I also made something that pinged to check the connection to the net. Pearl is a object-oriented language. This means that the threshold to learn it is low. It's a combination of Basic and C. I would have liked to learn more programming to use for more visual things. I think design is exiting. I don't bother to learn pure C. That's just a database thing and boring to work with. I don't have any ambitions whatsoever as far as making large programs. (Mona)

The symbolic meaning of programming as something that gives status makes programming an ambivalent computing activity to the girls. It is not that they do not like it, because they do. They enjoy programming and would have liked to spend more time learning it. At the same time they see no reason to program just for the sake of programming. The women will only program if they have something they want to make. If they have a goal for their programming they will do it. For a lot of the women having a web page has been a goal, and having an esthetical page is even more important. Therefore they have had an incentive for learning html-coding and developing their skills.

6.2 Graphic design/Web pages

As you have already seen in the previous quotes, the relationship between programming and html-coding is filled with ambivalence. Html is short for hyper-text-markup-language and is the code mainly used for the making of web pages.

Me: So you don't like programming?

Elin: Yes, of course I do. It's great fun to program and make things work. Beyond

that I like to code in html a lot. It may be discussed whether or not that is programming or coding.

Me: You call it coding?

Elin: Yes.

Me: And the difference between coding and programming?

Elin: You know with html-documents you just sit and code a lot of stuff, and then you just push or get the page through in Escape and look at it. If you program you write a lot and then you compile it and get a program. It's just not the same.

As already mentioned there is a difference between programming languages, one being the difference between those that are objectoriented and those that are not. The object-oriented are said to be easier than the non-object-oriented and therefore have lower status. As Elin savs here, html-coding is even 'easier' than any of the programming languages. And it is not even recognised as a programming language. Being someone who is not being into this world, I have a problem in understanding the differences. However, for the women it is very clear that there is a difference. They know html-coding is not accepted as programming. Knowing html does not generate any status. It is a thing everyone can do. There exists a hierarchy in skills and knowledge where non object-oriented programming is ranked on top, object-oriented programming is ranked a bit lower, but is still high, and html-coding is placed all the way at the bottom with no status or prestige. The same hierarchy emerges when talking about operating systems. While the use of Unix or Linux as an operation system is said to be for those with skills and knowledge. Windows is for everyone.

In many ways, this constitutes a distinction between the specialist, or the professional, and the normal user. It is something everyone can do, as opposed to something just the skilled ones can do. It is about skills, it is about status, but most of all it is a hierarchy. Boundary work is used to separate the good ones from the not so good ones, and the insiders from the outsiders. We can also see a co-construction of gender and programming where the female way of using the computer has a tendency to be ranked lower than that of males, both inside and outside the enthusiast community (Gansmo 2002). The making of web pages has come to be known as something that girls and women do.

Me: So why did you want a private web page?

Hilde: I don't know. Well, you know, Internet is pretty cool, and when you sit and just surf, you stumble across a lot of cool sites. So for me it was more like this: Yeah, I want something cool, as well. I think it is pretty cool to spend my

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time making design-things, and such. So I've just kept doing that.

Me: When you made your first page, what did you want people to see?

Hilde: It's just been bits and pieces that I have been building up through the years. When I got tired of one thing I just changed, and so on.

Me: How often do you change it?

Hilde: I'm actually there pretty often and change small parts, but I rarely delete everything and start fresh now. I used to do that. Now I just change a little bit. If I find something new, I think: I just have got to have this on my page. Or, it looks nice, or its cool, I will take that.

For some of the women this almost becomes a trap. They feel they are never respected due to their choice of computing activity. Some of them started out their career with chat and felt like having a web page. Their goal was therefore to learn html-coding. Today quite a few of them are skilled html-coders. However, within the enthusiast community and also elsewhere they are not given much credit for this skill. To some degree, having a web page actually works against them. It is definitely not cool to have one. Instead of being given credit, you get discredited by some people within the enthusiast community. Among the 'real' computer enthusiasts, or the hackers, web pages are not common and certainly not something worth spending time and energy on, in order to make it a nice and aesthetic one.

As you may see from the table in Appendix A3. I have divided my informants' knowledge of html-code into four levels. Even though web page-making has been received as a typically feminine computer activity two of my informants have no skills what so ever in the art of making web pages. Neither of the two saw any point in having a web page, and have therefore chosen not to learn how to do it. However, both of them have programming knowledge. Sissel, for instance, is an advanced programmer, but has chosen not to learn any html-codes, since she thinks web pages are uninteresting. An interesting thing to note is that while all the women that had no programming knowledge wanted to learn programming, the women that did not have skills in html-coding, did not want to learn it. So, not knowing html-coding feels fine, while not knowing programming feels more like a loss. It seems as if not learning html-coding has been more of an active decision, unlike with programming, which, to some, like Hedda, is something they want to learn despite the fact that they do not know how to develop the skills.

Having a web page has been a goal for a lot of the women. One consequence is that a lot of them are skilled html-coders. And it is for this group not just about having a web page, but about having a good one. They want their page to look nice, fancy and aesthetically good.

I received a lot of help making my first web page. A friend of mine put in all the codes. I only wrote the texts and said where I wanted it. But after a while I got tired of the design and found it boring. So then I started to change it. And this time I did everything myself. I learned html-codes, tried and failed till I got it the way I wanted it. [...] My web page will never be finished. I change it continuously. I learn something new or I get an idea, and I change it. The last thing I learned was to make a table on the side so that one can put in links and such there. When I'm going to change something I put it down on paper first, then I change it by making the codes. (Bente)

and,

I have done everything myself. I'm about to make a new one these days. I'm done with the one I have now, in the sense that I'm not going to use it much longer. I want to make one with nicer design, nice graphics. Just make it aesthetically nice. The one I have is fine, but I'm fed up with it. So, as soon as I have time, I will make a new one. I have the impression that it is a status thing among women to have a web page. There are lots of help programs, so one doesn't need to know a lot. (Ina)

Ina says it is a status thing among women to have an advanced web page. That is also my impression based on my interviews and from observing the female enthusiast community. They very often refer to each other by saying this and that person has a great web page. All of the advanced html-coders have earned money on their skills by making web pages for others, like different firms. The advanced web-page makers are seen as professional and are given a little credit within groups of the enthusiast community. Some of them use their skills in programming languages to make the page even more advanced. Knowing programming is an advantage when making web pages as well. It gives you the freedom to do things you could not have done with just html-codes. Some of them have also won competitions and been given awards for their web page.

As shown, html-coding is a computing activity that a majority of the women like and have extended knowledge about. However, my material does not show that they all prefer writing html-code to programming. Nor is it the other way around. Some prefer programming and has not bothered to learn html. Some are advanced in both activities. Some have advanced html-skills, but still choose not to make a web page, because they do not want one. Some are advanced html-coders, but do not know any programming. However, what is clear is that they all feel that knowing html-coding does not give then much credit in the world of computer enthusiasts. Ina helped confirmed this view when she said that there were a lot of help-pages, so one did not need to know much to make a web-page. However, it is attributed more credit within the world of computer enthusiastic females.

6.3 Communication

Research on women and ICT has very much emphasised that if women enjoy computing, communication and information is what they do (e.g. Håpnes and Rasmussen 1991, Nordli 1998). Internet has therefore been presented as a solution in order to get females behind the machines. Internet has been introduced as the feminine alternative to computer games in an effort to introduce people to the computer. Turkle (1996), among others, has also focused on the altered significance of the computer. The computer is said to have changed from being a machine for calculation to becoming a machine for information and communication. This is also considered in the change from talking about IT (information technology). In this part of the thesis I will look at communication as a computing activity.

The computer provides many ways of communicating. You can communicate using of web pages, e-mail, news-groups, chat, word processing and web surfing. In the table in Appendix A3 I have used columns to state whether my informants have a personal web page, if they chat and if they read and post at news-groups. Originally I also used columns for web-surfing, e-mail and the use of word processing. However, I chose not to present these columns since they did not provide much 'information'. These activities are activities all my informants took part in. For that matter, most other people that are computer users, also use the web to get information, e-mail to communicate and a wordprocessor to write notes, letters, articles, poems, or likewise. In this context, my informants were like most other people. However, their use of web-surfing, word-processing and e-mail was at a very advanced level. They knew the programs well and had taken advantage of all its possible functions. E-mail they would use to keep in touch with friends and family. They used it in a more professional way to communicate with colleagues or others within their field.

I send to friends, very often to friends I talk with daily. It is an alternative to talking or this IRC-thing. I don't know if it is a Unix thing. When you don't have time to talk.²⁰ but want to talk anyhow, then one uses mail, but you end up spending a lot of

²⁰ Here 'talk' refers to a chat program.

time anyway. Once we managed to send 200 mail within an hour (laughing). That is normal. (Hilde)

and,

I write some mails, and then I spend time on IRC, and do a bit of web-design. I keep in touch with people. A lot of my friends live other places. It's a good way to keep in touch. (Mona)

The women used the web actively to get the information they needed in their everyday life. They read newspapers, got information they need for work, like updates on software and hardware. The women used to find out about trains, book tickets, get information about places they want to go on holiday. They get information on all kinds of stuff.

It is fun to surf, but I'm not the kind of person that will sit and surf the net for hours. I can't be bothered with that. I look at the newspapers, stuff like that. I don't have any newspapers at home, so then I can look them up and see if something interesting has happened. If I'm going to surf, I will do that, but usually I end up looking for things for my thesis. (Elin)

and,

I never surf at random, that's boring. I read newspapers on the web, Dagbladet, VG, Aftenposten and net-newspapers. Then I look for work-related information. Check if there is something new and such. And when I'm going on holiday I always use the web. Find information about different places and such. (Mette)

As with programming, their web-surfing was goal-oriented. They would not surf, as Mette says, at random. Some of my informants also did quite a lot of shopping online. They bought music, books, soft- and hard-ware. One even bought most of her clothes online.

6.3.1 Communicating yourself through a web page

I have already discussed my informants' engagement with html-coding. In the following I will look more closely at web pages as a separate phenomenon. Why is it that they want or do not want a web page, and what do they want to communicate through using one? Only three of my informants have chosen not to have a web page at all. Kari says she wants one but has not gotten around to making one yet, while Sissel and Anne say they do not see the point in having a personal web page. Others are also a bit reluctant regarding the idea of spending a lot of time fiddling with their web pages.

I program and surf the web. Home-pages I find boring. I have a very simple one that we had to make for a class, but I've never bothered to do anything with it. (Anja)

However, having a personal web page is something most of my informants want and do have. For some, there are practical reasons for having one:

I made one (web page), because it was practical. I took a class a couple of years ago and learned huml. Then I only made a test-page. I had that one quite long. The reason for changing it was that I wanted to put in a lot of practical things. When I use other people's web pages ... maybe I have heard a name and want to know who it is. Then I go to the web page and find out. Very often there is a photo of the person, so then you know who it is. What I consider as useful on a web page, is having something about yourself, a picture, your schedule ... plus, plus. [...] Mine is not very personal, though. I made it within a day. It is not important for me to have a fancy page, just useful information that I can use myself. My own links for instance. If I am somewhere else, and don't have my own bookmarks on the web, then I can look it up there. That is useful to me. (Karen)

Karen has a pragmatic relationship to her page. Most of all it is there to serve her. She can reach her favourite links, and it makes life easier for her when she works from other computers than her own. A web page can be more or less private and intimate. Karen and a couple of the other girls have chosen not to make it very personal and intimate. However, most of my informants wanted the page to actually give as much and as accurate information about themselves as possible. They wanted a page, which they could tell others to look at, so that they may get a grip on who they are and what their interests are.

I got a web page so that I can send all asl^{21} questions there. Then I do not have to answer the same questions over and over again. Instead I tell people to have a look at my web page. I have chosen to have a minimalistic site. Most of all I wanted to create something myself. I have written a part about myself, and a part about my best friends. In a way it is a presentation of myself. And then I have my e-mail address there, in case people want to get in touch. [...] I have received a couple of nasty mails, but it's not really a problem. Of course, I don't like it and would prefer not to get them, but most are nice. (Mona)

²¹ Asl is short for age, sex and location. A common abbreviation used in chat.
Mona spends quite a lot of time chatting. She uses her web page to give the new people that she meets, information about who she is. Her web page includes a lot of photos from holidays and parties. She tells people where she grew up, and what kind of sports she is interested in. When she had a boyfriend, she put in a photo of him and a little bit of text about him. She has a section where she writes about her friends and what they mean to her. So it is not just factual information, it also includes personal and intimate information. In addition to personal information, Sara, another informant, has a lot of information about how to use Internet Relay Chat, and she also answers a lot of computing questions on her page. Computing is her main interest, so she feels like educating people on this topic. Bente, on the other hand, is into horses and has spent a lot of time making pages to teach people about horses and horseback riding.

Mette has an even more intimate page. Her page is called Mette's story. First, there is some basic information about where she was born and her family. Further down the page Mette tells us about a tragic incident that happened when she was a teenager. At the age of 14 Mette was raped by an older man. She reported him and got him convicted in court. Because of this, Mette had a pretty rough time and have worked hard to get where she is, rebuilding her self-confidence. Today she says she is doing fine, but that she wants people to know this about her. She also wants to help others in the same situation. Maybe by reading her story they find support to go on with their life. Placing the story on the web is important to her because she feels it shows that she has nothing to be ashamed of. Her pages are also filled with happy photos from her upbringing and a section about her partner and man of her life.

Other stories could be told from the women's web pages. While none of them are as intimate as Mette's, quite a few of the women have placed rather personal and intimate information about themselves on their pages. Lisa and Ellen put out poems they have written. They also put out stories they have written. Ellen dreams of becoming an author and takes her writing very seriously. Often she tells people to give her feedback on her work and says she to some degree feels she has put her soul into her page. She says it hurts badly if people make fun of her writing.

When I first started to look at my informants' web pages I was quite surprised by all the information they had put there. The fact that they put out their full name, date of birth, address and phone number surprised me. Were they not afraid that people would take advantage of this information and harm them? Especially since you could also find photos of them wearing just a bikini in their photo albums. However, even though the women were aware of the risk, it did not really bother them.

Most of the time people leave you alone. I put out all information about myself on my web page. I have phone numbers both at home and my mobile on there. I have the address to where I live. Only once have a person called who did not want to tell me his name. Mostly people call and ask for advice. People have seen me on television and such. However, I'm not really a public figure, so it's not that often I have the bothered. [...] I have thought about removing address and phone numbers, but since I've never had any unpleasant experiences, I leave it there. However, when I post on newsgroups, I don't post with my web page address on. (Gro)

Gro left out her web page address when she posted something, in order to avoid getting unwanted attention from people she might provoke. As we shall see later, Gro also avoided telling people she was female, because she feels the setting changes if people know. Apart from that she never felt very bothered by having personal information out. This also applies for the rest of my informants. Most of all they feel they have been given very positive feedback about their pages. People write telling them how much their page has helped them with a school project, or how important it is for people to tell stories like Mette's. Some of them were afraid of the consequences when they first created a site, but they feel people are most of all friendly, and therefore have put out more and more personal information. The more they put out, the easier it is for them to give people a more complete impression of who they are.

Their pages have been changed and developed several times. They pick up something from other people's pages, get bored of the one they have, or just feel like doing something new. They do not look at their page as ever being finished, but rather as always a site in progress. As their respective lives changes, the pages need to be changed. As they learn some new cool stuff, they need to reprogram the page. The design can always be better, the information always newer, with more photos, more links, etc.

I have had a web page for almost three years. I was 14 when I first started making one, but I have changed it a lot since then. At some point it was filled with stuff about music. But now I'm more into putting out texts. [...] Most of them (texts) I have written. I like to write, so I write stories, poems and things like that. I put it out on my page. (Hedda) Through their web pages they present themselves to whoever looks it up. By putting out their life story, information about favourite hobbies, photos of themselves, their family and friends, they want people to get an idea of who they are. Here they feel they can even put out things they feel it's difficult to tell people face to face. By giving people the information on the page, it is easier to talk with them when they meet in person. One has her diary there, so that everyone can actually follow her life on a daily basis. A couple of the women talks about their sexual preferences, one about special sexual interests, and another about how it is to be bisexual. One has made a porn-movie and uses one of her homepages to promote and sell it. Their pages are very intimate and personal, containing information they want to communicate to the world about who they are and what they stand for.

6.3.2 Newsgroups

There are essentially two ways of organising discussions on the web. First you have newsgroups where writing as well as reading is done on the web. Secondly, mailing lists where the messages are distributed to all subscribed members by e-mail. I do not differentiate between the two here, but include mailing lists when I talk about newsgroups. I have however chosen to distinguish between reading and posting. Most of all because this shows different levels of engagement. As you can see from the table in Appendix A3 only three of my informants never read at all. The rest follow different newsgroups to a great deal. Most of the newsgroups are related to computing.

I used to follow all the Norwegian groups (newsgroups), but now I don't read that much. I follow three groups regularly: Irritation, Pleasure and a Linux thing. I post if there is something I'm interested in. The problem is that the traffic is so great it's hard to follow properly. I also read most of the groups here at the U and post daily. I post tips and help people with problems. The cultures on news differ a lot. Most of those I follow are pretty peaceful. No swearing or tough wording. However, one of them had a huge fight a couple of years ago. It's just called the great war of nerds. It was actually a war between those who swore to Windows and those who used Linux. It ended up being a fight between the nerds and the others. To many, Linux becomes almost some kind of religion. (Gro)

By following newsgroups they keep updated on discussions within the computer enthusiastic community. Some of the newsgroups are connected to the universities, others to special topics like hacking, Unix, soft- or hardware. The newsgroups are both Norwegian and international. Some of the women complain that it takes too much time to follow the newsgroups properly. They used to be able to follow quite a few properly, but these days there is so much traffic on the newsgroups, it creates an information overload. It just takes too much time, so they have to cut down to only 3 and 4, and follow those. However, even though my informants are active readers of newsgroups they post on newsgroups to a far lesser degree. Only five of them actually post regularly or frequently. The rest only read what others have posted, but never participate in the discussions themselves. There seems to be quite a threshold for posting.

- Berit: It is kind of exclusive. It is not easy to just post something on news just like that. You ought to be sure of what you are doing. Here (at the university) there are a lot of local groups. These are groups of friends talking together. You can't just come in and start posting. I guess it is like when a group of friends are talking. You can't interrupt just like that. I might do it after a while, but I have to have something really smart to post first.
- Me: So that you will get accepted?
- Berit: Yes, to get going, you know. The three first postings should be really clever. But I don't think it really matters. It's not just the people here at the U that has done it like this. This is how it is, it is cool to have a clue, and if everybody knows, it's not cool any longer. I don't think that it's meant to be exclusive.
- Me: No?
- Berit: They talk about September. September is kind of like those years when everyone got a computer. Some time in the middle of the nineties, the beginning maybe. It is September. September, is an old expression from universities in the States. Every year, in September, lots of new students arrive, and they act like jerks when being allowed on the net. They don't know anything. They are the new ones. And the ones that have been there since before September, that means September '92 or something, they are dinosaurs. Well, not a lot of people were on the Net before '92. So it is, kind of, the old thing. That's how'l look at it.

Berit has already been following a group for a year. She still feels she does not know enough to take part. Every now and then she has a question she considers asking, but does not dare to. What if she says something stupid or asks about something everybody else knows? She accepts the way things are and does not think that the group intends to be exclusive. It is just a matter of separating those who know from those who do not. Similar stories were told by the other women. None of them have ever experienced a particular situation themselves, but they have heard stories about others that have made a fool of themselves. Someone posted something and then was made a fool of in front of everyone.

It makes sense that people ought to start by following the group for a while before starting to ask questions. Newsgroups are to a large extent focussed on one issue, which means that participants need to have knowledge about this specific topic if they want to participate in a meaningful way. In addition, the regular readers of a newsgroup get tired of seeing the same questions over and over again. This has also been part of the reason why the women did not post a lot. They felt that they did not have enough knowledge. But most of their resistance towards posting was that they were afraid of what kind of reactions the readers might post back. They were afraid of making a fool of themselves. According to the women, the people that posted regularly were a group of friends. As long as you were not a member of that group of friends you had to be careful with what you said and not interrupt. Especially, not interrupt if one did not have something really smart or intelligent to ask or comment upon. And of course, this is partly how newsgroups to a large degree work. One is always advised to follow them closely for a period of time before posting anything. That way, the regular readers do not have to read the 'same' mails over and over again. One kind of learns about the culture existing within that 'room' by reading the messages.

