

New Technology Increasing Old Inequality?

A study of computers and young girls

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Abstract: It is often assumed that computer access and computer skills are the companions of social status, as resourceful parents purchase computers and teach their children to use them. In this paper we show how young girls in Norway use computers and how their interest in computers is awakened in different ways. Having a computer at home is not the decisive factor, but the school plays an important role. We also show how computer use and computer skills may give girls with poor resources new status in their classroom.

1. INTRODUCTION

Skills in applying IT have become a prerequisite for a growing number of jobs in our society. An important challenge for the education system is to ensure that the future labour force has the requisite skills. So far the Norwegian school has approached this challenge in a haphazard way, which has been dependent on energetic teachers, their competence and the access to computers. The authorities are concerned that varying degrees of access to computers will increase social class inequality between pupils who have computers at home and parents with computer skills and pupils who do not have these resources [6]. The aim is that the Norwegian comprehensive school system will counteract this trend by providing all children with the necessary IT instruction. This argument is based on there being a direct link between class background, access to computers at home and pupils computer skills, possibly moderated by gender because boys and men use computers more frequently.

We have attached importance to understanding the relationship of girls to computers by focusing on their actions and the creation of meaning as young

girls [2]. In this we understand gender and gender differences as something we do as women and as men [8]. The relationship of young girls to computers will be formed by how they perceive themselves and how they want to be perceived, i.e. what are acceptable feminine values and forms of expression.

In this perspective gender cannot be "added" to class, for example, in order to understand girls and women from the working class or from higher social classes. We are both gender and class in everything we do, and the importance of class must be understood in this perspective [7]. Computer technology may then be understood as an important element in the masculinity project of some men, but not in the projects of others [6], and as important elements in the femininity project of some girls, but not in others'. For young people, both gender and class are important elements of their expectations for their education, but not necessarily in the same way for everybody. We are interested in the variations in the class and gender forms in relation to information technology among young girls. The issue we want to illuminate is how girls form their interest in and use of IT in different ways based on different access to resources. By different access to resources we mean parental resources, school programmes and the girls' own resources.

For the project we selected five lower secondary schools, all of which had started using computers in their teaching. The girls we interviewed were 14-16 years old and included both those who were most keen and active and girls who had little interest. A total of 40 students were interviewed [2]. In this paper we first compare the class background of these girls, their access to home computers and their computer skills. We have measured class background based on parental education or jobs based on the information we received during the interviews (we lack information from two of our informants who are therefore not included in the overview). We will in the second part proceed to examine in more detail the development of interest in computers of girls with different social backgrounds.

2. HOME PC AND COMPUTER SKILLS

Is there a direct relationship between class background of the parents, access to a computer at home and computer skills for the girls? What is the role of the mother and the father in girl's interest in and access to computers? The table below shows variations in access according to class background, but not a consistent pattern. We also see that mother's work and use of computers has an influence upon computer access as well as fathers.

In the table the class the parents belong to is determined by their education. H indicates a university education while M indicates a medium-level education, for example three-year college training or higher vocational training (nurse, teacher, goldsmith etc.). A indicates manual labour with no training or minimal vocational training. Where the parents differ in education, we have noted the father first and the mother second divided by a /. Access to a computer with Internet connection in the home is indicated in the table by "i". Computer skills are indicated so that A means high skill while D indicates no skills. We have ordered the informants according to class background and computer skills so that daughters of university graduates are at the top of the table and working-class daughters are at the bottom, each group ordered according to decreasing computer skills.

Table 1: Girls class background, access to home PCs and computer skills

Name	Social background	Access to home PC	Computer skills
Bente	H	PC/i	A
Ellen	H	PC/i	B/A
Bodil	H	PC	B/C
Beate	H/M	0 (uncle)	B
Dorthe	H/M	PC/i	A/B
Catherine	H/M	Father's work laptop	B
Dagmar	H/M	PC/cd-rom	B
Cora	H/M	PC	B
Deborah	M	PC/i	A
Dina	M	PC	A/B
Camilla	M	PC	B
Borghild	M	Father's work laptop	B
Berit	M	PC/i	B
Dora	M	PC	B
Christel	M	PC	B
Aina	M	PC/i	B
Ada	M	PC at (divorced) stepfather's	B
Alfhild	M	PC	B
Ellinor	M	PC/i	B
Else	M	Father's work laptop	B
Caroline	M	0	C
Ann	M	PC (dyslectic brother)	C/B
Alice	M	PC	D
Arna	M/A	PC/i	B
Dagny	M/A	PC	B
Agnes	M/A	PC/i	C
Cecilie	A/M	PC	B
Anniken	A/M	PC	B
Eva	A/M	Amiga	C/B
Aslaug	A/M	0 (boyfriend)	C

Christine	A/M	0	C
Björg	A/M	Mother's work laptop	C
Doris	A	0	A
Astrid	A	PC (old)	A
Adele	A	PC old portable	B
Anette	A	0 (neighbour)	B
Annie	A	PC (brother's voice synthesizer)	B
Cathy	A	0	C

Type of occupation and work seem to have an effect on the attitude to technology among parents. We see this by many of the mothers who have not only taken computer technology into use in administrative positions but also in care occupations. In our material mothers using computers at work frequently urged girls to learn how to operate a computer and get a home PC. Our material also shows some interesting variations between men with a middle-level education. Some of the fathers who had purchased home computers, used their computer frequently and encouraged their children to use computers, were fathers working in the care sector, for example teachers and nurses. Conversely we found fathers in traditional craftsmen's occupations who had no interest in computers at all. It may appear that computers had more importance for men in "female occupations" as part of their masculinity project than for men in "male occupations". This concurs with Merete Lie's findings that computers were part of the masculinity project of male managers, but not for consultants dealing in agricultural equipment who took their pride in knowledge about agricultural machinery [6].