They are good at programming, good at Unix, and know a lot, things I don't. And they post at newsgroups. I read news, but never post. [...] No, there are no women that post on news. None. Or, at least very jew, and they are jew and far between. It could be. You know, it is like if you post at news, there are so many traps that you think it is dangerous to do a thing like that. I've read news for so long now, so I am starting to know what you can do and should definitely not do. That's a good thing to know. So well, it's like if I figure out something really smart to say I might post it. In other words, I'm kind of waiting to figure out something really smart, so that I can get started. (Hilde)

The women, like Hilde, had observed for a long period, and after some time they knew something about the culture. What they had learned was that there existed certain rules for what one could say. If you were part of the group, you were allowed to say things that you were not allowed as a 'non-member'. However, for how long did they have to observe before participating? According to the women, the men were not as afraid of posting as they were. The women that posted were to a great extent very often well known within the newsgroup. They were accepted and shown a lot of respect. I'm never myself. Or, the people that know, me know who I am. However, I think it's liberating not to be taken for a women. It's fim to see the stereotypes one avoids. It's not that I play someone else, I've just not said what gender I am. Everyone takes it for granted that I'm a male. It's very pleasant. I observe that as soon as a woman enters, people start chatting her up, and computing is no longer the issue. I'm there to discuss computing, and so it just makes life easier if people don't know I'm a woman. (Sissel)

Many, like Sissel, had chosen to have a gender neutral nick.²² Thus, they were perceived as male. They never answered directly if people asked about their gender, but for the most part the issue never came up. The rest of the group took it for granted that they were male. According to Sissel, she had chosen to do this because as soon as a 'woman' came in, no one wanted to discuss computing any longer but tried to chat the person up. Sissel discovered this while following the group. Postings people thought were coming from a female were not given any credit. People would patronise the poster and try to see if she maybe wanted to flirt, instead. To avoid this, the women chose a nick that could just as well belong to a male. After two years of posting frequently at a newsgroup, Sissel met some of the other people in the group in real life. They were totally shocked when it turned out she was a woman. However, at that point she had already been given so much credit for her computer knowledge she was at no risk of loosing it.

6.3.3 Communicating yourself through online chat

Using computers to chat is another important activity that the girls engage in. In the table in Appendix A3 you may see to what extent the women use chat. How often and for how long do they chat? While some have never tried chat at all, others spend more or less all their waking time chatting. The rare users only chat two or three times a week. They usually have one group they keep in touch with and stop by to say "hi" every now and then. For this group it is not a time consuming activity. The regular user, chats every day unless she is on holiday or is kept from doing it. They have two or three groups or channels that they feel they belong to, and they go in there to chat to keep up with old friends and have fun. The last group consists of women who are connected to one or more chat channels at work all day, and keep chatting when they get home. It is not always a matter of being active there all the time. For

²² Instead of using their real name, people usually use a different name, a nick or a handle, on chat and newsgroups.

hours, one may say nothing, but they have the chat-windows in the background or in a corner of the screen, so that they can watch who comes and goes and see if there is something interesting going on. At work they also use chat-channels where they can ask work-related questions or discuss work-related topics.

Most of my informants were quite knowledgeable about chat and chatted regularly. However, five of them had never tried chat. Their reasons for not trying it, was mostly that they did not feel it was something for them.

I never chat. I have never tried it, and will never try it either. I don't have any interest in doing it. I don't see any point in it. [...] I would consider myself a bit too weird if I started chatting instead of sitting down at a cafe talking with people. Having to go on the net to chat! That's how I look at it. But I guess you can do a lot by chatting, can't you? (Elin)

and,

A friend of mine met someone (she had met chatting) in town. But that's not me. [...] For that reason I don't use IRC a lot. I'm also sceptical as to what kind of people actually use IRC. I don't really know what kind of people there are. I'm sure they are normal, but. (Hilde)

and,

I don't find it (chat) weird. Maybe I would want to try it myself, just to have tried it, because there is so much talk about it. I just want to know what it is. But I doubt it is for me. (Berit)

Elin has already decided chat is not for her. Most of all because it is not the way to socialise. Socialising we do face to face, according to her. Hilde knows people that have met while chatting and then become friends in real life. Even though she thinks people chatting are normal, she is still sceptical, and therefore does not want to try it herself. Berit is more positive, but still doubts it is something for her. All of the women that do not chat have little or no experience with it themselves. Nevertheless, they have a lot of opinions on what chatting is about and why it is not for them. They have read about it in the newspapers or heard stories about people that have become totally absorbed with chatting. What they most of all object to is that way of being social. It feels weird to be social in front of the computer. That is not how they want to socialise with other people. For the others, chatting has been something totally fascinating for quite some time. They all talk about their first encounter with great enthusiasm.

I started out a little with Pine when I came to the university. I never took any classes, but looked around at what others did. Then I started using Eudora. I had heard about Internet and found Netscape, and had a look. I couldn't really figure out how to use it. I took a closer look at 'What's cool'. I remember I thought that I couldn't understand what the fuss about Internet was all about, because it was really boring. It took a while before I got passed that stage. I started hanging out in the computer lab in the evenings. Constantly figuring out more. One day I started chatting on the web. I was there one evening surfing and then I saw the woman next to me doing something that looked exiting. I just watched her for a while, then asked her some questions, and slowly I figured out how to use it. It was a very slow program. One constantly had to reload. However, I was totally thrilled. After that I spent a lot of time in the lab. I went there after classes and sat there until I caught the last bus home. After a while I often stayed and caught the first bus in the morning. It was just so incredibly fun to speak with new people all over the world. I can't remember the name of the web chat any longer, but it was in English, and people from very different places around the world hung out there. In the beginning, I constantly spoke with new people, but then I got to know some of them better and as it happened I became more involved. We arranged for when to meet. These that had photos sent them off. After a while you got to know people really well. [...] I had been doing web chatting for a couple of months when someone tipped me about something faster, and I started with IRC. In the beginning I wasn't able to follow at all. I started up at Norway where there is a lot of traffic and everything goes superfast. I didn't like it and wanted to go back to the old web chat. However, after a while I got used to it. And then we made our own channels, friendship-channels, if you know what I mean. Then it became even more fun. After a couple of months on IRC I totally stopped doing the web chat. (Mette)

For a while Mette said she got totally obsessed with chat. She sat every night and most of the day. Her friends started complaining because she never had time for them any longer. She would rather chat with her online friends than meet her old friends face to face. After a couple of months, things slowly changed. She kept on chatting, but also spent time with friends. And she started meeting her online friends face to face, very often also introducing them to her old friends. She mixed the two worlds. A couple of the other women have also, for a period of time, been totally obsessed with chatting. In the beginning they use the chat as a way of meeting new friends. Some of them started chatting at a point in life when they felt a bit isolated, or at any rate had problems finding people like themselves, as some of them say. Through chatting they suddenly found a community with people more like themselves. Many feel that they for the first time in their life have found a place within which they can truly be themselves. In many ways, they find it easier to present themselves as who they really are when they are on a chatchannel.

Me: What kind of channels do you use?

Anne: We have a local channel named Lommedalen. It is for the area where we live. In addition to that we usually visit lcebear, a channel for the people who are members of the organising group. And we also hang out on Norway. These channels gathers a lot of the same people.

Me: So it's the same people? I thought you said you liked to meet new people?

Anne: Oh well, but at some point you get to a stage when you don't want to get to know more people. One gets fed up with all the questions about whether one is a boy or a girl, and so on. When I get questions like that today I often answer; "what sex do you want?"

Me: So whom do you normally chat with?

- Anne: Well, it's people I know already and new people that I have met in real life.
- Me: What's so fun about chatting?
- Anne: First of all getting to know new people. In addition, one gets to know people in a different way. One can develop a friendship and get to know the other better. In many respects it's a better way of to get to know people, because you get to know them in a different manner.
- Me: But then when you meet people you have gotten to know through chatting in real life. Do you then meet the same person?
- Anne: Yes, usually the net person is like the real person. Most people are themselves. But of course, some people pretend to be someone they are not. They give out fake information, and such.
- Me: Do you ever change identity?
- Anne: I have been a boy.

Me: Tell me more.

- Anne: Actually, I just did it to find out how girls behave towards the boys. And when you are a boy you can be more dirty. You can have a bigger mouth, if you know what I mean. However, I ran short of ideas quickly, so I have not done it for a long time.
- Me: Why don't you tell me more about how you get to know people?
- Anne: Well, in many ways it is a different way of getting to know someone. You get to know the personality. Often it can also be easier to talk to friends that way.

In the beginning a lot of the women try out different channels. As for Mette and Anne, after a while they all want to meet the same people every time. Very often they also look for a more local channel, at least a Norwegian one. They feel like talking with people they can also meet face to face, if they want to. When reading about chatting in the newspapers and also often in research, you get the impression that the world of chatting is a totally different world compared to what is referred to as the real world. People have real friends, and they have online or chat friends. There seems to be no relationship between the real and the online friends. This is not at all the case for my informants. They have all met people they have chatted with face to face, and very often the friendship has developed from there. They will keep up the relationship by meeting both online and offline. It is not an either or thing. They also mix people they have met online with their other friends.

So, after having chatted for a while, the chat becomes a place to meet friends. Instead of going out to meet friends in the evening, they log on to a special chat room to catch up with friends. In these rooms, there will be more or less only people they already know, most of them they have also met face to face earlier.

I'm IRC'ing a lot, or IRC floats into everything. Everyone I know are IRC'ing. A lot of them are really skilled, as well. ATC has its own channel for friends where I used to hang out on. But I don't hang there as much as I used to. Today I only use it when I feel like meeting friends. When I worked at my previous job I did not have access to IRC, so then I had to chat when I got home. But I'm not addicted to IRC, I'm more addicted to the computer in general. I feel totally lost if I don't have a computer nearby. (Maren)

and,

I hang out with an IRC-gang. Or rather, we are a gang that got to know each other through the local IRC-channel, so we hang out together with a group of friends from school. We are in many ways a big, happy family. (Hedda)

and,

Those of us in the clique, have a common meeting place in the evenings. I don't feel like going to a cafe to meet people all the time, but I think it can be just as nice to meet people on IRC. It's not that I'm not social, because I'm very social. But one isn't any less social when meeting friends this way. Some of them also live far away, so we could not even meet at a cafe. And I hate the phone. Feels totally meaningless to me. It feels more useful to use IRC. But in many ways it's (chat) the same, it's just another place where you can talk. I also meet a lot of the others out at a cafe or such. Don't even try to tell me that I'm not social, because that's not right. (Sara)

Like Sara, a lot of my informants feel that they have to defend the fact that they spend time chatting. They very much feel that others see them as asocial freaks. As discussed in earlier chapters as well, to be heavily engaged in computing often implies that one is perceived as asocial. Computing is not seen as a social activity. Meeting people online is even worse. The women know this and therefore act to defend themselves. The fact that this world is referred to as the virtual world, as opposed to the real world, also makes it hard. What does this really mean? Is one world less real than the other? Or is one not real at all. Is it all virtual? What aspects of chatting makes it not real? Is there no real people there? Or is the communication not real? Questions like these very much troubled the women. Even though they themselves did not think of it like this, they felt everyone else saw it this way. For the women, the person behind a nick is as real and alive as the person they meet outside their door. Maybe even more alive because they feel that many individuals are more true and more themselves online than face to face. At least it is good to start getting to know people and be yourself, and then build on that when you later meet them face to face, an argument presented by my informants.

Chatting on the net opens possibilities for people that are too shy to get new friends or a boy-/girlfriend. One meets there first, and then one can, in the long run, meet face to face to see if one likes each other in real life as well. Then one already knows each other, so it's not that scary. [...] It is really hard for me to be myself. When I'm behind the monitor, I don't hide myself as much as when I'm not. The Internet showed me, for the first time in my life, that someone liked me for who I was. I understood that I wasn't stupid. To experience that people liked me for who I was, that they like my personality, was a totally new experience to me. (Bente)

When being on the chat the most important thing is to give other people as good an image of yourself as possible. You need to be able to communicate who you are. You also need to be able to figure out who you want to get to know and who you do not want to talk to. Even though the women very much emphasise that people behind the nicks are real, they all know that some people are lying, and they have experienced this personally or through others.

As I have mentioned before, there have been a lot of discussions concerning chatting in the media. According to Knutsen (2002), who has done a study of chatters in Norway, the media has mostly focussed on adults taking advantage on young girls and boys, people that have been tricked, and every now and then happy stories about people that have found their partner on the net. Most of the articles written are about things related to love or sex. Since people can hide behind a nick, they are said to lie about who they are, and one can therefore never trust anyone. This is not how my informants experience the situation. Although they know they have no guarantee that people are who they say they are, their experience is that people are mostly themselves.

A couple of times I've experienced a total clash between the net person and the real person. The virtual person doesn't emit odour. Sometimes it's just a total clash of chemistry and other times the opposite. There is no way you can reveal everything through chatting. [...] Most people embellish the truth a bit, but they don't lie. It's more about emphasising some parts and leaving others out. You do that when you meet people in real life as well. However, I've actually experienced that someone lied to me. I remember once there were these two men from Germany that wanted to get to know two Norwegian girls. It turned out they were a lot older than they pretended to be. (Mona)

Mona has experienced being lied to. No harm was really done. Mona and a friend soon discovered that something seemed a bit strange about the German men. Since most of the women are experienced chatters they are clever in detecting signs that people are making things up. It does not bother them too much. And, as Mona says, it is mostly not that people lie, it is just hard to give a full presentation of who you are. First of all, we want to look good, so there are some parts that we leave out to make others like us. Next, and even more importantly, it is very hard to communicate all about yourself through chatting. Every now and then people just turn out to be different than what you expected. Mette has this to say about her two first experiences with meeting online friends face to face.

First time was in August '96. I remember being extremely nervous. A guy I had chatted with for a long time was coming to visit. He travelled all over Norway visiting people he'd gotten to know through chatting. When he came to Tromsø, he wanted to visit me. I was dead nervous and had great expectations. However, I soon found out he was just a human being. He was so incredibly nice. He differed from what I had expected, though. My mother was very much against the whole thing. Meant I was crazy. However, I felt I knew him and felt sure he was a proper man. We had spoken quite a bit on the phone, as well. And we really had a couple of great days. I took him sightseeing, and we had fun. [...] Next time I went to visit someone I had chatted with a lot. It was his birthday, and he had invited me to come for the weekend. I took the train there. I'd seen photos of him and thought he looked really handsome. It was a really nice visit. He lived on a farm, and I kind of felt like rovalty. His family was so nice to me. They were open and easy to talk to. I still keep in touch with him, but in many ways it was a disappointment too. What one thought to have on the Internet one didn't have after all. It was not that he had been lying or anything. He was the one he had said he was. The chemistry just wasn't right. It's hard to describe, but you kind of have to make up a part by yourself when you meet

people on the net. The picture is in most ways not complete, because you are missing some information.

Even though the first person Mette met differed a bit from what she had expected, it was a success. They really got along. The next meeting was not that much of a success. Mette and the guy had been flirting for a long time. Thus, she did not just expect to find a friend, but a boyfriend. It was a nice visit, and the guy was nice, as well. Nevertheless, they did not communicate as well face to face as they did online. However, he turned out to become a friend that she still keeps in touch with.

As the women become more and more experienced chatters they find it easier to see how the person is. First of all, they are better at communicating themselves. Next, they are better at reading the other person through the information they get. They will very often also meet a person face to face a lot sconer. They know they cannot get the full impression before they have talked to the person face to face, so they meet and then rather go back to develop the friendship online. It saves time. Getting to know a new person is time-consuming. It is even more time-consuming when you do it through online chatting. Because there are so many things you cannot see, you have to work harder to communicate online, in order to give the other a full picture. There are always new people that want to get to know you, but you have to be selective in terms of who you bother spending time getting to know.

One can divide between those that are just going for looks and those wanting to get to know you as a person. There are always those that start asking for a photo. Or the usual thing about asl. And then they ask how you look and if you have a photo. And if one answers they, go straight to asking if one wants cybersex and with how many. Those kinds of people, we stay away from. We just don't bother to answer. (Hedda)

and,

When you meet boys that are more interested in the size of your loudspeakers than of your bra, things take on a new meaning. But there are different parts of the Internet. It depends on what part of the Internet one talks about. If one, for instance, goes to Lek.²³ one will of course get those kinds of questions. [...] I hang out a lot on one specific IRC server. And there it is usually fine. But one learns to talk back. If a boy is interested and asks me what sex I am, I answer that I am a woman, but that I can't see what that has got to do with it. I very often get positive feedback on that type of a response. Many think it is cool, to finally meet a woman that is not there to get a date

 $^{^{23}}$ Norwegian pornographic web page. Lek means Play. There is a porn magazine with the same name.

or meet a boyfriend. (Bente)

We heard Sissel say a bit earlier that she had chosen not to have a nick. which could be interpreted as feminine when participating in newsgroups, because of the unwanted attention she received as a female. All the women complain about this in relation to chatting as well. There are so many men out there that just want to chat up a woman. However, the women say they have never used chatting as a way of finding a partner. Although quite a few of them have developed romantic relationships with people they have met online, this was not their reason for being there in the first place. Most of them also say that it is rather rare that people who flirt online continue the flirt when they meet. Online relationships usually never last, because your expectations are too high. A lot of the women have met partners within the community. though, but then the first meeting has been face to face and later on they have maybe gotten to know each other better by using chat. However, Eva actually met the man who is now her partner and the father of their baby, on a chat channel.

I met Petter at an IRC-channel. None of us used to hang out on this particular channel. I sat was in front of the computer one evening and was a bit bored. I went into this channel and sent out three messages. I got one answer and that was from someone called Drake. We talked for six hours that night. In the next days we chatted a lot. Then he called on a Wednesday, and we went out for a meal not long after. We became a couple in November, moved in together in January and now I'm four months pregnant. [...] That's one of the few times I've actually met people from IRC. You hear all these stories about how people meet and why nothing evolves from it. It is a chat-up-place. However, neither Petter nor I went there to chat up someone. Petter says he fell in love with me before he met me. When you are as hooked on computing as he is, one needs to have a partner that is as hooked as well. We learn a lot from each other. He is more hardware, while I'm more software. I'm more into usage, while he needs to know everything behind it.

For Eva it ended in a romantic relationship, for most of the others chatting is today a way of communicating to keep up with friends. Since starting up on international channels, getting to know new people every day, they have all moved on to rooms whit a cosy home-like atmosphere. What they are looking for and are experiencing is no different from other social contexts. It is like going down to your local cafe to meet friends. As in the song for the television series Cheers, 'a place where everybody knows your name'. They still meet new people, but now there are people that are brought there by friends and introduced to the group. As for bars, the room is usually not physically closed to other people. However, it can be hard to find them and you might not feel welcome if everyone else is talking making it clear that they all know each other. The women also meet and socialise face to face with the other people in the chatroom. Parties are being organised every now and then. The people in the chat-rooms also meet at computer parties like The Gathering, or at IRC parties, or more often they just organise to meet informally. Since they often do not live in the same location, the everyday conversation is maintained through chatting. For the women, chatting online feels as normal as chatting face to face.

For many of my informants getting to know a new person happens in stages. First time you meet on a chat. They take notice of the new person only if there is something special. As we saw earlier, they stay clear of boys that are only interested in chatting them up. There has to be something special about the person in order for them to attention. If there is, you agree to meet on the same chat again. They also often provide their web page address so that the other person may learn more about them. After having met in the chat-room for a while, people might exchange e-mail addresses and communicate in this fashion, as well, Little by little they get to know the other person. If one does not have a web page with photos, he or she often sends a photo. Exchanging photos is more about getting a better idea of who the other person is than to see if he is handsome enough. After this it is quite normal to go on to exchange mobile phone numbers, not to start calling each other, but to send sms-messages. And at some point after that, people will get too curious enough about the voice of the other person and call up. If things still work they might agree to meet in real life.

I do not mean to say that these are stages they all go through. The point is that there is a kind of development that slowly gives you a more and more complete picture of the other person. You can only communicate so much through chat if you are is new to each other. Very often, chatting feels quite intimate. People dare to say a lot more than they say face to face. As some of the women said, it is easier to be yourself. You do not have to be shy and may therefore dare to say and do things you would not have dared in a face to face meeting. However, even though it is intimate, I would claim that chatting still to some degree can be quite impersonal because of the anonymity. The women also feel that it is not so risky and very often not as close. You can still hide behind the monitor and just log off if you do not want to talk anymore. By asking the other person to see their web page, they give un the anonymity as well. By sending sms-messages you let the other person get closer to you. You may be reached not only when you choose to log on to your computer, but more or less wherever you are. Calling someone makes the conversation change from text to voice. Revealing one's voice makes it even more intimate. By now they have a lot of knowledge about the other person, and an impression of what they look like. Adding the voice moves them even closer to getting the full picture of the other person. However, as all the women say, it is only when you meet people face to face that you will get all the information and that is when you discover if you have been able to present yourself and read the other person's communication in the right way.

6.4 Games

Studies of dedicated computer-users or hackers have found that computer-games are one of the most important inroads to boys that become hackers (see, e.g., Befring 1995). Boys start playing computergames at an early age. This way, they acquire some skills along with an interest in computing. In the long run, this may help to nourish a growing interest, fascination and even dedication. When talking about computer games, one frequently hears people distinguish between boy games and girl games. Or maybe, even more so, computer games are a boy-thing all together. In an earlier study I did on younger girls and their relationship to the computer, I also found that they saw computer games as a boything (Nordli 1998). The girls' first computer experience had been playing computer games. Even though the young girls said they had liked playing computer games as a child and found them amusing, they did not become fascinated with games in the same way that some boys supposedly do. They kept on playing, but games never became a major interest. Instead the girls began to use other programmes, like painting, writing and the web.

Based on my own and earlier research on computer games it surprised me to learn about this group of computer enthusiastic women's relationship to computer games (e.g., Befring 1995, Cassell and Jenkins 1998, Nordli 1998). Since the younger girls in my previous project were feeling so reluctant about games, and said that was mostly something they did as kids, I very much expected this group of women not to play games. Instead, the material showed that only two of the women never played games at all. The table in Appendix A3 shows how frequently they play games. They all spent quite some time playing games as kids and teenagers. And most of them still engage in computer games as a computer activity. 11 of them played rarely, which meant that they only played once in a while. This group does not go to the shop to buy games themselves, but play games that either comes with the machine or games that others have installed on their machine. It is not a main activity, just something they would do to kill some time once a week, or so.

I have a lot of games, but it's mostly games where I have to think, and such. Not the kind of games where you build worlds. I don't like those kinds of games. War games are not my kind of thing. I may have some of those games on my computer, though, because my brother has been using it. I think card games are the most funny. (Elin)

and,

No, not a lot (play computer games). Or I play solitaire and hearts, and such. But computer games is more a thing among the boys. You know, bang - bang, boys are childish. But I have played worms and such on the old Amiga machine that we had at home. (Hedda)

and,

I play every now and then. Mostly Adventure games. I've played Monkey Island a lot. I like games that work like a puzzle. On the other hand, I don't like fight games a lot. I've never been very fond of games like Doom. I prefer using my brain. I think that is more satisfying. By all means, I've played Doom, but I never got a kick out of it. (Ingunn)

Neither Elin nor Hedda play a lot of computer games. They prefer to spend their time engaging in different computing activities. However, they both play every now and then and have a little knowledge of games in general. Quite a few of the women emphasise that they prefer games where you have to think. The game must be challenging. Games they call war games, fight games, and such, are often categorised as boy games. Boys and men like that kind of thing, while girls and women do not, supposedly. Most of them say they know women that are good gamers and spend time playing, so it is not like women do not play. What is at stake is rather what kinds of games men and women like and also how much time they spend playing.

I play some games. You can see a pattern in what type of games men and women play. Men play shooting games like Quake, while women prefer strategy games. I think it's great fun to play old-fashioned Arcade games. However, playing games is mostly something I do to kill time. Though, there are some games I like a lot, like Might and Magic 3, Starcraft and Final Fantasy. It is an extremely good story. Regarding Arcade I mostly play Pong and DX-ball. Simple games. Typical women games. 90% of all the women I know have been hooked on DX-ball. To me it looka as if women want to construct, they want to build things like cities and such. That's why they like games like Sim City and Mighy and Magic. Men, on the other hand, want to fight and kill. So, while women want to build, men want to ruin. They are more destructive. (Mona)

The view that there is such a gap between games that men and women play was mostly found among those women that did not have gaming as a very frequent computer activity. Among the more frequent players this was less of an issue. The regular players have different games they like to play quite often. This constitutes a group of players that has developed a game knowledge and found certain games they like to play. Usually they play games three to four times a week. Every now and then they can sit for hours, sometimes maybe most of the weekend.

I have played Myst. That was the first game I found which I thought was really cool. And I also played Riven in high school. It is challenging and really tough. The boys played it as well, so it was handy to have something to talk about with them. In the beginning, it was me and all the boys that did computing. I played games, that was what it was mostly about. It was a good thing, because then I had something to talk with them about. And that was important during those years. (Sara)

and,

It is mostly War Craft or Worms. Worms is something I only play because it is fun. You should really try it. It's great fun. War Craft is a strategy game. One build forces, and the goal is to make your territory larger. [...] It is a thinking game, and that's what I like. One plays against the machine. I hate games like Dune, Ever Crest and such. They go on forever and one never seems to finish. I like games that one finishes, not games that go on for weeks. (Katrine)

For Sara, the fact that the boys at school liked the same game as her even became an advantage. At school there were more or less no women that paid any attention to computers, so she felt quite alone, since it was her major interest. When she finally got to know a couple of boys that were into computing, she started hanging out with them. They would play games together, swop disks or just talk about different computer-related issues. Finally she had found someone that knew what she was going on about and actually found what she said interesting. Sara still plays games regularly, but she feels she does not have the time to sit as many hours as it usually takes. There are so many other things she would rather spend time doing when computing. However, a good game is always part of the weekend.

Advanced computer games are very time consuming. The women, like Katrine, often claim it takes too much time, because the games never end. For others, this is more what actually attracts them to the games. The frequent players prefer games to most other computer activities and do not worry that much about time consumption. In this group you find players that are mostly involved with online games. It is not about me against the machine, but me against actual people behind other machines. For them the online gaming has also been their way into becoming really fascinated with games.

I played more and more computer games. In the beginning I was totally hooked. I could sit for hours. The men had to give up after a while. But then I got a bit fed up and spent more and more of my time IRC'ing instead. But now the interest has come back. [...] I play Aural Goal online against the server. That's a real game. I can play from when I get home from work until I go to bed. Everything happens all the time, but when you leave the game, nothing moves. I have also played a lot of simulation games, various kinds of Star Wars games that have everything. I love Star Wars. The first movie I saw as a child was Star Wars. I also play Adventure Games. At least I did that a lot earlier. And I have played Quake since '94. I have tried all sort of stuff there. (Maren)

and,

I like playing games, because one has to use one's imagination. There are no fixed rules. I play Utopia a lot. It is based on role-playing. The bottom line, is you either get killed or survive. You build up provinces, and it's about making them as large as possible. It is a strategy game and as a start, everyone is an enemy. [...] It goes on forever, but the organisers restart it every now and then. [...] I have to go in to check the current states and maybe do a couple of moves at least once a day. Those that haven't got a leased line usually go in once or twice a day. Those with a leased line at work or at home, usually spend a lot more time there. There is also a forum for discussion in there. You can go in there and ask for help to figure out what strategy to choose, and so on. Sometimes we also talk about different things. Some time ago I started a Pub, Unicorns pub. Unicorn is the name I use when I play. And in there we meet to talk about everything and nothing. But one plays a kind of role play there, as well. It can be really exciting. (Bente)

Since Bente does not have a leased line at home, she is not able to follow the game all the time. When I talked with her a year after the interview, this was all sorted out and she was spending even more time playing. To be an active player in the game you would need to follow it closely. If Bente was not able to check in on the game one day she would ask a friend to do a couple of moves for her. He would then be given her password, and very often he would call her up to discuss the moves before he made them. Bente did the same thing for her friend if he was away. In that way, they were able to follow it actively, even if they had to go away for the weekend. Through the chat room, which is set up in games like these they also get to know the other players pretty well. Although the rooms are for strategy discussions, people also tend to talk about more general matters every now and then. Some of the other women participated in even more of a 'formalised' game community. They were, as Anja here, part of a clan, or they played regularly together with a group of friends.

It was mostly Quake 1. It was when they started to become really widespread. One could play online, that was one of the main advantages. One got in touch with others. I started editing, and then it just go going. And it just so happened that one spent time on IRC. I used it to get in touch with the other players and to discuss game strategies, and so on. I was part of a clan. We participated in a lot of LAN-parties where we got a lot of people together and played online. We arranged World-Cups and a number of competitions. Most of all, it was great fun when we beat the American clans. They are known to be the world's best. However, we managed to beat them quite a few times. [...] All in all, we organised 11 parties. To take part in a clan one had to be part of a clan. Most of the time we played Quake. And a little Halfpipe, which in most ways is like Quake. What fascinated me most about playing in a clan was being part of a team. That's when I understood why people like playing football. There is something special about being part of a team and cooperate with them. (Anja)

Anja liked being part of a clan, because she could then co-operate with others. It was not just about the game playing itself. Rather, you had to plan things together with the rest of the group. Others were dependent upon you. More often the frequent gamers reported playing together with friends.

We hook our computers together and play against each other. We have a full network. And then we can play against each other for a whole weekend. That's incredibly fun. If I had the opportunity I would do it more often. I like staying up the whole night. It suits me fine to be awake at night. Usually I'm tired around eight or nine in the evening, but then I feel awake again around ten or eleven. My partner is a lot better at getting to bed than I am. (Maren)

and,

My partner and I often play computer games together. Mostly Warlord. It's a game he has taught me. About Vikings. A strategy game. One gets a map of one's own territory, and then it's just about enlarging your territory by taking over new areas. You fight your way. When we play, we sit at different machines. We've built up a network at home so when we play, we often sit on different floors, so that we can't see what the other one's do. Sometimes we can play together the whole weekend. That's something we both really enjoy doing. To avoid having to scream to each other we've installed wireless phones. Then I can call Tom and ask if it's about time to order pizza or something. It also happens that I play when Tom isn't there. (Mette)

It looks as if it is first and foremost when they can play against real people that the women get totally hooked on games. Real people meaning that there are real people behind the other players. It is not the computer that does the moves, but another human being. The human being can either sit at a location nearby or anywhere in the world. That does not really matter. One can talk and discuss strategies in chat rooms or use other technical devices, so the others hear your voice. It is about teamwork, about working together for a long time in order to win a game.

6.5 Style of work

In studies of hackers and movies about hackers, what transpires most of all extraordinary is their style of work. They spend both day and night in front of the computer, especially the night. Computer dedicated people are known to not have time for anything but computing. The computer is their life. Everything else is unimportant. By definition, all my informants are active users of the computer and spend quite some time in front of it. As you can see in the table in Appendix A3, the numbers of hours spent in front of the machine on a normal day vary among the women. At the time when I did the interviews, only three of them spent what, compared to the rest of the group, equalled a few hours. These women did not, at the time, spend that many hours, because of their life situation. Berit was taking computer classes that did not require of her to sit in front of the machine, but instead she spent more of her time in the library reading. Bente recently had to move back to her mother and did not have a computer hooked up there. Mari was about to finish her thesis, and had to stay in a laboratory more or less all day. All three of them longed to spend more time in front of the machine again.

One becomes desperate in a way. It is like, if there is something wrong with your machine for two days, you try to get in and almost get there, but then it breaks down again. I have to fiddle with the machine anyway. Can't stay away too long. It is a hobby, as well, it sure is. Even though I should spend my time reading these days. (Berit)

The frequent users spend more time in front of the computer. Some spend the whole day at work in front of the computer and then keep computing for a couple of hours after getting home. Others spend most of their spare time in front of the computer. Most of the informants belong to this group of frequent users.

At home I'm usually online for about an hour every day. At least as an average. When Tom is not at home, I can sit in front of the machine a lot, but when he's three, I don't feel like doing that. We don't have that much time together, so we try to be together during the little time we have. [...] When one sits in front of the machine, time passes extremely quickly. One feels that one has only been there for ten minutes, and it's been an hour. In some ways, I feel the machine steals my time. You don't feel the time pass, and suddenly it's morning. I don't mind it when I'm at home, but when I'm at work, it's more stressful. It always takes a lot longer to get stuff done than I predict. You easily get behind. (Mette)

The last type of users according to style of work in the table in Appendix 3, constitute those that spend more or less all their waking time in front of the computer. These women all have a job within computing, or are computer students, which means they spend time in front of the computer during the day. Because of their studies or their type of job they usually work long hours. When coming home, they spend even more hours in front of the computer. Part of the time they do not sit actively in front of the machine. They eat, watch television, talk on the phone, and so on. However, the computer is still on, and they are online, so that if they get an e-mail or someone wants to get in touch with them through the computer, they will hear a sound and can go over and have a look. They can therefore more or less always be easily reached through the computer.

I don't really know. It can be a lot. Sometimes I can sit the whole day if I an at home. I can sit (in front of the computer) from the time I get up ...I usually get up pretly late...until I go to bed. If someone else is online and starts chatting, then the hours pass quickly. If not... I have my computer on night and day, so that I'm in control. Even though I'm not on the keyboard all the time, I check if I receive e-mails. (Hilde)

As mentioned already in this chapter, computing activities are time consuming. Already when reading about programming, we could see how the women used time as an argument for not learning more programming. They did not have the time necessary to fiddle around with the machine. They chose to spend their time differently. A similar argument was made in relation to computer games. What we observe is that they need to choose between different computing activities. Instead of playing games, they develop their computing skills. Instead of trying to figure out programming, they do something they know how to do. Another reason for this has to do with giving priority to other things than computing. As Mette says, she would rather spend time with her partner when they are at home together. However, if he is not there, she often forgets about time and can spend a whole weekend computing. Others, like Ina, feel that so much of their time is spent in front of the computer because of their job, so it is nice to be able to do something different when getting home.

A closer look tells us that this is very much related to their attitude towards the computer. Do they look at the computer as a toy or a hobby, something to play around with in their spare time? Or do they tend to look at it as a tool and have a goal-oriented focus? As you may see in the table in Appendix A3, I have called the different attitudes instrumental and emotional. The instrumental attitude implies a perception of the computer as a tool and a separation of work and leisure. The computer belongs most of all to work or studies. Mari, Berit, Karina and Elin enjoy computing, but emphasise that they do not spend time in front of the computer just for fun. If they have a goal, something they want to learn, they can sit for hours, if not, they would rather get things done and then spend time doing other things. The emotional users look at the computer as a toy. It is most of all a hobby, something they do in their leisure time. They do not study computing and do not have computing as job. Instead Lisa, Anne, Hedda, Kristine, Katrine and Bente do other things during the day and hurry home in order to sit in front of the computer to play around and have fun.

For some of the women the computer is integrated into more or less everything they do. They have both an instrumental and emotional attitude towards computing. For some the instrumental attitude came first and they later developed an emotional attitude, as well, for others it was the other way around. The table in Appendix A3 illustrates what came first. Most of the women started by viewing the computer as a toy. Later, after having developed more and more skills, they realised that they would like to use their computer knowledge for something other than fun. Karen, Nora, Sara, Maren, Ingunn, Gro, Ina, Anja, Mette and Mona all went from having just an emotional attitude to also having an instrumental attitude. They started out just using the computer for fun and later on found out that they could actually use it for more workrelated tasks as well. Only Hilde and Eva went the other way. They began as computer science students, but found that they wanted to play with the computer as well as doing class chores, to an increasing extent.

What is most noteworthy is that for most of the women the emotional attitude has been the important one. Having a playful attitude towards the computer has been their way into computing, not the other way around. This is also consistent with findings from other studies of computer dedicated user groups, like hackers. It is play and fun that give pleasure and produce enthusiasm (see, e.g., Hacker 1989, Nissen 1993, Nordli 1998, Kleif 1999, Katz 2000, Faulkner and Kleif forthcomine).

6.6 A question of time

This chapter has shown how my informants have domesticated the computer. As written at the beginning of the chapter, strategies of domestication takes place in three main dimensions (Sørensen, Aune and Hatling 2000:240). The practical dimension may be viewed in light of what they do with the computer. They use the computer for a variety of activities:

My computer use is very much about communication. And then I do a lot of webdesign. And I do a lot of work for Political Youngsters. And I play a bit. I do some programming. Download mp3s. And then I write quite a bit. I guess I do more or less everything that's possible with a computer. (Mona)

Mona's quote sums up how a majority of my informants uses the computer. It is about communication, about web design, about games, about programming and more. Computing is to the women not just one thing, but includes a variety of activities. While being computer dedicated has very much been synonymous with being a programmer, my informants show how they are into many computer activities. It was their broad knowledge of many computing activities that most of all surprised me. Instead of having specialised in one activity, they are skilled in a wide range of them, contrary to hackers, which are known to have specialised in one thing, usually programming. Stories of hackers also very often emphasise that he is not just a specialist within programming, but that he is a specialist, regarding one specific task, when it comes to programming, or that the hacker is known to program in one specific way. The symbolic dimension becomes apparent when analysing what the computer means to the informants. All through the text one can easily see how the computer has been important to the women in different ways. For some women chatting has been a way out of isolation, while others have felt a great thrill when showing other people what they have programmed, or when seeing the newest design on their web page. The computer has a meaning itself as well as a meaning because of what they can obtain by using it. The computer has been significant to some of the women when they have presented themselves to others. We saw for instance Bente who, for the first time in her life, felt that someone actually liked her, and that she as a result dared to be more herself than she normally did.

My informants have learned to use the computer and different computing activities in different ways. Their cognitive work has been a combination of formal and informal learning. While some of the women have learned programming as part of their education in computer science, others have developed skills in programming by asking around about how to create a special feature on their web page. Less than half of my informants had any formal background in computer science. The rest had learned computing informally or learned a bit in school. Some of them, both those with a formal computing education and those without, said they were most of all self-taught. They had learned what they knew by tinkering with the computer. In addition, they had asked family or friends when they could not figure something out.

My observations are not consistent with what earlier research has found regarding women's relationship to technology in general, or ICT in particular. The women have not come to learn their computing skills by seeing how useful it is to know. They have come to learn their skills by playing around with the computer. It is of course possible to see in my material too that the women are utility-oriented. However, as I hear their stories it is more about having a goal. If we reread the stories of hackers and technology enthusiasts, we may see that they also had a goal. They did not tinker around with the computer without any ideas of where they wanted to go or what they wanted to make. They, too, wanted to make something. They, too, wanted to make their programs do something. The same can be said for the women here. They enjoy the art of programming, and they learn and develop their programming skills when they need it for something. They are goal-oriented, but not necessarily utility-oriented. Instead of specialising in one activity, my informants show how the computer can be used in different ways. It is not one particular activity that produces enthusiasm, but a broad range of activities. Their enthusiasm is about abundance, about how the computer can be used for a variety of tasks and activities. They love playing with the computer, because there are always new programs to learn and new people to meet. Their only obstacle is that all this takes a lot of time. What they can learn is a matter of how much time they can spend on different computer activities. Therefore they have to prioritise between computing and other activities, as well as between different computing activities. Sometimes they choose to give priority to a partner or to friends, other times to a computer activity they know will pay off, instead of tinkering with an activity they are not sure will pay off. As a result, programming, which is a very time-consuming activity, is often not given priority.

Although all of my informants use the computer for a wide range of activities, they differ regarding their paths taken towards computer enthusiasm. While computer enthusiasm for some is closely connected to chatting, it is for others more connected to playing games. I will discuss this more closely in the next chapter, where I look at three strategies of domestication.

CHAPTER SEVEN:

FEMALE COMPUTER-ENTHUSIASTS:

PROFESSIONALS, IRC-BABES & GEEK.GRRLS

The previous chapter showed how the women showed enthusiasm towards computer activities in different ways. Their enthusiasm was most of all related to the fact that the computer could be used to do a variety of tasks and activities. Enthusiasm is, for these women, not just one thing. They enjoy the computer as a toy to play and have fun with. They play with it when they tinker around as well as when they are engaged in a computer game. Their fascination includes a fascination with programming, as well as html-coding. They experienced pleasure when they make something and see that it works the way they had planned. However, the women in my material have followed different paths in order to become computer enthusiasts. As a means to giving you a thicker description, I will start this chapter by telling you the story of three of them, Bente, Sara and Maren.

As stated in chapter three, I participated in a party cruise with the crew from The Gathering. I met quite a few women there. One of them was *Bente*. It was easy to notice her. She wore a tiny, tight leather skirt, a small top and high-heeled boots. Her makeup was quite dramatic, and she had her long blond hair down. She was a great dancer and used her body in many ways to attract the men's attention. When I asked someone about her, if she could be a potential informant for me, they said no. She was not knowledgeable. She was only an IRC. To be an IRC means to mostly be occupied with chatting. It was not a name of honour, but was rather used to discredit someone. However, I kept meeting Bente on different occasions and started to become more and more interested in her. After spending time with her, I found out she was actually quite skilled and had a lot of computer knowledge. Thus, I decided to make her part of the ground work for my thesis.

Bente is 23 years old and works as a cleaner. She hopes to be able to get a computer job in the future, but so far she has had no luck. Originally Bente is trained in farming, but for the last two years she has not worked in that field. Bente had her first computer experience at the age of 16. Her sister had a computer that she was able to borrow every now and then. At the age of 19 she bought her own computer. It was at this point that she got hooked. After having found out about the Internet, Bente says her life changed. She had felt isolated, had few friends and low self-confidence. Through chatting she found that people liked her for who she was, she got lots of friends and a totally new life, according to herself.

Most of her computer knowledge, Bente has learned by asking friends she met online. Soon after she started chatting, she decided she wanted a web page so she could present some basic information about herself to people when they asked. A friend helped her make her first page. Since then she has re-designed and developed her page a lot. Today it is quite an advanced page with lots of information, nice design and cool effects. Little by little she has learned html-coding and some programming. In addition to chatting Bente started to play games. For the most part she participates in online games. She does not play every day, but she checks the game and figures out her next move every day. Her favourite games are Utopia, Heroes, Magic Heroes and Diablo. Every now and then she also participates in live RPG (role playing games), but mostly she does the computer version.

Most of Bente's friends are from within the computer enthusiastic community. She has met them through IRC, at IRC-parties or at other computer parties. Bente has also participated in and worked at The Gathering for the last three years. In the future Bente wants to be able to work with web design. She does not have any formal education, which makes it hard for her, but she hopes that by improving her skills she will succeed. Bente does not spend a lot of time in front of the computer these days. Only an hour or two after coming home from work. On the weekends usually more, but she cannot afford to be online longer than this. Bente prefers to play against other people, so if she cannot be online, playing is no fun. Instead, she spends time doing other things. One of her main interests is animals, so she spends time on a farm not far away from where she lives. She helps feeding the animals, cleaning the stables, and sometimes she goes horseback riding. Often she also hangs out with her friends. She likes to dress up and loves partying. One of the advantages of hanging out in the computer enthusiastic community is that there are so many boys there. Bente does not mind the attention she gets, and sometimes she even instigates it. If they want to look at her as being stupid and without computer knowledge, that is fine. She takes advantage of this and gets them to do work for her, or teach her things they otherwise would not have bothered to do.

I noticed Sara the first time I was at The Gathering. I never talked to her, because she always looked too busy. Among all the men running around doing technical work, there was this one woman. She had long dark hair and a slim body. You would see her day and night, always busy working on something. She wore practical clothes, usually a pair of jeans and a T-shirt, trainers and sometimes a cap. I never noticed any makeup, her hair was always neat, though, and she was quite feminine. As I started to know more and more people within the computer enthusiastic scene her name kept popping up. Everyone told me to talk to Sara.

Sara's life has been filled with computers. Her father has been into computers for ages, so the computer has always been a central part of her family life. When I first met Sara she, was 21 years old and in her second year of studying computer science. For the last year she has been living with her boyfriend, who is also an active computer enthusiast. They met through mutual friends three years ago, fell in love immediately and have been together since. They rent a two-bedroom apartment that is stuffed with computers and computer equipment. She and her partner have two computers each.

As a child. Sara and her two sisters used to use the computer for computer games. However, their father did not allow them to just play, so before they could play they had to practice more 'serious' tasks. This could be word processing or building a database. As long as they practised more serious tasks every now and then, her father would allow them to spend as much time in front of the computer as they wanted to. At that age she most of all liked to play games. She still does. Today her favourite is King's Ouest. At the age of 14. Sara was introduced to the World Wide Web, but most of all to chat. A friend from school introduced her to IRC. She says she would sit for hours every day after school and during the weekend. Finally Sara had found a place filled with people like herself. Before this she did not have any friends that were into computing at all. At school she actually tried to avoid talking about her computing interest, because it was not a cool thing talk about. Being a girl and into computing was definitely not cool, so she tried to hide it. She told some girlfriends once, and they looked at her and asked if she was a nerd or something. She knew a couple of boys that played computer games, so she would talk with them every now and then. They would swop games and discuss game strategies. However, due to the fear of being seen as a nerd and as uncool by her girlfriends, Sara never dared to hang out with these boys. They were definitely not among the cool boys at school.

Today more or less all of Sara's friends are into computing. Her whole life is surrounded by computers and computer-interested people. She has met people online on different IRC- channels, at IRC parties, at computer parties, or through other friends. Sara spends most of her waking hours in front of the computer. As a computer science student, and also as a teaching assistant, her daily 'work' concerns computers. She often works long hours. When she comes home she plays games, chats with friends on IRC, works on her web page, makes web pages for others, reads and posts on different news-group concerning computing, or she just tinkers around, as she says. Sara is also an active participant at different computer parties, both in Norway and Sweden. So several weekends a year she is also fully occupied with computing. Usually she takes part as an organiser, which means there is work to be done before, during and after the party.

Sara says she has found her place in life now. She wants to do computing and wants to hang out with other computer-interested people. She feels more comfortable about being into computer, but she still struggles with her identity as a female computer enthusiast. As a student she feels the other women keep her at a distance, because she is too into computers. Being a female and into computing is ok today, but only to a certain degree. She is also troubled sometimes by conditions within the community. Sara says that she has to work harder all the time to prove that she is skilled, and that she is actually interested in computers and not only there to meet men, or to keep her boyfriend company. Still, she would not have changed her life for anything. She loves the fact that she can actually earn money on her most precious hobby.

Maren I have only met once. She came to meet me at a cafe downtown in Oslo. Before then we had only been communicating through e-mail. As described in chapter three, the magazine Computerworld did a story on my work where I was asking people to let me know of potential informants. I got a couple of e-mails from men that said I just had to talk to Maren. I had also heard rumours about Maren through the people at The Gathering.

Maren ordered a Coca-Cola and was not too talkative in the beginning. She was a shy woman. Her hair was long and just put up in a ponytail. She was a bit overweight and did not seem to spend too much time thinking about her looks. She looked younger than her 20 years. She was wearing a pair of worm-out jeans, a large T-shirt and a pair of sandals. At some point during the conversation she articulated a pretty strong contempt for women that dressed up just to look good and please the men. She would never ever do such a thing. What mattered, according to her, was what was inside your head, not the wrapping. As the conversation went on, Maren became more talkative, but her responses were always short and precise. She said she did not like large groups of people, but preferred to hang out with a small group of friends that she knew well.

Maren grew up together with her parents and two older brothers. They are all into computers. Her oldest brother was the first one to get hooked after getting a computer when he was 13. Both of her brothers work within computing - for her parents it is more of a leisure activity. They had plenty of computers at home, and Maren tells me that when they went up to their cottage in the mountains they sometimes brought one computer each and hooked up to a local network, so that they could play computer games with each other. During her childhood Maren mostly used the computers for game playing. The whole family would play together or she would play with her brothers. Computing was normally something to be done together with others, a social activity. At that time she did not have any friends that were interested, though, so whenever she was with friends she never played with computers. When she started high school, however, she met a couple of boys that were into computing. For the first time she had friends with similar interests. This was when she got really hooked. She started working in a computer store part time, but ended up quitting school to work full time. Today she is a trainee in a computer company. During a period of two year she will get trained and take courses, mostly technical. So far, though, there is so much to do, and she is so skilled already, that she works as a professional all the time. Unix is her field, but she also works with other things. She loves her job, mostly because she is in a place were everyone is as much into computing as herself. They also hang out after work and take a break from work during the day to play computer games.

Maren rents a two-bedroom apartment with her boyfriend. Both Maren and her boyfriend are well known within the computer enthusiastic community. This is also where they met and have most of their friends. At home they have three or four computers each. There is computer stuff more or less all over the apartment. Maren loves to get all the new hardware that comes on the market, and spends a large portion of her salary on computer gadgets. Within the enthusiast community Maren is known to be one of the best Quake players. She is famous for beating the men. Maren does not emphasise this a lot, but admits that she spends a lot of time playing games. She does not like competitions, though, and never participates in them during parties. Mostly she plays with friends and her boyfriend. They often get together for a weekend just to play games.

Maren has also been active at The Gathering. She came there as a participant when she was 17 and has participated every year since. The first year she just wanted to be there as a participant, but she soon got involved in crew work, since people knew she was skilled. The two following years she took part as a technical crewmember instead of trying to be just a participant. Maren has also spent a lot of time at IRC. Today, she only hangs out there to meet friends every now and then. However, Maren prefers to do other things than chatting when she is in front of the computer. Maren says she is a lot more addicted to the computer itself, than to IRC, or to being online.

Maren has also been active within the role playing community ever since her brother introduced her to it when she was 16. She has never been involved with live playing at all, but used to play cardboard games mostly. For some years she used to be one of the organisers of an RPG club. Today she just goes to game nights every now and then, or she plays on the net. In addition to role playing games, she enjoys playing adventure games. If she had had the time, she would have loved to have spent more time playing more or less the whole night. Maren says her boyfriend is better at getting to bed in the evening than she is. She loves spending hours in front of the computer, and on the weekends she usually sits there the whole night.

Bente, Sara and Maren have followed different paths to computer enthusiasm. Computer enthusiasm is not just one thing, and there are more than just one single road to get there. Sara and Maren started early, Sara got into chatting and later leaned more towards technical computer activities. like networks and a professional career. She is an active participant at computer parties and has most of her friends within the computer enthusiast community. Maren, on the other hand, also started early, but did not get hooked until she was 17 and got into hardware. For Bente, computers were not part of her childhood and she got hooked when trying out chatting at the age of 19. Finally, she found a place where people liked her. It brought her out her of isolation and gave her a new network of people. She is into chatting, games and web pages, but have almost no programming knowledge. To Maren the computer itself is what gives meaning, while Bente is mostly interested in the computer if she can be online. However, for all of the women getting to know the computer and being taken up in the computer enthusiast community has

made a major difference in their life. The three of them all talk about the computer with affection and show emotions.

Previous research on females and computing has argued that females stay away from the computer because they do not want an intimate relationship with the machine (Turkle 1988, Rasmussen and Håpnes 1991). On the other hand, one finds that men show pleasure and intimate feelings when talking about technology (Hacker 1989, Mellstöm 1996, Kleif 1999, Faulkner 2000, Faulkner and Kleif forthcoming). While men enjoy the intimacy, women are supposed to believe that intimate and emotional feelings are reserved for humans. Computers are just tools. They learn to use the computer only when they see its utility benefits.

In my material, I found that this in most respects was not the case. Even though some of the women talked about the machine as a tool they all displayed some kind of emotional involvement.

In some ways it is a bit (a friend).... But you can't really live just with the machine. That doesn't work. It is a tool, but I have more of a relationship with it than I have with the television if you know what I mean. I don't watch a lot of television. (Hilde)

In many ways, Hilde resists having an emotional relationship with the computer. She very much talks about the computer as a tool and says computing is something she does for work and to get an education. She likes it a lot and enjoys doing it, but she would not spend time in front of the computer in her spare time. She has never tried chatting and is very much against the idea of using the computer as a means to get in touch with other people. But as we can see from what she is saying, she regards the computer as more than just technology, unlike the television. So it has some meaning, it is not just a technical tool. However, most of the other women are willing to go a lot further than Hilde in explaining how they feel about the computer.

The computer means a lot to me. I go mad if I can't get in front of a monitor. It has become a way of life, having my face in the monitor. The community means a lot, too. Here I'm accepted not because I'm a female, but because I'm interested. (Torill)

and,

I can't imagine how life would have been without computing. It has meant so much to me. All the friends I've made through it! The computer is in many ways a collection of all the former entertainment media. There is so much interesting to experience. Everything is about communication. (Mona)

and,

It (the computer) means everything. So much of my life is about computing. I have made most of my friends there. Well, if someone had taken the computer away from me I would have been devastated. Half of my life is saved on files there. It's as if I would be short of an arm. I'm just used to always having it there. (Katrine)

It does not look like these women have a problem with having an intimate relationship with the computer. They talk about it as being one of the most important things in their respective lives and love spending time in front of it. But when we look closer, the kind of intimate relationship these women have with the computer might not be the same as the one the hackers have been described to have. Some research on hackers has found that they are drawn to what is inside the computer (Weizenbaum 1976, Turkle 1984). The computer's holding power for the women is more about what they can gain by using the machine. It is about communication, a way of getting in touch with new people and keeping in touch with friends and family. Next, it is about the community that surrounds the computer. The computer has given them a chance to be themselves. They have found a community where they feel at home. The computer itself therefore does not have such a high value. but more a value based on what you can gain with it. The computer provides a community of people from which to make friends. Different software and hardware also give value, but when you go deep down, this is not what is meaningful. The social relations are what count.

Lots of the women have more or less all their friends within the computer enthusiast community. It is a way of living, a way of getting friends, keeping in touch with friends and relatives. Quite a few of them have also met their partner within the computer enthusiast community in one way or another.

The computer has changed my life completely. If it had not been for the computer, I would not have moved to another city, I would not have met Petter, I would not have gotten the job that I have, not have gotten to know a lot of my closest friends and not have experienced an event like The Gathering. Without the computer I would probably have ended up as a housewife in the small village I grew up and would by now have four kids and an old adg with fleas. (Eva)

Eva feels that the computer has saved her from the life she in many ways felt she was doomed to have. She sees what has happened to most of her friends and is happy that she did not end up the same way. She got out of the small home community, received an education and gotten an interesting job. And when Eva speaks about this she gives the computer all the credit for making her escape her destiny. Some of the other women tell similar stories. They have grown up in a small village. Partly their stories are about not fitting in. They say they were a bit different from the other women or people in general. At some point they found the computer and that has changed their life. They have gotten to know people whom they would never have met otherwise. People they feel they have more in common with. The computer has also given them a means to get away because it is easy to get a computing job everywhere. It has been a way of obtaining freedom, a way of getting away. This is also the case for people that grew up in towns. Some of them felt they did not have friends that they really liked being with. The computer gave them a new way of accessing to a larger population in order to meet their kind of people.

The story some of these women tell is in many ways pretty similar to the story of Jesse and Eric in Katz' (2000) book *Geeks*. Katz writes beautifully about how two young 19 years-old working-class boys used the computer to change their lives and alter their destiny. We follow the two boys who see themselves as social misfits on their journey out of Idaho to Chicago, and see how they try to construct a new future for themselves and find a community they can belong to. However, for Jesse and Eric this was not as easy as they first thought. They did get out of Idaho, but to some degree their life in Chicago was as lonely and asocial as it had been in Idaho. They still mostly talked with people through the net. For my informants it has been different. They all feel they have found what they were looking for. They have found a place where they are accepted for who they are, a place they can be themselves and do not need to play a role. For some of the women the computer has been a means to 'coming home':

I felt at home at the computer lab at once. The year before I had felt really alone. Life had been pretty bad, but then I in many ways came home. We eat together, party together and go on holidays together. It is a very close group of friends. I have even gotten a boyfriend here. (Sissel)

The computer has come to mean a lot to these women. It is an important element in life, a thing that in many ways has changed their life, given it a new meaning. They have an intimate relationship with it. Or it is not the object itself, the physical thing, which has a meaning. It is more what one can use the object, or the technology, for. As Turkle (1996) says, the
computer does something to us. The computer has an impact on our life and how we think about things. The computer has provided the women with a new home, a place where they can be themselves. Still, knowing that the computer enthusiastic community is male-dominated, how is it to be a woman within it?

7.1 Woman and a computer enthusiast

The computer industry and computer science education have been known for its lack of females. The male domination is very evident. As noted in chapter two, many studies have looked at this. Berg (2000) looked at how females studying computer engineering construct gender. Being a minority due to gender has also very much been an issue among my informants. How does it feel to be a woman within a community so dominated by men? What do they think about gender differences? How do they feel about campaigns and such aimed at getting more females into computing? And how are these women able to express their computer enthusiasm?

As a start, most of the women tell very positive stories about how it is to be a woman within the enthusiast community. For many of them, this feels like a 'safer' community than being together with women. Many have always hung out with boys and have a hard time finding female friends.

I don't really get along with women. I have been hanging out in a sci-fi community. I have also been part of an RPG community. I am in many ways a tomboy. Feel a lot more at home in those communities. (Torill)

and,

I prefer being hanging out with men. They aren't that critical. I feel I get more out of talking with them. (Sara)

and,

I think it is great (to work with just men). I have mostly had male friends all throughout my life. Or as a child I had girlfriends, but I got so fed up with all the backbiting and intrigues that I prefer hanging out with men. (Maren)

Torill, Sara, Maren and many of the other women say they are more comfortable with men than with women. They have many reasons for preferring to hang out with men. First of all, many say they have never felt comfortable hanging out with girlfriends. Women are often mean to each other and it is hard to be accepted. There is little space for being different and to have different interests, so they very soon drop out. They feel alienated from women. Secondly, they are critical towards what they consider typically female interests. Sissel gets very engaged when talking about this and says she hates women that are only interested in looking good to impress men. There is more to life than looking good. They talk about women that are just interested in fashion, make-up and looking nice. Very often my informants have had interests that not many other women have shared. To many of them this has been computing, but also things like football and karate. It has also been a matter of what kind of subjects they have been interested in in school.

I have always been a tomboy. I played football, rugby and hung out with the boys. It just felt natural to me to choose the hard and masculine subjects. I also looked at learning computing as a smart thing to do. (Ingunn)

and,

It has changed a lot. In the beginning, one was pretty much alone as a woman, but I have always been hanging out with men, so I've never been bothered by being the only woman. It's a lot easier to be with men. One can say what one means. I have girlfriends, as well, but most of them are also tomboys. (Karina)

A lot of them identify themselves as being tomboys. To them this means that they have been more interested in what they call typically male activities than female activities. And for this reason they also prefer to have male friends, since these are more 'like' themselves. Or as Karina said, she has girlfriends, but they are tomboys too.

However, while they talk about how much they like being with just men, they all tell stories of how hard it is to be accepted as a skilled computing person because of their gender.

I don't think it is easy being a woman and being into computing. When one, as a newcomer, enters the computer community, people look at you, see that you are a woman and conclude that you don't know anything but IRC. Because that's what most women do. I have to work really hard to convince them that I know more than that and that I don't try to play a role, but am seriously interested in computing. (Sara)

and,

I have met a couple of people that have taken it for granted that I do not know anything, because I am a woman. They have totally run me over. I especially remember one episode. I had a job on a project, and one of the men in my group was a lot older. I wanted to learn script, and said so, but he pretended not to hear me, and I ended up as a secretary. I have also experienced one guy saying to me; 'This looks like an easy task, you can do that one'. That's the worst thing I have experienced. But I am not tough enough, so I don't tell them off. One has to be interested in proving something, and I'm usually not. (Anja)

Sara and Anja, among others, complain that they are not taken seriously within the enthusiast community. They are very much welcomed as females, but it is taken for granted that they are not really interested in computing and that they have little knowledge. To gain respect as a skilled and well-informed computer users, they have to prove themselves all the time. They also have to put up with the fact that it is always taken for granted that they are unskilled and only interested in the enthusiast community to chat up men and use the computer for chatting (also to chat up men). Some of the women have been part of the enthusiast community for many years and have therefore earned respect. Now, they are known as women that actually have skills. Because of the male domination they are very visible. However, they very much oppose to the idea that they should get extra attention because of their gender. They want to be known for their computing skills, and as they say, that has nothing to do with gender. Others again have a more relaxed relationship to this and look at it more with amusement.

I think it is fun being a woman in the computer community. A lot of people think that women don't know anything about computers at all. Every now and then people call me at work. When I answer, they ask to talk to someone in technical support. I say that that's who they are talking to, and they get really surprised and ask carefully if I think I can answer their question. (Ina)

Ina and others found this just to be amusing. Sometimes they chose to play along and even pretend they did not know. They take advantage of being female. That way they get all the help they want and really learn a lot of new things.

It is great fun when people take it for granted that you do not know anything and then use the opportunity to knock them down every now and then. I take advantage of that fact that I am a woman. I make people burn cd's for me. I get free t-shirts and such. The men usually do their uttermost to make sure you enjoy yourself and feel good. As a woman one has it as snug as a bug in a rug. (Mona) Mona says being a woman within the male dominated community makes her feel as snug as a bug in a rug. However, there are some differences between the women that want more professional status and those that tend to look at it as a fun leisure activity. The latter group does not have that much to prove and are not looking for the same kind of respect based on computing knowledge. Still, even those not taking this too seriously got irritated when they were accused of just being into computing to chat up men. That was definitely not why they were going to computer parties or why they were active on chat channels.

Their visibility because of their gender became a burden to some.

I have played (Quake) a bit here. But I get too much attention. Lots of people talking about that someone has been beaten by a woman and stuff. And everyone wanted to play against me, just because I was a female. They had to check out if I was really that good. In many ways, I am a pioneer among the females. In most ways, I look at it as an advantage. There's nothing negative about getting some attention. (Anja)

Later Anja follows up by saying:

In the game community it is just fun being a woman. It's cool that there's not that many of us. For a while we even had our own clan just for women, Sisters in Quake. It was a European women's group. We were really good and knocked out a lot of the other clans without any problems. The men thought it was great and even made us a web page. Even though we did great, it didn't take long before we broke up. It was hard to get the women together. You always have to plan the time of a match carefully, and we never seemed to find a time that worked for all of us. In addition to that, there were a couple of things none of us fancied doing. Things the men usually took care of. All clans have a room, or a place, where they can discuss strategies and pass on messages. However, the messages need to be in a coded form, so that no one else understands them. It is really boring to make these codes, and none of us wanted to do it. Better to be part of a boy-clan, so they can take care of all the boring parts. I just want to do the fun stuff, namely plag games.

As Anja says, it is nice as well as bad to be a female and play Quake, which is thought of as a boy-game. However, the attention can sometimes be too much. The women just want to play and have fun. Instead everyone has to make a point about them being female. And then if a man is beaten by a woman, they are hassled a lot. To be beaten is of course never a good thing, but to be beaten by a woman is horrible. Then you must be a really lousy player. Still, it is nice to get some extra attention every now and then, if it is positive. And to many of them the extra attention feels good. When they have proved that they are skilled. they feel they are looked at with different eyes. Suddenly they are somebody. And they become even more somebody <u>because</u> they are female. The ambivalence is clear, and they struggle to find their place.

I also noticed very clearly that the women used the same kind of labels as the men when describing other women. Very often they would describe other girls as just IRCs, women who do not really know anything and are there just because their boyfriend is there. They would also say that someone where just known because they were the girlfriend of some well-known person within the enthusiast community. They would support some women and give them honour and respect, but to very many they did not get any credit at all.

There are four categories of women here. The first includes the brain-dead. They have a pretty body, but apart from that, it (the head), is so empty they need a hat not to lose it. Next we have the IRC-babes, such as cybers. Those are the ones that arrive these days. Then we have the newbie girls. That refers to those that are starting to have an interest in computing. And then we have those that how something. These are computer girls or nerdins. And, at the end, we have those that are so into computing that they don't give a damn about their looks. If you notice you can see that there is a loo frather large people here. You become like that if you spend a lot of time in front of the computer working. (Torill)

This is just one of many ways to classify women. Most of them have no problem classifying other women, but will not be placed in one category themselves. Unfortunately for the women, they place most other women in the lower categories. They are the one that does not know anything, to use Torill's words. There was no collective women's network to be seen. Instead of helping each other, they helped pulling other women down. However, this is not an unusual finding. What surprised me more was their very stereotypical view when talking about gender differences. Since they were very opposed to being typical females in their own life, I would have expected them to have categories that allowed for more differences. Berg (2000) also found in her study that some of the women had a very stereotypical view of how women and men were. And that they did not include themselves among the women. This is very consistent with my own findings.

Women work in a circle, while men think in a line. They want to reach the end, have a goal and try to reach it as soon as possible. [...] At least they start out differently. The new women that enter The Gathering start by chatting with their girlfriends. They can sit for hours on IRC. But after a while they broaden their use of the computer. They find out that they want a homepage and learn how to make one. While the men want to try out everything at once. They don't have time to sit down and learn one thing at a time, but want to be a master at once. I think this is because women are brought up to be nice and neat. They are afraid of destroying things. (Katrine)

Men are presented as being more explorative, while the women are more careful. This is a division put forward in many contexts, and it has also been strongly emphasised in relation to gender and ICT. The interesting aspect is not that the women make this distinction, but that they say that this is how it is, even though they clearly do not fit into the pattern themselves. They stick to the 'traditional' division and do not make room for people like themselves. As have also been found in earlier studies, the mens' way of doing things is presented as being 'the right' way (Rasmussen and Håpnes 1991, Berg 2000).

I think men to a larger degree try things out, and a lot of them know a lot more. The tinkering part, the part that's not on the syllabus, that's what the men know, and they learn from each other. I don't know why women... I would have liked to have someone I could ask. [...] The boys are so many, so it might be easier for them to find someone they can ask. (Berit)

The mens' way of doing things is seen as the template of how one should learn computing. They do it the right way, while the women often are presented as scared of pushing the buttons in case they do something wrong. However, it is not just any man but the clever men they compare themselves to. To some degree it is the hacker, or the computer nerd, who is seen as the template. As discussed in chapter five, the women very much admire hackers and their way of working.

Men have to try out everything. They prefer finding things out on their own, while the women want to have it served. They don't dare to experiment, because they are afraid that something will happen. Even though they know a lot. But men try on their own, they don't want help. They know how to do it. Or they don't want to show that they don't know it. [...] I'm more of a person that likes to experiment on my own. But I ask after a while if I can't figure it out for myself. I do. (Hilde)

Interestingly enough, a lot of the women consider the experimental way of working their working style, as well. They have learned to compute by tinkering with the machine and exploring it. So, the gendered characterisation Hilde gives does not include themselves, just all the other women. Still, they feel that there is more, that they should have known and figured out for themselves the things the clever men know. There is something out there that makes most of them not fully part of the enthusiast community.

If the men are talking about computers and computing, they talk only about the size and stuff. Then I don't understand a lot, but I understand some more now than I used to. But there is something which makes it hard, and that I can't get, when they are talking. [...] They use a lot of foreign words, which nobody else understands, so that everyone thinks it is a lot more complicated than it really is. Things like the size of a machine and such. The point is to have the best of everything. I don't know. I guess it is not that hard to learn, it's just a matter of learning some numbers. (Hilde)

The women compare themselves to the men who have been part of the enthusiast community for a long time and usually have plenty of friends that are computer interested, as well. The clever men have developed a language for talking about computing that is unfamiliar to the women. Most of the women have not had a network of friends with similar interests as themselves and have therefore never developed that kind of language. Some of the women told me how they had tried to avoid even mentioning computing when they were with girlfriends.

When I went to high school everyone said I was a nerd, because I was into computing. I remember when a girlfriend of mine was going to write in the yearbook. I had tears in my eyes and begged her not to write anything about computing. It was so uncool to be into computing, especially for a girl. One should be tough and cool, and it did not work being a girl and interested in computers. I have been picked on a lot because of my interest in computers. At school I used to talk about it as little as possible. I pretended I wasn't interested. (Sara)

Later Sara met other people that were interested in computing, and finally she had someone to talk to. This has also been the case for many of the other women. And the longer the women have been within the enthusiast community, the less they mention lack understanding as a problem. Partly, they now understand what the men are talking about. Partly, the men's language does not scare them. They have discovered that it is really not as complicated as it seems. It is more a way of showing off:

In the beginning I felt that the men talked over my head. However, as you start to aquire more knowledge, you see that they don't always know a lot. I discovered that the men answered regardless of whether they knew the answer or not. It's actually something that irritates me a lot. The men just can't say; I don't know. (Anja) As a result of this observation, Anja was no longer afraid of not knowing enough. She felt she had cracked the code and was certain she could make it in computing. However, she still got frustrated, because boys could never admit to not knowing something. Often they would give her the wrong answer instead of admitting that they actually did not know.

The men are macho both in real life and in virtual life. They are supposed to program, deal with hardware, play rough games, lots of mess, build PCs. While women are supposed to be into chat and word-processing. The expectations of women are low. Men usually get really surprised if one knows the name of a graphic adapter. [...] The men are supposed to be more technical. They are expected to know computing, unlike women. (Bente)

and,

The men use the machine a lot more for games and mp3s, while the women are into communication. And in-between downloading, men want to have cybersex with us. (laughing) (Kristine)

From the women's point of view there is a difference between what women and men use the machine for. To some degree this is, as Bente says, about expectations. While women are expected to be into chatting, men are expected to go for more difficult things like games, programming and hardware. There are well-defined feminine and masculine tasks. There are different expectations, and women are not even expected to know computing. As we saw in the previous chapter, the women used the computer for a variety of tasks and are not at just into communication, which they here define as a typically feminine task. The women still talk about men and women, but they do not include themselves in the female category. They are not like that.

We have seen that the women to a large extent like to be in a male-dominated community and that they often see themselves as tomboys. At the same time they also complain about not being taken seriously, and some miss having female friends to discuss computing with. As noted in chapter four, more and more women have started to participate in computer parties. The males are not such a majority any longer. However, within the computer business and computer science education the number of female participants has not increased a lot in the last decade. Among other things, the Norwegian universities arrange many campaigns to attract the absent females. The campaigns have consisted of tools like special quotas for female applicants, commercial campaigns targeting women, computer labs just for women, and such (see Berg and Kvaløy 1998, Berg 2000, Langsether 2001). In addition to being studied by researchers, these initiatives have been discussed heavily in the media. There have also been lots of debates within the universities. In other parts of the computer industry, this it has been more of an ongoing discussion about what to do, rather than about actual initiatives. Only a few of my informants have been exposed to such initiatives directly. However, they all indirectly feel that such initiative concern them.

Most of the women are positive about different initiatives to get more females into computing. In many ways, they think the enthusiast community needs more females.

I think something needs to be done. It is a difficult subject and the community is a bit peculiar. And we can't have a society where women don't know about technological issues. Applications that women use work best if women make them. Males make things for males. That's how it is and how it has always been. I think it is a good thing that we get more females, even though I will never stop getting irritated by the fact that we women don't have the same interests. (Anja)

and,

I think it is positive that they want more women, because it is important to have both genders and stuff like that. But there are some parts that trouble me. Sometimes it becomes kind of negative. For instance, if you look at some of the commercials to get more women into computing, it kind of says that females are stupid ... this can even a female understand. That women are stupid! But I think it is positive that they want more women and stuff. (Hilde)

Anja and Hilde are computer science students and have, to a certain degree, been exposed to a special campaign aimed at getting more females to study computer science. None of them have directly been involved with it, but have rather watched it from the outside. They both agree that it is a good thing to get more female students and that it is a good idea that this is given attention. However, Hilde and others are sceptical about the initiatives for different reasons. Very often they feel that women are presented as more stupid than men. They feel they are given signals such as even though you are a woman, you can still study computing. Sara was once nominated in a web-design competition through a magazine.

I did not win it, but I was nominated. However, it was really tragic. I don't know if you know Karin Olsen in the magazine The new woman? Anyway, I thought she had

a clue, but when I was at the nomination party I was terribly embarrassed by the fact that I am a woman. The main point ended up being something like; it was unbelievable that a woman could actually make a web page. In that way, you portray women as inferior. Like we are not as good as the men. Things like that irritate me terribly. It was actually more degrading than anything I had ever experienced before. Because we are equal and then there is no need for quotas and that kind of things in order to provide room for women. It's about time we get past this thing about women and computing. It frustrates me when I hear about women that have gotten a job just because they are women, when there are boys that are more competent.

Sara also experienced something similar when she applied for a job as a teaching assistant. She was told she could have the job, because they needed a woman to keep the men in line. That was not what she had planned. She was there to do a job on the same terms as everybody else. At the same time my informants also see problems with the type of female students you might get through special initiatives to attract more women to computing.

It's a double-edged sword. When you start to study computer science you should really be genuinly interested in computing. If you are not, you do not have what it takes and won't ever be really good. (Mona)

According to the women you need to be really interested in what you are doing to get through a computer science education. If not you will not, as Mona says here, ever be really good. They claim that this is unique to the computer science education, because it takes so much time to get into it that you have to be seriously interested if you are going to make it. By pushing women that are not that interested, one might end up with students who will not make it. More importantly, the women are concerned with their own reputation. As I said before, they feel that the initiatives to make more women study such topics gives a signal that women are not as smart as men, and therefore need special treatment. Through such signals they feel they are being mistrusted and that they will not be acknowledged for actually being qualified and seriously interested in computing. They are afraid that people will look at them and think; guess you got in here or got the job just because you are a woman. For that reason, they feel this focus makes it even harder to be a female within the enthusiast community. More women get in, but the number of females that are really into computing, like they are, does not increase. They feel even more marginal than they were before.

Ay, that is a terrible thing. The woman and computer campaign is rubbish. It is especially avful for those who are responsible for operating the system. Those kind of initiatives create students that don't have the ability to learn things on their own. If one is to study computing one must have a real interest and be into what one does. [...] As a general rule 1 don't like initiatives aimed at females. We are not so stupid that we need extra attention. That feels degrading. The main criterion is that one is interested in it. It requires that you are capable of getting into it and work independently. It requires that you are capable of doing more than playing with dolls and being pretty. (Sissel)

and,

There are more and more women within the community, but still I feel I'm not given the respect I deserve. No one thinks I know as much as a man. It just does not occur to people that a woman can be skilled at computing. There could very well be more women here, but we can't force the women to come. To have a particular entrance requirement for women is a terrible mistake. It just generates women that have not chosen to study computing based on their own will [...] It just happens to be that men are more interested in technical matters. It has to do with our genes. I'm definitely not a feminist! You can't force people to do what's not natural to them. (Karina)

So, even though the women in some ways think it is good to encourage more females to choose computing, they are sceptical about the result. They feel that they get a lot of females that are not really interested in computing. And they believe that you cannot be good at computing without being seriously interested. The other problem is the signal it sends out to 'society' that women have to be given special treatment to be able to do computing. This makes it even worse for the women who are into computing and tries to be accepted as serious computer persons. They feel that this kind of treatment will make people distrust their skills. People will think that they got the job or got into the school just because they were female. And that certainly does not make it easier to be a woman and get recognised as skilled computer scientist. According to the women, being good at computing has nothing to do with gender. It is about interests. However, Karina claims that men are more interested in technology and women. If you are interested in computing you get into it, and you will become good at it. If you are not, well, then you should not be into it, because you will never get good at it, according to the women.

My informants show an interesting combination of essentialism and elitism. They are essentialists in that they look at gender and gender differences the same as depicted in Karinas quote. They have strict categories for how men are and how women are, and leave little room for being different. They described women in a way that gave little room for women like themselves. They also categorised other women within the enthusiast community very negatively. Most of all, they were very essentialistic when talking about gender differences. They thought that boys and girls were different and that is why we enjoy different games and computing activities. To get away from their own constructions they have to construct themselves as tomboys. Since they do not fit into their category of how a woman is they need to make up a third sex for themselves.

In addition they are elitists in the way that they do not include the 'new' women into their community. We can see this among the women who are active at computer parties as well as among the female computer science students. None of them welcome these new women that, according to my informants, are not really interested in computing. The women in my study belong to an elite of computer enthusiasts and they want to keep it that way. I would claim that the women are doing boundary work (Gieryn 1995). They do some kind of police work where they want to decide who can call themselves a computer enthusiast. To maintain an elite it is important to be an exclusive group, and they can only do this by distinguishing themselves from the 'others'. My informants do it by not accepting women that are not there for the exact same reasons as themselves.

7.2 Different types of female enthusiasts

Levold (2001) has done a study of one female professor of computer science. The female professor wants to utilise a gender perspective in her own research, but at the same time she considers herself primarily as a computer scientist who wants to co-operate with her mainly male colleagues. Female engineers and scientists experience the problem of being a female (minority) in a male dominated environment. By studying just one woman, Levold wants to examine closely how an individual scientist manages this double role or constructs her own position from two points of departure. Levold's informant, Anne, negotiates three types of identities: Her identity as a woman in a male-dominated research community (and world), her identity as a feminist, and her vocational identity as a computer scientist. Levold quotes Anne who says:

Often we fall between two chairs. Neither are we one of the men nor one of the

women. [...] ...the women see us as the enemy, our work is done on 'male terms'. (Levold 2001:145)

Anne and a colleague explicitly say in an article they have written that as female researchers in computer science they do not want to define themselves as women-/gender-researchers. That would weaken their belonging to, and their possibility for doing, technological research, They write that they want to remain computer scientists interested in feminist research. Levold says that her informant Anne domesticates gender when and while she does gender. She does this all the time, also when performing research. Doing gender is thus part of our ongoing work of constructing research-positions that appear meaningful to us. For this reason all (female) researchers - consciously or unconsciously, alone or in larger collectives - work out positions that they for periods stabilise and keep fixed as their own. Anne felt demands from different directions, internal as well as external, that were about what it should mean (and what it absolutely should not mean) to be a 'correct' woman, a 'correct' computer scientist, and a 'correct' feminist at the same time. Anne wanted to be a reasonably 'correct' woman and a female computer scientist

As noted earlier in this chapter, as well as in previous chapters, my informants struggle to find their place within a male-dominated arena. None of them even come close to presenting themselves as feminists, but they still have to figure out how to be a girl or a woman within the computer enthusiast community. This negotiation process can be seen in many arenas already discussed, and it produces different sets of practises or roles as female computer enthusiasts. I have identified three ways of constructing what it means to be a female computer enthusiast in my material. My informants may be categorised as belonging to either *the professionals, the IRC-babes* or the geek.grls. The professional, the IRC-babe and the geek.grls are three possible constructions of gender.

The women differ in many ways. First of all in the way they look at and relate to the computer. As discussed in chapter six the women differed in their attitude towards the machine. Do they look at the computer as a tool or a toy? And is it mainly something they use for work related activities or is it more connected to leisure? In addition to this they differ in their reasons for spending time in front of the computer. While some argue that it is sensible to know computing, others have no other reason than that it is fun, so their rationale can vary from pure pleasure to voluntary 'restriction'. In addition, there also turned out to be systematic differences in how they used their bodies, meaning how they would dress and act and relate to being a 'correct' woman, to use Levold's words.

7.2.1 The professionals

The professionals I mostly found among the older women in my material. all between 23 and 28 years of age. Typically they are students at computer science departments at different Norwegian universities or they have finished a computing degree and are now working professionally within computing. This is not to say that all the women I met at the university level belonged to this group, quite a few of them are geek.grrls. The professionals study computing, but computing was not a main interest to them before they became students. For most of them they just happened to take a class in computer science. They liked it and continued. These women have backgrounds in mathematics, physics and chemistry. They have taken mathematics and sciences at high school. and continued such subjects when entering the university. And at some point they took a class in computer science. Some of them had not had much contact with computers before starting there, and some had used them a bit and knew word-processing and had played games when younger. But they were not computer enthusiasts.

I started to study computing because I had a cousin with the same degree. She got a job that paid well as soon as she finished. It therefore looked like a smart choice. I had hardly touched a computer before I started. An uncle of mine worked with software, so I had been to his job once or twice. I remember we used the computer once or twice in school, but I had no knowledge or interest in computing. (Eva)

What most of all sets the professionals apart from the other groups is how they talk about and relate to the computer. To them the computer is most of all a tool. Even though they all, when talking about it, show some kind of emotion, they resist having an intimate relationship with it. They came to learn about the computer as something belonging to a duty, a chore of their chosen study. The computer is seen as something that belongs to work or study. They are careful about not letting the computer take over their whole life and want to separate it from their leisure life. The computer is not their main interest in life, and the women emphasise this very much when speaking.

The great thing about computing is that there is always something new to learn. In many ways it's like being a student forever. I like that idea. To work with computing is a good alternative. However, it is important to strike a balance between not to stagnate and keeping 100% updated. In this business it is more or less impossible to keep up with everything. Computing is a job to me. It's not my life. (Berit)

The professionals both like studying and working in computing. In many ways they also differ from most women studying computer science. At least the women in my material distinguish between themselves and the other women that study computer science. They claim that most of the other women just do what they have to do. Meaning they only do what is in the syllabus and do not tinker on their own. According to the professionals you will never become really good at computing with that strategy. You have to spend time in front of the computer and find out things on your own, things apart from the compulsory stuff. When getting into this argument the professional women talk about the importance of being really into computing. According to them it is important that computer science students like to tinker and spend long hours in front of the screen. However, the womens' reason for why they do this is not that it is fun, but because it is useful. To some degree this is a matter of how these women choose to speak of computing. The professional women wish to distinguish themselves from those that spend all their time in front of the computer, because for them doing that is not healthy. There is more to life than computing. They claim computing should be more part of their work-life, their professional life, but it is not something they want to do just for fun in the weekend.

The professionals are most of all into computing because they want a good education. They look at it as work and are serious about what they are doing. Their seriousness makes them try to learn as much as possible, and not just what they 'have to' in order to pass their exams. We can also see this seriousness when it comes to the kind of computing activities they engage in. The professionals are all quite skilled programmers. They have learned quite a few programming-languages at the university. They like programming, but as noted in chapter six, they only program if they have a goal. The professionals use the computer for communication, but they would never dream of starting to chat with people they do not know. They either use e-mail or a type of messagesystem to chat with friends and family. Using the computer to chat they first of all see as asocial. They would rather meet people face to face. Next they do not see the point in getting to know new people through the computer. Just the thought of it is repulsive to them. More than the two other groups the professionals are afraid of being seen as asocial.

The professionals see the computer as an individual and maybe asocial activity. They fight actively against being labelled as nerds. Many of them feel that people from the 'outside' look at them as strange and as nerds just because they have chosen to study computing. They are not comfortable with this label and try hard to distinguish themselves from nerds. They do this by choosing to present the computer as a tool that belongs to work. Moreover, they talk rationally about computing and why they chose to study computing and work with it. They are careful with the kind of words they use. Since the computer belongs to work none of the professional women have ever been to a computer party. And they are very much against the idea of participating in anything like it. This is because they do not see the point in going somewhere just to sit in front of a computer. They have heard people talking about it, but it does not look like it is something for them. Much of the reason is that they do not spend time in front of the computer when it is not work related.

However, the professionals are enthusiastic and fascinated computer users. This may not be so obvious because of the way they talk about the machine and the words they choose to use. They have actually defined the computer to not be a totally absorbing activity. Since most of these women also got to know the computer as part of their study, it is no surprise that they do not look at it as a fun toy as other women do. The professional women have come to know computing as something they have to do in order to finish tasks. However, the professionals are not only occupied with what they have to do because of their studies. They also tinker and spend hours in front of the machine. Yet, their reason for doing this is that it is part of getting to know the computer better. It is about getting more knowledge and becoming a more skilled computer person rather than having fun. As a result of this they do not look at computing as fun. They like it, they are in many ways enthusiastic users, but it is not the fun part that drives them. Or rather, they may have fun while doing serious and instrumental tasks, but their instrumental outlook restricts their playfulness. Computing is fun, but they do not do it for the fun.

The professionals are in many ways very much like the group of females that Berg (2000) identified in her study of female computer engineering students. For example, she found that it was very important for the female students to be seen as social. Sociality and asociality were seen as gender-specific patterns separating men and women (op.cit.:61). People that spent too much time in front of the computer were asocial. To defend their femininity, it was therefore important to the women not to spend too much time in front of the computer, so that they could be perceived as social. When interviewing the women that I came to see as the professionals, I also noticed that they dressed in a very plain way. They dressed in a pair of jeans and a jumper. They usually never wore any make-up and had long hair in a ponytail. When asked if women that studied computer science looked different to other girls they answered like this:

There is an evident difference between HF-people²⁴ and computing-people, if you know what I mean. It's more like you can come to school in a pair of tracksuits and it's ok. At HF they are more in black and dressed up. But I think this is more about hard science and not hard science, and not directly about computing. (Hilde)

Berg (2000:83) also found that to become less visible as women, the female students often dressed down or dressed neutrally. My informants emphasised that they were just not very interested in clothing or fashion. They wanted to feel comfortable, and they did that by wearing jeans and a pullover or a T-shirt. They said this was not typical for female computer science students, but rather a common feature among female science students. To become one of the others, meaning the men, it was better to look more like them. Thus the professionals did not play on their femininity or use their body to become visible or to get attention. Instead they did the opposite by looking like the others.

7.2.2 The IRC-babes

A typical IRC-babe is between the age of 16 and 23. Compared to the two other groups, these are the youngest women in my material. The IRC-babe was introduced to the computer through the Internet and chatting some years ago. She has now been computing for two to four years. The computer is for her mostly a toy that belongs to her leisure time, when she is not working or going to school. Today the IRC-babe does not have a job or take classes related to computing. However, they all think it might be nice to have a kind of job that involved the use of computers in the future.

The IRC-babes are all women that I have met at different computer parties. The name IRC-babes is not a name I have made up myself, but a name I started to hear of when I first started to go to computer parties. It was a name given to women that people thought came to the parties mostly to chat on the net and to meet men. IRC is, as I have mentioned before, short for Internet Relay Chat, which is a

²⁴ HF-people: people at the Faculty of Humanities.

chatting program. These women do not just use IRC, but also other types of chatting programs like ICQ, different web-chats and such. The IRCbabes often hang out in groups of four to five other women when at a computer party. They also hang out with men, but they usually go to the party together with girlfriends and relate mostly to other girlfriends. When asked why they go to parties, they often say it is to meet people they have met on the net or people they have come to know at previous parties. They go to be social in a face to face environment and to be social online by chatting.

In addition to using the computer for chatting, these women also make web pages. Their web pages are usually very advanced and cleverly made. They put a lot of effort into keeping them updated and change them pretty often. They put in new cool stuff that they have seen elsewhere or they update the information. Having a good web page gives status among the IRC-babes. They often refer to other womens' web pages and say that the person has a great page and are excellent at htmlcoding. As stated in chapter six, the reason for having a homepage is to communicate to other people who you are. Since this group is very active in online communication, having a web page becomes important. In that way they are able to give people an even better impression of whom they are. However, as stated in chapter six, having, an advanced

As a first impression, I thought that these women did not have much computer knowledge. This was mainly because of my expectations as far as what it means to be a skilled computer user. In the literature the hacker is usually what one refers to when talking about skilled computer users. And, as I have discussed before, the hacker is most of all known for his programming skills. However, I also got this idea through the way this group of women were referred to by the others. Being an IRCbabe was not a bad thing itself, but it was most certainly not a name of honour. It meant that you only knew how to chat, which is not considered to be a very difficult task. In addition to that, you were seen as someone not really interested in computers, but more interested in using the computer to chat up men. They were seen as unprofessional and not serious users.

After I had spent time with these women I learned that they are quite skilled computer users. To make their homepages they have learned html-codes and most of them also know some programming. They learn what they need to constantly make their homepages even better. They are also very good at using the Internet for finding information they would need for school or other purposes. They learn new things every day as they tinker with their computers. Most of them talk about wanting to learn about other parts of the computer as well. In time, they might like to be able to work within computing.

I'm not an expert in anything. However, I'm quite good at word processing. I can do most things there. And then I know some html-coding. At least enough to make a web page. I know a bit about hardware and know some Internet-programs. I would say that I almost know enough to be qualified to work in a help desk. (Bente)

The IRC-babes use the computer mainly to get in touch with other people. It is a way of getting to know new people or keeping in touch with friends. Their main interest is in communication, and they do that through IRC, by e-mail and through their homepages. These women are also very active in going to different kinds of computer parties. They want to see the people behind the machine and the social aspect is the most important aspect when spending time in front of the machine. They see the computer as a tool and a toy that mostly belongs to their leisure life. They cannot think of a life without it, because so much of their social life is related to the computer. In contrast to the professionals, the IRC-babes do not see computing as something inherently asocial. To them chatting with friends online is as social as meeting them down at the cafe to chat face to face.

As said before, these women often hang out with other women. In that respect they become visible since the enthusiast community is still quite male dominated. In addition to that the IRC-babes are also visible as women in the community. As a contrast to the professionals, the IRCbabes are a very feminine group. They often wear make up and wear skirts and tight tops rather than jeans and pullovers. They were interested in fashion, and some of them are into pushing the limits of feminine dressing. Some of them dressed up rather 'sexy' and challenging, and could be said to play on their female bodies. The IRC-babes were not afraid of being females and to be seen as female.

I'm starting to see that I'm not as stupid as some men tell me. A lot become impressed when they discover that I as a woman know more than just to turn on the computer. There is an attitude among men that you are either ugly and smart or pretty and stupid. I'm not exactly miss Universe, but many say I'm quite pretty and I have a great body, so then they expect me to be stupid. However, I have experienced quite a few times that men say that I got something between my ears. [...] Very often it's like this; you start to chat with someone. After a while he finds out that I'm pretty smart. He asks for a photo and I send it. Then it's like; wow you're pretty as well. Then they are convinced that since I'm both smart and good-looking, I don't have a boyfriend. That I just fall in love with them immediately, and they ask if I want to go to bed with them. I just tell them that to get that service they should go down to the red light district. They get rather puzzled, but shut up. (Bente)

Some of them, like Bente here, sometimes complained about unwanted attention because they were women. However most of them rather enjoyed the extra attention and played towards the prejudices men often had. They used their femininity to make men do favours for them, like burning CDs or just to make them teach things that the men would not have bothered teaching others.

7.2.3 The geek.grrls

The female computer enthusiasts I came to call geek.grtls²⁵ were in many ways harder to see than the two other groups. There are two reasons for this. First of all the geek.grtls are fewer. Second, they are not that easy to get in touch with. Often they defend themselves against unwanted attention because of their gender. In the beginning they were often a bit sceptical and afraid I was just another journalist who wanted to do a story on 'the one female hacker' or on 'females can do it as well'. They were not there because of their gender, but because of they computer skills. The geek.grtls are serious and skilled users, and they are usually the only woman, or one among a few, that is a member of a computer-club. They are 'one of the guys'. Most of these women I have come to know about through tips from others. They are well known for their computing-skills within the enthusiast communities they belong to and often also outside in the larger community of computer enthusiasts.

To the geek grrls the computer is one of the most important things in life. It has had a major effect on the way their life has 'developed'. For many, finding the computer has been a way of finding a home. They very much have a personal and intimate relationship with the computer

²⁵ In The New Hackers Dictionary (Raymond 1996) a geek is defined in this way: A person who has chosen concentration rather than conformity; one who pursues skill (especially technical skill) and imagination, not mainstream social acceptance. Most geeks are adept with computers and treat hacker as a term of respect, but not all are hackers themselves - and some who are in fact hackers normally call themselves geeks anyway, because they (quite properly) regard 'hacker' as a label that should be bestowed by others rather than self-assumed. These are people who did not go to their high school proms, and many would be offended by the suggestion that they should have even wanted to.

and cannot think of a life without it. Even though they do not need to be in front of it all the time, they need to have it around.

There was a guided tour at the university when I first started here. We stopped at the computer lab where the computer club was situated. As soon as we entered the door I remember thinking; wow this is home. It was just the answer to my dreams. I spend more or less all my time here now. I only go home to sleep, eat, shower and wash clothes. (Sissel)

These women spend a major part of their awaken life in front of a computer. All of them either study computing or have a professional computing job, so their daily life involves computers in most ways. In addition to working long hours in front of the computer all day at work or at the university, they spend their leisure time with it as well. They do not draw a strict line between work and leisure. For them it is all fun. They think that it is wonderful that they are allowed to do the thing they like best in life.

Computing is really most of my life. I'm involved with computers more or less my whole waking life. And also offen when I'm sleeping, since I very offen dream about it. Everything I do is actually connected to computing [...] I study computer science, work with computers and computing is my hobby. It's not much different from professional athletes. However, people accept that they are occupied with their sport day and night. (Gro)

The geek.grrls feel that others look at them as strange or nerds since they spend so much time in front of the computer. They have had friends or family that have been worried about their computing obsession and have tried to pull them away. However, today the geek grrls have most of their friends in the computer community. Since computing has become so much of their life, it has been hard keeping in touch with friends that do not share that interest. To some of the women this has also been a relief since they now feel they can be themselves and not worry about girlfriends harassing them about their computing interest. Their friends are people they have met on the net, through computer parties or through other computer enthusiastic friends. Most of the geek.grrls also have a boyfriend that spends his time in front of the computer. They either live together with their partner or live together with computer enthusiastic friends. Their apartments are stuffed with computer equipment since they all have from two to five computers each. Quite a few also have a local network put up at home so their computers can connect. This

comes in handy when they are playing games or for other reasons need to transfer data.

I guess we have three or four machines each. We're both really eager so we end up with a lot of stuff. We work with Linux so we need a couple of machines at least for that. When I worked at Image I just had to buy all the new gadgets and stuff that came in. We really worked each other up. Whenever something new came in we had to have it. It was mostly hardware. I had hardware all over. (Maren)

What most of all distinguishes this group from the two other groups is their relationship to the computer. Even though both the IRC-babes and the professionals spent many hours in front of the computer and were really into computers, the computer did not have as much of a meaning as it had for the geek.grrls. First of all the geek.grrls had a relationship with the computer that went way back in time. Most of them had computed since early childhood. Some of them do not even remember a life without a computer. The computer has always been there. Many of them come from families where computers have been part of family life. They have had fathers, brothers and also mothers that have been heavily into computers. So even though not all of them have not been totally hooked since early childhood, computing has always been one of their activities.

Computing is a large part of my life. It is the simplest way to communicate with friends. It keeps me updated. Most of the contact I have with other people goes trough the net, so you see how much it means. I don't know how I would have managed without. (Ingunn)

The geek.grrls are interested in the computer itself. And they use the computer both for fun and work. However, they do not really differentiate between the two. Their ambition is to learn everything they do not know. They want to explore the computer and have complete knowledge. The computer fascinates them because it is something they can never fully understand. There will always be more to learn. The computer is a very important part of life and they cannot survive long periods without it. In many respects these women can be seen as hackers. They live their life and have a dedication that can be compared to what the hackers have been seen to do and have. However, these women themselves hesitate to call themselves hackers. This is not because they do not want to be a hacker, but because they feel they still are not sufficiently skilled to be given that kind of honour. Within the enthusiast community though these women are well known, and some of them are

also characterised as hackers. They are important participants in the enthusiast communities they take part in, and often possess central positions. They do not mind being the only female and have more or less always been hanging out with men. Many of them do not even know other women that are as much into computing as themselves.

I have so far never met any other women that knows as much as me. However, it's starting to be that some women that know something, but it's mostly IRC. I'm seen as one of the guys. People have actually commented on that, but it's usually not a problem. (Maren)

To be one of the guys is not a problem. They are used to that and actually very much want that position. It is important to them to get respect and status because of their computing skills. They have all worked hard to get where they are and have struggled against the view that many have about women not knowing any computing. Today more and more women come into the enthusiast community. However, this seems to make life as a geek grt harder.

I'm opposed to the fact that most of the women I know here at the computer science department just don't know enough. They do not have enough of a network around themselves. It seems like the women for a start are not as interested or don't have what it takes to do computing. I guess there are parts of it they are interested in. I'm really enthusiastic about helping women around here to get a stronger position, but when they don't want to know anything but what's in the syllabus and don't want to learn about hardware I become troubled. (Anja)

The women studying computer science complain about new female students that are not really interested in computing. They feel campaigns to get more female students have made their position weaker. Now, they also have to fight the prejudice that they have the education they have because they are females, not because they are interested in computers and skilled. The geek.grrls that are central at computer parties also feel that the fact that more and more women participate at computer parties make their life harder. They feel that the IRC-babes ruin their reputation. The geek.grrls say that the fact that there is an increased amount of women in the community does not really help them when the increase consists of what they call IRC-babes.

It really pisses me off. It is starting to become really hard to be a woman. Or, it has always been hard, but now there are so many that play on sex that it harms the rest of us. I'm an operator at a very popular channel and have been there for ages.

Stadenly I discovered that Ina had become an Op, and I could not understand it since she was a newble. It turns out that everyone had been in bed with her. When it starts to be like that it's not much fun. (Sara)

As a contrast to the IRC-babes the geek.grrls were not too occupied with their looks. To some degree quite a few of them where oblivious to their bodies. Some of them were quite overweight, and they wore large, shapeless clothes and had greasy hair. They often met with a large bottle of Coca Cola in hand. However, this was not true of all of them. Some looked more like the professionals. Common to all of them, though, was that they felt that one should not play on the fact that one was a female within the enthusiast community. None of them would have felt comfortable in small skirts and high-heeled boots. And they had never had any interests in fashion. They had also felt that this was not a problem.

The new women that came in became a threat to them in two ways. First of all because they felt the new ones confirmed the prejudice they had needed to counter all their life. Namely that women do not know computing. Next, the new women took the mens' attention away from them. The men welcomed the increased amount of women and paid a lot of attention to them. The men were not used to having a lot of females around, and they were definitely not used to having very feminine women around. The geek grils could not compete with this. They could only compete with computing knowledge. And of course they would win there. However, this did not always count since they often felt that the IRC-babes obtained positions in an unfair way.

However, most of all the geek grrls are happy with life. They have what they feel as safe position within the computer enthusiast community. They are confident with their computing skills and look positively at the future. They are highly prized in the job market and can to a great extent choose the kind of job they want. They are happy to be able to work with what they love most of all. They are also happy to have found a community where they can be themselves fully, and to have found partners that share their passion in life.

7.3 Professionals, IRC-babes and geek.grrls

The women in my material have three strategies for domesticating the computer. In different ways they have domesticated the computer along the practical, symbolic and cognitive dimensions (Sørensen, Aune and Hatling 2000:240). The three groups of women use the computer for

different activities, they relate and put different meaning into the computer and they have learned and develop their skills and knowledge differently. For the professionals the computer most of all represents a tool that they use to do work related tasks. Because of this they do not participate in activities like game plaving, chatting or going to computer parties. They have mainly learned to use the computer through their formal computer science education. To the IRC-babes the computer most of all represents a toy, something to play around with and have fun with when they are not at work or school. Their activities are mostly related to communication. They chat, play games, make web pages and meet people face to face at computer parties. Their learning has mainly been informal, through tinkering or asking friends to help out. The geek grrls started learning to use the computer at an early age, and were usually taught by a family member. Later they developed their skills by tinkering as well as through formal education. Symbolically, they put a lot of their identity into the computer and the way they want to be seen and respected for their computing skills. They master and enjoy a variety of programs and see the computer most of all as a toy, sometimes even as a great friend

Picking up on the essentialism and elitism as I discussed a bit earlier in this chapter this becomes even clearer when looking at the three different groups. The professionals as well as the geek.grrls can be said to belong to the elite and both of them work very hard to distinguish themselves from women like the IRC-babes. They do boundary work to keep all the women that are not 'seriously interested' in computers away so that they can keep their position. The IRC-babes are perceived as a big threat to them and they therefore have to work hard to push them away. They do this by not giving the IRC-babes credit for their computing knowledge as well as helping to produce the 'myth' that these women are only there to chat up men. In addition to that, all of the women can be seen as essentialists. They easily differentiate between what one can expect from men as contrasted to women. They support the idea that there are gender differences even though they themselves do not belong to the category they label "women". Some of them even dislike women and feel alienated when they are in a group of women. Instead, they have found their position in a community mainly consisting of men.

I ended up with about the same number of female enthusiasts in each of the three categories I made. However, it is important to notice that some of the women do not strictly belong to one category. Some of them are on the move from one category to the other. It seems like there are two possible moves. Some of the professionals are about to becoming geek.grrls. They spend more and more time in front of the computer and start perceiving it as a fun thing that they can also do in their leisure time. In addition, some of the IRC-babes are on their way to become geek.grrls. After having spent so much time in front of the computer, they want to learn more and some of them start thinking about making their interest in computing into a way of living. It therefore looks like we can expect more geek.grrls as these women develop their computer knowledge. The structure of the st

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CHAPTER EIGHT:

THE CONSTRUCTION OF THE FEMALE COMPUTER ENTHUSIAST

Today an increasing number of women are involved with ICT (information and communication technology) in the home, at work or for leisure. The share of female users increases all the time and while only 11 % of Norwegian women used a computer on an average day in 1998, the share had increased to 26 % in 2001. However, the number of women in ICT remain small. Following Faulkner (2002:1), we can separate between 'women in ICT' and 'women and ICT'. 'Women in ICT' means women who are employed in ICT occupations and/or sectors or undergoing ICT training, while 'women and ICT' concerns women's interaction with and use of various ICTs in everyday life.

In my material I would claim to have women from both categories. The professionals and the geek.grrls are all engaged in ICT in a work- or study-related way. Quite a few of them are already working within an ICT occupation, while the rest will go into an ICT occupation as soon as they have finished their studies in computer science. However, the IRCbabes are rather part of the 'woman and ICT', since this group mostly uses the computer as a leisure activity. Faulkner (2002) asks to what extent we can presume that the increasing use of various ICTs by women (i.e., more 'women and ICT') will result in a growing proportion of 'women in ICT'. I do not intend to give an answer to that question here, but from looking at the women in my material there seems to be a correlation. Even though some of the IRC-babes say they would prefer to keep the computer usage as a leisure activity, most of them claim they would like to learn more so that they can work professionally within ICT in the future.

'Play' with ICTs may still be more gender legitimate and authentic for men and boys than for women and girls (Faulkner 2002:6). This is most of all shown when looking at computer games where the number of male players far outnumber females. However, within the younger generation the number of girls playing computer games has increased a lot. Aune (1992) found in her study of the home computer that boys and men were more likely to use the computer expressively whilst their sisters and wives used them instrumentally. Earlier research has very much emphasised that while boys and men have a toy-like relationship to the home computer, girls and women use them more as tools (Faulkner 2002:11). The same attitude has been found in studies of male engineers. Mellström (1995) found that most men who chose engineering careers have a history of playful tinkering with machines and/or computers in their childhood and adolescence. Kleif and Faulkner (forthcoming) argue that one reason why girls and women do not seem to engage so playfully with ICTs at home, or at least admit to have fun with technology to the same extent as their male counterparts, is that play in itself is a less *legitimate* pursuit for girls and women than it is for boys and men.

Among the professionals in my material this is very much the case. They talk about the computer as a tool and very much emphasise that they use it for work- or study-related tasks. In this group we do not find a lot of game-players, but most of them claim they would rather spend their leisure time differently. When having time off from work or study they would rather be with friends or engage in other hobbies. However, all the professionals talk about the way computing in different wavs gives them pleasure. Making a program work does for instance give everyone great pleasure. Even though they emphasise that they program because they need the program for something, to make it work in the planned way gives them pleasure. The situation is different among the IRC-babes and the geek.grrls. They all see the computer most of all as a toy and find pleasure in playing with it. The IRC-babes do not even talk about the computer in an instrumental way. Their use, which is quite extensive, is most of all about play and fun. They find great pleasure in using the computer to get and keep in touch with others and to communicate in different ways. Also the geek.grrls talk about the computers as a toy, but also use it extensively as a tool. However, their relationship is most of all emotional. They find pleasure in exploring the computer and becoming more and more skilled in different arenas.

While earlier research has found that it is most of all men that feel pleasure from working with technology, my work shows that also women feel pleasure when working with technology. They do not at all feel alienated to the computer. In fact, many women have an intimate and close relationship.

8.1 Female hackers - do they exist?

The aim of this project has been to find and study female hackers in Norway. Before I go on to answer the question I have been asked so many times since I started this project (do they exist?), we need to discuss what it actually means to be a hacker. As stated in previous studies and in this thesis the concept 'hacker' means different things to different people and within different communities. In the media and among people in general the hacker is someone that does illegal acts with his computer knowledge. In the movies the hacker is either good and saves the world with his computer knowledge, or he is bad and uses his computer knowledge to do harm before he is won over by the good hackers. Previously, hackers were presented as lonely boys who turn to machines because they find relationships with other people too difficult (Weizenbaum 1976, Turkle 1984). It is about loving the machine for itself. Hackers have computers as a way of life, not just as an object of work or study (Turkle 1984). Later studies gave a more positive and diverse description of the hacker (Shotton 1989, Nissen 1993, Taylor 1999). However, by reading we do not come much closer to an exact definition of what a hacker is. What does become clear in many of these studies is that it is even more the way of life and they relation to the computer that separate the hacker from a normal user. While the user looks at the machine as a tool to use for work or study, the hacker sees the computer as a way of life. They are enthusiastic users that get pleasure from plaving with the computer. They are obsessed with the computer and work day and night, in order to explore the machine.

The definition of a hacker in *The new hackers dictionary* (Raymond 1996:233-234) is rather open ended and will include a range of computer users. However, the definition emphasises skills in programming or appreciation of programming. Still, it includes 'an expert or enthusiast of any kind'. Whenever I have told people about my Ph.D. project their first response have always been; do they exist? People have been most surprised, and often amused by the fact that I am doing research on female hackers. I have very often ended up feeling guilty for not answering. The time has come to give an answer.

In chapter five, I looked at how the women first constructed the hacker and then how they constructed themselves in the world of hackers. We learned that the women had a positive image of the hacker and most of all looked at him (sic) as very talented and skilled with computers. Like the literature, the women also emphasised the ability to program and do things other people would not be able to do. In addition they recognised that to become a hacker one needed to put in a lot of hours in front of the machine, so working day and night was part of the game. When constructing their own position, it became clear that they did not see themselves as hackers. Some of them did call themselves half-a-hacker and said they did or had done smaller hacks, but none of them would identify with being a hacker. Partly this was due to the fact that they did not see themselves as having the right qualifications. They did not know enough programming. In addition, it became clear that it was something in the way of living that they did not see as compatible with their respective lives. They did not want to spend day and night in front of the computer. The women emphasised that there was more to life than computing.

The hacker figure was of great importance to the women. They constructed their own position by looking at 'him' as a norm. However, the women also viewing the hacker based on how the people on the outside looked at him, as someone doing illegal acts with his computing skills. That also troubled them when constructing their own identity as computer enthusiasts. They did seldom do illegal acts with their computing knowledge and did not think one should. However, it did not trouble them that the hacker did illegal acts as long as he did no harm. To break in was just a way of proving what he was able to do, and they accepted this. In addition to being ambivalent regarding the meaning of the hacker, the women found it difficult to be a woman and a hacker. Even though they defined the hacker in positive terms and said that the stereotypical image people had of the hacker, or the nerd, did was not right, they still saw it through other people's eyes. Thus, it became even harder since they did not want to be seen as asocial and a loner.

In chapter seven, I have identified three ways of constructing what it means to be a female computer enthusiast. I have categorised the women as professionals, IRC-babes or geek.grrls. The professionals look at the computer most of all as a tool that belongs to work or study. They are afraid of being seen as asocial. It is therefore important for them to emphasise that the computer is not their whole life but something they want to spend time with to get more knowledge and become more skilled. The professional women are very similar to Shotton's (1989:169-204) workers. The workers saw the computer as a tool and stated that their computing was centred upon work-related activities, consisting of structured programming and the use of commercial software.

By just listening to what these women say would place them more among what Turkle (1996:32-33) describes as users - 'those who are involved with the machine in a hands-on way, but not interested in the technology except if it enables an application'. However, partly this is due to the way these women talk about their relationship with the computer. Because the professionals still see close relations to the computer as asocial, they rationalise their feelings and the pleasure they get from playing with it to avoid being seen as asocial. They did however also receive great pleasure from playing with the machine and, as said in chapter seven, see the computer as more important in life than other technologies, like the television.

The IRC-babes have many of the same features as Shotton's (op.cit.) *networkers* that rarely, if ever, wrote their own programs and saw the computer as a toy, and computing as a fascinating hobby. The IRC-babes saw computing as a social activity and did therefore not have any problems talking about it with emotions. They found great pleasure in playing with the computer and saw it as a great thing to do when they did not have to work or study.

The geek.grrls is the group that come closest to what we have learned from the literature of what it means to be a hacker. These women were also among those that were closest to identifying themselves as hackers, although they felt they could not claim to be one, because they were not skilled enough. The geek grrls can to some degree be seen as having many of the similar traits as Shotton's (op.cit.) explorers. Shotton's description of the explorers is very similar to the way the hacker has been presented in much of the literature. The explorers spent the majority of their time programming in an investigative, selfeducational and explorative manner. They found satisfaction when exploring the computer to learn more and used it both for pleasure and to escape from social relations. The geek.grrls also explored the computer and were skilled programmers. However, these women emphasised that programming was not something they would do just for the fun of programming itself. They would program when they needed something, but when being in front of the computer there were other things they wanted to explore and spend their time doing. They used the computer for a variety of computing activities and were skilled at most of them.

What separate the geek.grrls even more from descriptions of the hacker and the explorer, is that they do not use the computer to escape from social relations. The geek.grrls see computing and the computer as a social activity and instead uses the computer to establish social relations rather than to escape from them. Some of these women have felt lonely and have been loners without much of a social network. To these women the computer has worked as a means in getting out of their isolation and establishing a social network. Through the computer and the net they have been able to find friends that they feel are more like themselves. The computer has therefore made them more social than they were before.

All the geek.grrls have a partner. They have all met their partner within the computer enthusiastic community, and they share the passion and pleasure of playing with the computer. Although the geek.grrls say they cannot think of a life without the computer and love to spend more or less all their time in front of it, they all emphasise that it is important to take some time off to be with partners and friends as well.

The geek.grrls have the passion, pleasure and obsession for computers that come with being a hacker. They love to spend time in front of it and find pleasure in the fact that there is always more to be learned, always more to be explored. They are interested in many parts of the computer, and they are also interested in the inside of the computer. Many have built a computer themselves. Their style of work is similar to the 'hackers'. They can often spend days and nights in front of the computer. The geek.grrls forget about time and keep on going for hours. Their learning strategy is most of all the risk strategy known among hackers, they just try out different things and learn by doing. What separates them from the hacker is maybe that they instead of specialising and becoming an expert in one thing or one field, they get rather skilled in a variety of activities. However, they do to some degree fit into more than one category of how the new hackers dictionary define a hacker (Raymond 1996). They do enjoy exploring the details of programmable systems and how to stretch their capabilities. They can also program enthusiastically, if they need something. Most of them can appreciate hack value. And they are definitely enthusiasts.

Still, the geek.grrls do not identify or construct themselves as hackers. However, quite a few of them admit to have hacker-tendencies or call themselves half-a-hacker.

8.2 Constructing the female computer enthusiast

The women in my material had constructed themselves as female computer enthusiasts in tree ways. There existed three female enthusiast types and the categories were not stable, but fluid. As written in chapter seven, among both the professionals and the IRC-babes, there were women that were about to become geek.grrls. Probably there are more than these three ways of constructing yourself as a female computer enthusiast within the enthusiast community.

As already mentioned in this chapter, the women did not construct themselves as female hackers. Their reason for not identifying with a

female hacker was first of all that they did not see themselves as having the right qualifications. They were not skilled enough as programmers. However, in addition to this, some of the women had difficulties seeing themselves as hackers because of how the outside world saw the hacker. Among people in general the hacker is seen as a criminal, but in addition it is seen as a teenage, asocial and lonely boy. This image also became troubling to the female enthusiasts when constructing their own identities. First of all they were not boys. Even though they all claimed that a hacker could be a woman as well as a man, none of them had heard of any female hackers. Some of the IRC-babes did not even know any women that knew how to program. Thus the women did not have any female role-figures to compare themselves with. Next, the women did not at all see themselves as asocial, and even more, they were afraid of being seen as asocial. To be social is even more important to women than to men. Their fear of being seen as asocial made it hard for them to identify themselves as a hacker. However, the women differed in how they looked at the computer. While the professionals saw computing as an asocial activity, the IRC-babes and the geek.grrls saw computing as a social activity. The fact that the professionals saw computing as asocial made it impossible for them to pursue the hacker. To the IRC-babes and the geek.grrls this was not so problematic, but they also felt they had to defend themselves in front of other people all the time. They did this by always emphasising that it was as social to talk to people over the net as it was to talk to people face to face. They felt a need to defend the fact that they spent so much time in front of the computer. People should not think they were asocial, because what they did was most of all being social.

Today's technology produces to a larger degree social meeting places. The Internet has created places where people can meet, talk and get to know each other. The fact that you now can talk as well as play with 'real' people, makes computing a more social activity. It is not just you and the machine or you against the machine, but there are real people behind other machines that you can talk to or play against. But it does not stop here. As written in chapter four, the greater number of people having computers and a net-connection at home, the more people seem to have a need for places where they can meet face to face with the people behind the machines. Events like The Gathering increase in numbers every year. Some of them are computer parties where participants bring their own computers, while others are parties where ability to communicate with people virtually are not substitutes for the 'normal' form of communication. It rather intensifies people's drive to communicate. This makes both the computer and the community around the computer more social. Since being social seems to be such an important requisite for being a woman, the fact that computing is becoming more social should make it easier to be a female enthusiast.

My material very much shows that the nerd or the hacker is a lot more social than they have been known to be. Partly this could be a change because of the changed technology. However, I would also claim that earlier research may not have been fair to the hackers. How can it be that a community consisting of boys or young men, that spend more or less all their time together in a computer lab, are seen as asocial? Why is it that computer games are seen as an asocial activity? Most people do not play games on their own. Very often there are three or more boys (or girls) together behind the machine. One is playing and the others are discussing the game or help the player. Or people play over the net against other people. And why is it still seen as more social to meet people face to face, or to speak on the phone, than to talk with people over the net? Maybe we need to rethink what we mean by sociality.

8.3 The Net is Not Enough

The title of this thesis, The net is not enough, has two meanings, which I believe I have demonstrated through my thesis. First of all, the net is not enough as a social arena. Events like The Gathering and smaller parties and get-togethers for people meeting online give us evidence of this. We still want to meet face to face and be able to get a feeling of the others' flesh or body. Online communication is, as just written, just an addition, not a substitute. Second, the title is pointing to the fact that the net is not enough if one wants to be a female hacker. Knowledge about the net, about communication and everything that comes with it, are not qualifications that are given much credit in the world of hackers. This does not give status and honour. Still, what gives credit, are skills about programming, hardware and knowledge about technical matters.

To some degree this can be said to be about distinguishing the normal user from the expert. However, it seems like there is more to it than this. Communication has always been seen as a feminine skill, or it is usually not recognised as a skill, but more something as women are born with. This becomes very clear when looking at a thing like chatting. My experience from computer parties is that males and females to a large degree are occupied with the same activities in front of the computer. Although males tend to play more computer-games than females, both males and females are heavily into chatting and downloading from the net. When I would ask a male what he was up to, he would most often answer that he was doing all sorts of different things but chatting. Nevertheless, I could see on his screen that he had at least three chat-windows open. When asked what the chat-windows were for, he would just replay that it was just something he did in-between other, more important, tasks. The women supported the men's view of this. One of my informants, Hedda, said that a boy would only ask to have online sex with them as he waited for a program to be downloaded. When asking a female about what she was doing she usually said immediately chat. Though, she would also have other tasks running, and when questioned about them she would be vague and say she did not really know what she was doing and that she was not really good at programming.

While the males tend to understate their use of the computer for communication, females overstate it. This has also to do with the hierarchy of what is given status as knowledge. While chatting and communication is given low status, as something everyone can do, programming and more technical knowledge are given high status. This is a hierarchy that both males and females support. We could see this especially clear when we saw the boundary work the geek.grrls did against the IRC-babes. They supported the view that these women did not have any computing skills, but were only there to meet and chat up boys.

The women in my material are essentialists when talking about gender. As shown in chapter seven, they allow little room to being different, but define a very stereotypical woman. Girls and women, according to many of them, are too concerned with their looks, talk too much behind other people's backs and are just there to please the men. Because of this many of my informants, especially the geek.grils, do not like to spend time with other women, but say they prefer to hang out with men. Instead of giving room for women like themselves, they construct themselves as tomboys. They make up a third sex to find room for themselves. However, the stereotypical view of how women and men relate to the computer can be found in the rest of society. Gansmo (2002) has found the same view among Norwegian politicians. Women are afraid of technology and we therefore need to help the girls and the women so that they also learn to use technology, since it is so important today. Also, in campaigns aimed at getting more women to study
computer science, we can see it. To tempt the women they search for the rational, nice woman that thinks studying computing is a smart thing to do. This instead of searching for the passionate woman that finds pleasure in playing with the computer. The message given is that you do not need to be passionate to study computing. You just need to be a good student.

By doing this, we do not allow women to feel pleasure for technology, but support the view that men feel pleasure regarding technology while women feel alienated. However, we need to leave room for female play and pleasure. It is very clear from my material that it is the women that have seen the computer as a toy, and have been allowed to play with it from an early age, that most of all become a computer enthusiast. Being allowed to play is a prerequisite for becoming a fascinated and enthusiastic user. By exploring the technology through play we create females that are comfortable, enthusiastic and skilled.

In addition, it is important to make the female enthusiasts more visible. As one of the women I interviewed said; why would I want to start studying computer science when all the campaigns tell me that there are no women there? Even though there are still a lot more men than women within the world of computer enthusiasts, there are quite a few women there! But, of course, they easily become invisible because there are so few of them, and we are being told over and over again that they do not exist. My thesis has shown that they do exist. And the women I have found in my work, were not at all hard to find. Even though it took me a while to find out where to look for them, when I finally found them, there were many.

APPENDIX A1:

Interview guide

Interview number: _____ Date:

Introduction

Tell them about yourself, the project, the form of interview, anonymity and such.

Can you tell me about yourself? Your background

Education? Job? Interests? (mechanics, technology?) School (favourite subjects)

Parents, education and work

Siblings, age, education and work, place among siblings

How do you spend your time? Sleep, sports, telly, hobbies, friends, computing, role-playing-games)

Are you interested in politics? Where do you belong politically? Do you have a mobile phone? SMS- messages

Do you remember the first time you used a computer

When? Where? For what? Together with whom? Do you remember what you thought about it?

Did you have a computer at home? What kind of computer? When did you get your private computer? Tell me about the computers you and your family have had? What kind of computer do you have now?

How did you use to use your computer? What made you start with other activities? The development

Tell me about how you use it today?

Games, spread sheets, word processing, graphic, made a program, made music, done changes to an existing program, made games, communicated, Internet, chat (irk, icq, web), what else?

Do you program? What programming languages do you master? What have you programmed? A style of programming?

What do you prefer to use the computer for? Why?

What fascinates you, attracts you to the computer and computing? Why? What do you not like?

Are there differences in the ways boys and girls relate to the computer? In what ways?

Are you a typical girl?

Do you have a private web page? Why? Tell me about it? What did you want to say with it?

Do you play **computer games**? How often/how long? Kind of game? Today compared to when younger?

What makes a game good? Do girls and boys like different games?

What do you think about 'games for girls'? Have you heard of girl gamers movement? What do you think about the fact that there is a special section for games for girls in the computer stores?

Have you ever been to a computer party? Where? What kind? Tg, copy parties, bush parties, scene parties.

Do you know of any computer clubs? Names? Are, or have you been a member of one? Have you heard of Chaos Communication Club? Crusaders? Razor 1911? Cryptoburners?

What does computing mean to you? What makes you compute?

How is the computer different from human beings? (Intelligence, feelings, interactivity). Do you think that we in the future will have technology that can substitute humans? Do you think the computer will have a large impact in the future? Will computer knowledge be of great importance? How do you see the development? Do you see yourself taking part and influence the technological development?

What importance do you think your computing interest will have to you? What kind of job do you think you will have? What is the definite dream job? Have you so far earned money on your computer interest?

What is a hacker to you? Criminal? / name of honour? Do you know of anyone you would have given the name? Have you heard about any Norwegian or foreign hacks/hackers? What do you think of hackers? Do they do society a favour by pointing out weaknesses in computer systems? What is a cracker? What is a computer nerd?

Have you yourself ever broken into a computer system? Do you know anyone who has done it? What do you think? Carding?

Have you ever copied a game or other programs? How do you feel about it? Pass on? For sale?

How would you describe yourself and your computing interest/knowledge/skill?

Do computer-interested people differ from other people? Is it possible to differentiate between different groups of computer-interested people?

What do people around you think about your computing interest? Parents, friends, class mates, teachers etc. Has this changed in any way?

Do you spend much time with **friends**? Can you tell me about your friends, who are they? Have you met any friends through your computing interest? What do you do when you are together?

How is it to be a **woman within this community**? How do you feel about the image attributed to 'women and computing' in the media? The campaigns? Is it how you see it? How is this image?

Movies, books and music

Do you read books? What kind of books? Science fiction? Hacker literature? Neuromancer, Gibson.

Do you go to the movie theatre? / watch videos? What kind of movies do you enjoy?

Have you seen: The Net – Hackers – Tank Girl? War Games - Sneakers - Dirty Rotten Scoundrels? –What did you think?

Do you listen to music? What kind of music do you like?

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APPENDIX A2:

Presentation of the informants

Infor- mant	Age	Initiation of enthusiasm	Support of enthusiasm	High- school interest	Present doing	Community belonging	Partner
Elin	23	From adolescence	Family	Science	M.sc. computing	UiO, Verdande	Single
Hilde	20	From student	None	Science	M.sc. computing	UiO, Verdande	Single
Berit	23	From student	None	Science	M.sc. computing	UiO, Verdande	Bf ²⁶ not interested
Karen	20	From childhood	Family	Science	M.sc. computing	UiO	Single
Nora	24	From student	Friends	Science	M.sc. computing	UiO	Bf in community
Lisa	18	From adolescence	None	Computing	High school	IRC, computer- party	Single
Anne	17	From adolescence	Friends	Computing	High school	IRC, computer- party	Bf in community
Hedda	16	From adolescence	Friends	Computing	High school	IRC, computer- party	Single
Kristine	17	From adolescence	Friends	Science	High school	IRC, computer-	Single
Sara	21	From childhood	Family	Language	Computing education at college	IRC, computer-	Bf in community
Katrine	23	From adolescence	Friends	None	Work in a kitchen	IRC, computer- parties	Bf in community
Bente	23	From adolescence	None	Farming	Work with cleaning	IRC, computer- parties	Single, ex- bf in
Maren	20	Since childhood	Family	Music	Tech. trainee at computer company	IRC, computer- parties	Bf in community
Ina	20	Since childhood	Family	Social science	Computer support	IRC, computer- parties	Bf in community
Ingunn	32	Since adolescence	None	Language	M.sc. computing	NTNU, NVG, IRC	Single

²⁶ Bf is short for boyfriend. In some cases the boyfriend is her husband.

Karina	24	Since adolescence	Family	Science, quit M.sc. computing	Work with networks	NTNU, PVV	Bf into computing
Gro	23	Since student	None	Language	M.sc. computing	NTNU, PVV, NVG, IRC	Bf in community
Mari	29	Since student	None	Science	M.sc. physics	NTNU, PVV	Bf in community
Anja	22	Since childhood	Family	Social science	M.sc. computing	Quake clan	Single
Mette	23	Since adolescence	None	Social science	Computer support	IRC	Bf a little interested
Sissel	24	Since childhood	None	Science	M.sc. computing	NTNU, PVV	Bf in community
Eva	27	Since student	None	Computing engineer	Tech support	Computer- parties	Bf in community
Mona	18	Since childhood	Family	Language	High school, part-time web- design/ network- assistant	IRC, computer- parties	Single, ex- bf in community
Torill	26	Since student	Family	Technical high- school	Computer support	IRC, computer- parties	Single, had bf in community

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APPENDIX A3:

Presentation of the informants' computer use

Informant	Games	Web-page	Chatting	News-groups	Hours in front	Programming skills	OP	Attitude
Elin	Rarely: standard	Intermediate	Never	Reads regularly Never posts	Frequently	Intermediate programming Intermediate html-coding	Unix ²⁷	Instrumental
Hilde	Rarely: standard	Intermediate	Never	Reads regularly Never posts	Frequently	Simple programming Simple html- coding	Unix	Instrumental / emotional
Berit	Never	Intermediate	Never	Reads regularly Never posts	Some	Simple programming Simple html- coding	Unix	Instrumental
Karen	Regularly: Civilisation	Simple	Never	Reads frequently Posts rarely	Always	Simple programming Intermediate html-coding	Unix	Emotional / Instrumental
Nora	Frequently	Simple	Never	Reads frequently Posts regularly	Always	Intermediate programming Simple html- coding	Unix	Emotional / Instrumental
Lisa	Rarely: standard	Advanced	Frequently	Reads regularly Posts rarely	Frequently	None programming Advanced html-coding	Windows	Emotional
Anne	Rarely: standard	None	Frequently	Reads regularly Never posts	Frequently	None programming Intermediate html-coding	Windows	Emotional
Hedda	Rarely: standard	Simple	Frequently	Reads rarely Never posts	Frequently	None programming Intermediate html-coding	Windows	Emotional
Kristine	Rarely: standard	Intermediate	Frequently	Reads rarely Never posts	Frequently	None programming Simple html- coding	Windows	Emotional
Sara	Regularly: Kings Quest	Advanced	Frequently	Reads frequently Posts regularly	Always	Intermediate programming Advanced html-coding	Windows	Emotional / Instrumental
Katrine	Regularly: standard	Advanced	Regularly	Reads frequently Posts regularly	Frequently	Simple programming Intermediate html-coding,	Windows	Emotional
Bente	Frequently: Utopia, Heroes, Diablo 3	Advanced	Regularly	Reads rarely Never posts	Some	None programming Advanced html-coding	Windows	Emotional

²⁷ I have chosen not to distinguish between the use of Unix and the use of Linux. All those using Unix at work or at university use Linux on their home computers. There is therefore no point in distinguishing the level.

Maren	Frequently: Quake, adventure games	Advanced	Rarely	Reads frequently Posts rarely	Always	Intermediate programming Advanced html-coding	Unix	Emotional / Instrumental
Ina	Rarely: Quake	Advanced	Regularly	Reads regularly Never posts	Frequently	Simple programming Advanced html-coding	Windows	Emotional / Instrumental
Ingunn	Regularly: fly simulator, Quake	Advanced	Frequently	Reads frequently Posts frequently	Always	Advanced programming Advanced html-coding	Unix	Emotional / Instrumental
Karina	Rarely: adventure games	Simple	Regularly	Reads regularly Posts rarely	Frequently	Advanced programming Simple html- coding	Unix	Instrumental
Gro	Rarely: Quake	Advanced	Frequently	Reads frequently Posts frequently	Always	Simple programming Advanced html-coding	Unix	Emotional / Instrumental
Mari	Never	None	Rarely	Never reads Never posts	Some	Simple programming None html- coding	Unix	Instrumental
Anja	Frequently: Quake	Simple	Rarely	Never reads Never posts	Frequently	Intermediate programming Simple html- coding	Windows / Unix	Emotional / Instrumental
Mette	Regularly: strategy- games	Advanced	Frequently	Reads regularly Never posts	Frequently	Advanced programming Advanced html-coding	Windows / Unix	Emotional / Instrumental
Sissel	Regularly: online games	None	Frequently	Reads regularly Posts rarely	Always	Advanced programming None html- coding	Unix	Emotional / Instrumental
Eva	Rarely: standard	Simple	Frequently	Reads regularly Never posts	Frequently	Intermediate programming Simple html- coding	Unix/ Windows	Instrumental / Emotional
Mona	Rarely	Advanced	Regularly	Reads regularly Posts rarely	Frequently	Intermediate programming Advanced html-coding	Windows	Emotional / Instrumental
Torill	Regularly: online gaming, RPG	Simple	Frequently	Never reads Never posts	Frequently	Simple programming Simple html- coding	Windows	Emotional

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Bibliography

- Alvesson, M. and K. Sköldberg (1994): Tolkning och reflection. Vitenskapsfilosofi och kvalitativ metod. Studentlitteratur, Lund.
- Aune, M. (1992): Datamaskina i hverdagslivet. En studie av brukernes domestisering av en ny teknologi. STS-report 15, Centre for Technology and Society, Norwegian University of Science and Technology. Trondheim
- Befring, E. (1995): Dataspill forklart for akademikere. Nye medier nye underholdningsformer. Hovedoppgave i medievitenskap, University of Oslo.
- Bengtson, M. og J. Frykman (1987): Om maskulinitet. Mannen som forskningsobjekt. Rejeringskanslietsoffsetcentral, Stockholm.
- Benston, M. L. (1988): "Women's voices/men's voices: technology as language." In: C. Kramarae (ed.): *Technology and women's voices*. *Keeping in touch*. Routledge & Kegan Paul, New York.
- Berg, A. J. and T. Håpnes (1992): Den tapte nysgjerrigheten om tvilende Minitelbrukere. SINTEF, IFIM, Trondheim.
- Berg, A. J. (1994): "From here to where? Trajectory or transformation II". In: Anne-Jorunn Berg and Margrete Aune (ed.): Domestic Technology and Everyday Life – Mutual Shaping Processes. COST A4, vol. 1, Brussel.
- Berg, A. J. and M. Lie (1995): "Feminism and Constructivism: Do Artefacts Have Gender?" In: Science, Technology and Human Values. 20 (3), pp 332-351.
- Berg, A. J. (1996): Digital Feminism. STS-report 28, Centre for Technology and Society, Norwegian University of Science and Technology, Trondheim.
- Berg, V. A. L. and Kjersti Kvaløy (1998): "En kvalitativ undersøkelse av trivsel og studiemotivasjon blant førsteårsstudenter på Linjen for datateknikk, NTNU, samt en evaluering av fagmodulen Kjenn Ditt Fag". *Teknisk Notat*, 8/98, NTNU, Trondheim.

- Berg, V. A. L. (2000): Firkanter og rundinger. Kjønnskonstruksjoner blant kvinnelige dataingeniørstudenter ved NTNU. SKF-report 3/2000, Centre for Women and Gender studies, Norwegian University of Science and Technology, Trondheim.
- Bromseth, J. C. H. (2000): Internett: krigsarena eller Kardemomme By? Konstruksjon av samhandlingsnormer på to norske e-postbaserte diskusjonslister.

http://www.hf.ntnu.no/itk/kv_bromseth/hovedfag/index.htm.

- Buholm, E. (1998): På leting etter et "passende rom". En kvalitativ studie om sosial forming av dataingeniører med fokus på kompetanse, karriere og kjønn. STS-report 40, Centre for Technology and Society, Norwegian University of Science and Technology, Trondheim.
- Butler, J. (1999): Gender Trouble. Feminism and the Subversion of Identity. Routledge, New York and London.
- Cassell, J. and H. Jenkins (ed.) (1998): From Barbie & to Mortal Kombat. Gender and Computer Games. The MIT Press, Cambridge, Massachusetts.
- Cockburn, C. (1983): Brothers. Male dominance and technological change. Pluto, London.
- Dale, B., M. Jones and W. Martinussen (ed.) (1985): Metode på tvers. Samfunnsvitenskapelige forskningsstrategier som kombinerer metoder og analysenivåer. Tapir, Trondheim.
- Dierkes, M. and C. von Grote (ed.) (2000): Between Understanding and Trust. The Public, Science and Technology. Harwood academic publishers, Amsterdam.
- Donath, J. S. (1999): "Identity and deception in the virtual community". In: M. A. Smith, and P. Kollock (ed.) (1999): Communities in Cyberspace. Routledge, London, pp. 29 – 59.

- Faulker, W. (2000): "Dualisms, Hierarchies and Gender in Engineering". In: Social Studies of Science, volume 30, No. 5, October 2000, pp. 759-92. SSS and Sage Publications, London.
- Faulkner, W. (2002): Women, gender in/and ICT: Evidence and reflections from the UK. Unpublished draft-version for the SIGIS project, University of Edinburgh.
- Faulkner, W. and T. Kleif (forthcoming): "'I'm no athlete [but] I can make this thing dance!' Men's pleasure in technology". In: Science, Technology and Human Values. Journal of the Society for Social Studies of Science, Sage Publications, Thousand Oaks, London, New Dehli.
- Form, W. and D. B. McMillen (1983): "Women, men and machines". Work and Occupations. No 2.
- Game, A. and R. Pringle (1984): Gender at work. Pluto, London.
- Gansmo, H. J. (1998): Det forvrengte dataspeilet. En kvalitativ studie av hvordan ungdomsskolejenter forstår datateknologiens muligheter i dag og i fremtiden. STS-report 36, Centre for Technology and Society, Norwegian University of Science and Technology, Trondheim.
- Gansmo, H. J. (2002): "Samfunnsproblemet "jenter og data"". I: Kvinneforskning 2/02. Kilden, volume 26, Oslo.
- Geertz, Clifford (1973): The Interpretations of Cultures. Basic Books, Inc., New York.

Giddens, A. (1993): Sociology. Polity Press.

- Gieryn, T. F. (1995): "Boundaries of Science". In: S. Jasanoff, G. E. Markle, J. C. Petersen and T. Pinch (ed.) (1995): Handbook of Science and Technology Studies. Sage Publications, California, London, New Dehli, pp. 393-443.
- Glimell, H. and O. Juhlin (ed.) (2001): The Social Production of Technology: On the everyday life with things. BAS Publishers, Göteborg.

- Hacker, S. (1989): Pleasure, Power & Technology. Some tales of Gender, Engineering and the Cooperative Workplace. Unwin Hyman Inc., London, Sidney and Wellington.
- Haddon, Leslie (1988): The Root and Early History of the British Home Computer Marked: Origins of the Masculine Micro. Management School, Imperial College, University of London, London.
- Hafner, K. and J. Markoff (1995): Cyberpunk. Outlaws and Hackers on the Computer Frontier. A Touchstone book, Simon & Schuster, New York.
- Halvorsen, K. (1993): Å forske på Samfunnet, en innføring i samfunnsvitenskapelig metode. Bedriftsøkonomisk forlag, tredje utgave, Oslo.
- Hammersley, M. and P. Atkinson (1983): *Ethnography. Principles in practice*. Routledge, London, New York.
- Hearn, J. and D. L. Collinson (1994): "Theorizing Unities and Differences Between Men and Between Masculinities". I: H. Brod and M. Kaufman (ed.).: *Theorizing Masculinities*. Sage Publications, Inc.
- Hoel, T. L. (1992): Tanke blir til tekst. Skrivehjelp for studentar. Det Norske Samlaget, Oslo.
- Holme, I. M. and B. K. Solvang (1991): Metodevalg og Metodebruk. Andre utgave, Tano, Oslo.
- Håpnes, T. and B. Rasmussen (1991): "What makes computer science an all-male business?" In: I. Eriksson, B. Kitchenham and K. Tidjens (ed.): Women, work and computerization. Amsterdam: North Holland.
- Håpnes, T. and K. H. Sørensen (1995): "Competition and collaboration in male shaping of computing: A study of a Norwegian hacker culture". In: K. Grint and R. Gills (ed.): *The Gender – Technology Relation. Contemporary Theory and Research.* Taylor & Francis, London.

- Håpnes, T. (1996): "Not in Their Machines. How Hackers Transform Computers into Subcultural Artefacts". In: M. Lie & K. H. Sørensen (ed.): Making Technology Our Own? Universitetsforlaget AS, Oslo, pp. 121-150.
- Jasanoff, S., G. E. Markle, J. C. Petersen and T. Pinch (ed.) (1995): Handbook of Science and Technology Studies. Sage Publications, California, London, New Dehli.
- Jenson, J. (1992): "The talents of women, the skills of men: flexible specialization and women". In: S. Wood (ed.): The transformation of work. Routledge, London.
- Jorgensen, D. L. (1989): Participant observation: a methodology for human studies. Sage, Newbury Park, Calif.
- Kalleberg, R. (1982): "Kvalitative metoder i sosiologisk forskning". In: H. Holter and R. Kalleberg (ed.): Kvalitative Metoder i Samfunnsforskningen. Universitetsforlaget, Oslo.
- Katz, J. (2000): Geeks. How Two Lost Boys Rode the Internet out of Idaho. Villard, New York.
- Kaul, H. (1988): "Makt og maskin". In: M. Lie, A. J. Berg, H. Kaul, E. Kvande, B. Rasmussen og K. H. Sørensen (1988): I menns bilde. Kvinner - teknologi - arbeid. Tapir forlag, Trondheim.
- Kendall, L. (1998): "Meaning and Identity in 'Cyberspace': The Performance of Gender, Class, and Race Online." In: Symbolic Interaction, 21 (2), pp 129-153.
- Kidder, T. (1981): The soul of a new machine. Avon Books, New York.
- Kimmel, M. S. (1994): "Masculinity as Homophobia. Fear, Shame, and Silence in the Construction of Gender Identity". In: H. Brod og M. Kaufman (ed.).: *Theorizing Masculinities*. Sage Publications, Inc.
- King, N. (1994): "The Qualitative Research Interview". In: C. Casell and G. Symon (ed.): Qualitative Methods in Organizational Research. A practical guide. Sage Publication, Thousand Oaks, New York, London.

- Kirk, J. and M.L. Miller (1986): *Reliability and Validity in Qualitative Research*. Sage Publications, London.
- Kleif, T. (1999): Making Machines. Pleasure, Play and Power. Dissertation submitted for the degree of MSc in Science and Technology Studies, University of Edinburgh 1998/1999.
- Knutsen, A. (2002): Chattens mange ansikter livet på og utenfor skjermen. STS-report 54, Centre for Technology and Society, Norwegian University of Science and Technology, Trondheim.
- Kollock, P. (1999): "The economies of online cooperation: gifts and public goods in cyberspace". In: Mark A. Smith and Peter Kollock (ed.) (1999): Communities in Cyberspace. Routledge, London, pp. 220 – 242.
- Kollock, P. and M. Smith: "Communities in Cyberspace". In: Mark A. Smith and Peter Kollock (ed.) (1999): Communities in Cyberspace. Routledge, London, pp. 3 - 28.
- Kramarae, C. (ed.) (1988): Technology and women's voices. Keeping in touch. Routledge & Kegan Paul, New York.
- Kvande, E. and B. Rasmussen (1991): Nye kvinneliv. Kvinner i menns organisasjoner. Ad Notam forlag AS, Oslo.
- Laine, M. de (2000): Fieldwork, Participation and Practice. Ethics and Dilemmas in Qualitative Research. Sage Publications London, Thousand Oaks, New York.
- Langsether, H. (2001): Behov og Barrierer for jenter på informatikkstudiet. SKF-report 2/2000, Centre for Women and Gender studies, Norwegian University of Science and Technology, Trondheim.
- Latour, Bruno (1987): Science in Action. Harvard University Press, Cambridge, Massachusetts.
- Levold, N. (2001): ""Doing Gender" in Academia: The domestication of an information-technological researcher-position". In: H. Glimell

and O. Juhlin (ed.): The Social Production of Technology: On the everyday life with things. BAS Publishers, Göteborg, pp. 133-158.

- Levy, S. (1984): *Hackers. Heroes of the Computer Revolution.* Dell Publishing, New York.
- Lie, M., A. J. Berg, H. Kaul, E. Kvande, B. Rasmussen og K. H. Sørensen (1988): *I menns bilde. Kvinner - teknologi - arbeid.* Tapir forlag, Trondheim.
- Lie, M. (1995): "Technology and Masculinity". The European Journal of Woman's Studies. Volume 2, Issue 3, August.
- Lie, M. and K. H. Sørensen (1996): "Making Technology Our Own? Domesticating Technology into Everyday Life". In: M. Lie and K. H. Sørensen (ed.): Making Technology Our Own? Oslo: Universitetsforlaget AS, pp. 1-30.
- Lie, M. & K. H. Sørensen (ed.) (1996): Making Technology Our Own? Universitetsforlaget AS, Oslo.
- Lie, M. (1998): Computer Dialogues. Technology, Gender and Change. Report 2/98, Centre for Womens' Research Norwegian University of Science and Technology, Trondheim.
- Lieshout, M. van, T. M. Egyedi and W. E. Bijker (ed.) (2001): Social Learning Technologies. The introduction of multimedia in education. Ashgate, Aldershot.
- Light, J. S. (1999): "When Computers Were Women". In: *Technology and Culture*. The International Quarterly of the Society for the History of Technology. July 1999, Vol. 40, Nr. 3. pp 455 483.
- Littman, J. (1997): The Fugitive Game: Online With Kevin Mitnick. Little, Brown & Company, Boston.
- Lohan, M. (2000): "Constructive Tensions in Feminist Technology Studies". In: Social Studies of Science, 30/6, SSS and Sage Publications, London, pp. 895 916.
- McCracken, G. D. (1988): The long interview. Sage, Newbury Park, Calif.

- Mellström, U. (1995): Engineering lives: Technology, time and space in a male-centred world. Department of Technology and Social Change, Lindköping University, Sweden.
- Mellström, U. (1996): "Teknologi och maskulinitet: Män och deras maskiner". In: E. Sundin & B. Berner (ed.): Från Symaskin till Cyborg. Genus, teknik och social förändring. Nerenius & Santérus Förlag, Stockholm, pp.113 –140.
- Nissen, J. (1993): Pojkorna vid datorn. Unga entusiaster i datateknikens värld. Symposium Graduale, Stockholm/Stehag.
- Nissen, J. (1996): "Det är klart att det är grabbar som håller på med datorer! Men varför er det så?" In: E. Sundin & B. Berner (ed.): Från Symaskin till Cyborg. Genus, teknik och social förändring. Nerenius & Santérus Förlag, Stockholm, pp. 141-162.
- Nissen, J. (1997): "The hacker culture and masculinity". In: V. Frissen (ed.): Gender ITC and everyday life. Mutual shaping processes. European Communities, Belgium, pp. 230-250.
- Nordli, H. (1998): Fra Spice Girls til Cyber Girls. En kvalitativ analyse av datafascinerte jenter i ungdomsskolen. STS-report 35, Centre for Technology and Society, Norwegian University of Science and Technology, Trondheim.
- Nordli, H. (2000): Hackeren, en vitenskapsmann? Unpublished Essay written for the class Forskning og Samfunn (Research and Society), Centre for Technology and Society, Norwegian University of Science and Technology, Trondheim.
- Nordli, H. (2001): "From 'Spice Girls' to Cybergirls: The Role of Multimedia in the Construction of Young Girls' Fascination for and Interest in Computers". In: M. van Lieshout, T. M. Egyedi and W. E. Bijker (ed.): Social Learning Technologies. The introduction of multimedia in education. Ashgate, Aldershot, pp. 110-133.

- O'Brien, J. (1999): "Writing in the body: gender (re)production in online interaction". In: M. A. S. and P. Kollock (ed.) (1999): Communities in Cyberspace. Routledge, London, pp. 76 – 105.
- Rasmussen, B. & T. Håpnes (1991): "Excluding women from the technologies of the future?" *Futures*, Vol.23, nr.10, December, 1107-19.
- Raymond, E. S. (compiled by) (1996): The new hacker's dictionary. Third edition. The MIT Press, Cambridge, Massachusetts.
- Repstad, P. (1993): Mellom nærhet og distanse. Universitetsforlaget, Oslo.
- Rheingold, H. (2000): The Virtual Community. Homesteading on the Electronic Frontier. Revised edition. The MIT Press, Cambridge, Massachusetts.
- Robson, P. (2000): Hug a hacker today. In: Daily Mail & Guardian 23rd of June. http://www.mg.co.za/mg/pc.
- Rossman, G. B. and S. Rallis (1998): Learning in the field. An introduction to qualitative research. Sage Publications, Thousand Oaks, London, New York.
- Shimomura, T. with J. Markoff (1996): Take-Down. The Pursuit and Capture of Kevin Mitnick, America's Most Wanted Computer Outlaw – By the Man Who Did It. Hyperion, New York.
- Shotton, M. A. (1989): Computer addiction? A study of computer dependency. Taylor & Fracis, London.
- Silverstone, R., E. Hirsch and D. Morley (1991): "Information and Communication Technologies and the Moral Economy of the Household". In: K. H. Sørensen and A. J. Berg (ed).: *Technology* and Everyday Life: Trajectories and Transformations. Report nr. 5, NAVF, NTNF, Noras, Oslo.
- Silverstone, R. and E. Hirsch (ed.) (1992): Consuming Technologies. Media and Information in Domestic Spaces. Routledge, London and New York.

- Silverstone, R. (1999): Lets do it! New Media and the Performance of Community. Unpublished paper. London School of Economics and Political Science, London.
- Smith, M. A. and P. Kollock (ed.) (1999): Communities in Cyberspace. Routledge, London.
- Solberg, A. (1985): "Metodekapitlenes blanke sider". In: B. Dale, M. Jones and W. Martinussen (ed.): Metode på tvers. Samfunnsvitenskapelige forskningsstrategier som kombinerer metoder og analysenivåer. Tapir, Trondheim.
- Stearling, B. (1992): The Hacker Crackdown. Law and Disorder on the Electronic Frontier. Bantam Books, New York.
- Stoll, C. (1995): Silicon Snake Oil: Second Thoughts on the Information Highway. Doubleday, New York.
- Stone, A. R. (1996): The War of Desire and Technology at the Close of Mechanical Age. The MIT Press, Cambridge, Massachusetts.
- Sundin, E. (1995): "The Social Construction of Gender and Technology". *The European Journal of Woman's Studies*. Volume 2, Issue 3, August.
- Sundin, E. & B. Berner (ed.) (1996): Från Symaskin till Cyborg. Genus, teknik och social förändring. Nerenius & Santérus Förlag, Stockholm.
- Sørensen, K. H. and M. Aune and M. Hatling (2000): "Against linearity -On the Cultural appropriation of Science and Technology". In: M. Dierkes and C. von Grote (ed.): *Between Understanding and Trust. The Public, Science and Technology.* Harwood academic publishers, Amsterdam, pp. 237 –260.
- Taylor, P. A. (1999): *Hackers. Crime in the digital sublime*. Routledge, London and New York.
- Tolson, A. (1977): The limits of masculinity. Tavistock, London.
- Turkle, S. (1984): The Second Self. Computers and the Human Spirit. Simon and Schuster Inc., New York.

- Turkle, S. (1988): "Computational reticence: why woman fear the intimate machine". In: C. Kramarae (ed.): *Technology and women's voices. Keeping in touch.* Routledge & Kegan Paul, New York, pp. 41-61.
- Turkle, S. (1996): Life on the Screen. Identity in the Age of the Internet. Weidenfeld & Nicolson, London.
- Undheim, T. A. (2002): What the Net Can't Do. The Everyday Practice of Internet, Globalization, and Mobility. STS-report nr. 55, Centre for Technology and Society, Norwegian University of Science and Technology, Trondheim.
- Vestby, G. M. (1998): Jentene, guttene og IT-begrepene. En undersøkelse av ungdoms forståelse av informasjonsteknologi. NIBR, report nr. 12.
- Wajcman, J. (1993): Feminism confronts technology. Polity Press, Cambridge.
- Walther, J. B. (1995): "Relational Aspects of Computer-Mediated Communication: Experimental Observations Over Time." Organizational Science, 6(2), pp. 186 – 203.
- Weber, Max (1991): "Science as a vocation". In: H. Gerth and C. W. Mills (ed.): From Max Weber. Routledge, London, pp. 129-156.
- Weizenbaum, J. (1976): Computer power and human reasons. From judgment to calculation. W. H. Freeman and Company, San Francisco.
- Wellman, B. and M. Gulia (1999): "Virtual communities as communities: Net surfers don't ride alone". In: M. A. Smith and P. Kollock (ed) (1999): Communities in Cyberspace. Routledge, London, pp. 167 – 194.
- Widerberg, K. (2001): Historien om et kvalitativt forskningsobjekt. Universitetsforlaget, Oslo.

Willis, P. (1977): Learning to labour. Gower, Aldershot.

Yin, R. K. (1989): Case Study Research. Design and Methods. Sage, Beverly Hills.

Movies

- Hackers (1995): Starring: Jonny Lee Miller, Angelina Jolie, et al. Director: Iain Softley.
- Johnny Mnemonic (1995): Starring: Keanu Reeves, Dolph Lundgren, et al. Director: Robert Longo.
- Matrix (1999). Starring: Keanu Reeves, Laurence Fishburne, et al. Director: Larry Wachowski and Andy Wachowski.
- Sneakers (1992): Starring: Robert Redford, Sidney Poitier, et al. Director: Phil Alden Robinson.

The Net (1995): Starring: Sandra Bullock, et al. Director: Irwin Winkler. War Games (1983): Starring: Matthew Broderick, John Wood, et al. Director: John Badham. Senter for teknologi og samfunn Institutt for tverrfaglige kulturstudier Norges teknisk-naturvitenskapelige universitet - NTNU 7491 Trondheim

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