The purchase of a home computer is therefore not only a question of finances, but also of values and identities, and we need to consider the place computer technology occupies in the parents' masculinity and femininity projects. For men technology has traditionally been an important element in confirmation of masculinity, but it may also appear that the image of the modern working women also includes mastering computer technology.

3. COMPUTER ACCESS AND INTEREST

Our material indicates that many of the working-class girls had had computers at home early in their lives, either a PC or a game machine. Those who did not have a computer at home had played games at friends' or relatives' houses or at their parents' workplaces. It seems that having a game computer was more common in the working class, while parents with a higher education considered the PC as something which should be useful,

and therefore acquired a PC with a CD-ROM and access to the Internet. We also found a clear class distinction among the girls: those from working-class families who were interested in computers spoke about computers as a fun thing, while the girls from families with a higher education, spoke of it as something useful [4].

Access to computers cannot simply be measured by checking who has a computer in their home. Those who did not have a PC at home had access through school, friends, neighbours, relatives, and boyfriends. For a great number of the girls, school had been the arena where they had become interested in the Internet, and this was by far the most popular use among the girls [3]. We see from the table that having a computer at home has no direct impact on computer skills for the girls. Girls may have a computer at home, but never use it. The routes to the young girls' interest in computers and computer skills were many and varied, but fascination in the Internet figured prominently. Below we present some of the computer-interested girls in order to illustrate different ways to computer fascination. Our first case is a talented girl from a resourceful middle-class household.

3.1 Computer-interested parents in the care sector

Both of Deborah's parents were working in care occupations. Her father was a psychiatric nurse and her mother a special nurse. Deborah had two younger siblings, and her whole family was interested in computers, using the computer at work, for school and in their recreation time. They had a new computer with Internet access. Deborah was one of three ninth-graders responsible for open house computer nights, a recreational programme arranged by the school. She was successful at school, and was working hard so she could graduate with top grades.

When she was younger she wrote short stories on the computer, but after they installed the Internet connection she used it much more: *At first I used the Internet to find material, actually that was all I used it for. Then we looked at home pages, and thought that looked cool. But when we learned more, we thought it was boring. Then it became more and more fun working with it. Then we started using chat software, and sent e-mail addresses to people, and they returned them.*

Deborah loved staying on the net for hours on end. She felt that using computers was useful. She was not too interested in the parts inside, but would like to learn more. Did she envision a job in the computer industry? *I'm planning to become a doctor, but I don't know. I want to work with people, so I won't sit in front of a computer all the time.*

Deborah came from a family where computers and Internet played an important role in their life. The next girl came from a family where IT did not play any role.

3.2 Computer-interested via friends and school

Caroline's father was a goldsmith without any interest in computers at all. Her mother had recently majored in management at the university and was in the process of changing jobs. Caroline's two older sisters were grown up and taking higher education. They did not have a computer at home, but her mother was now urging them to purchase one. What Caroline knew about using computers, she had learned from the school elective. She had chosen it because it might be hard to get a job if she knew nothing about using a computer, and she might as well learn now when she had the time. Caroline was good at school and wanted to go into research: *I want a job where I can research things, understand things. Perhaps something in chemistry. I have taken apart a small alarm clocks, small radios and things like that. I always liked finding out about things, how they work. I don't think I would like to sit with a computer, it wouldn't be the same. It isn't real, like.*

She had enjoyed the computer elective. She had learned word processing, designed a home page, and she had learned to send e-mail. They had also visited the chat pages at the end of some classes. Caroline had used the Internet for her homework in social science. Using various net sources she had gained a better understanding than when reading her textbook. Caroline told us how the computer subject was fun because it was more free, they might sit around discussing which solution to try: *There might be several solutions to a problem, which is not the case with the textbooks, where only one answer is the correct one.*

Even if Caroline did not have access to a computer at home, she was fascinated by the use of computers, finding them both useful and fun.

3.3 Clever working-class girl

Astrid came from a working-class family with divorced parents. She lived with her mother who had a cohabitant. At her father's house she had two half-siblings. Her mother was a cleaning assistant, and her mother's cohabitant was a technical assistant at the same workplace. Her father was "something in an office", and his cohabitant had cleaning jobs. At home she had recently been given an old computer discarded from her father's workplace: *I use Paintbrush, drawing pictures and stuff like that. But mostly I type, writing poetry, ... Sometimes, if something's happened, I use it as my diary. And I use it when I'm preparing for school tests.*

Astrid had developed a fascination for computers since she was introduced to them through the school recreation programme in primary school. Astrid did quite well at school. She liked English and computers best. In English class they had used computers to design home pages, and during lunch break she and some of the other girls were allowed to use the school computer with Internet access to send e-mail and browse the net. Astrid was the only girl in her class taking the computer course elective. She thought that computers were not all that difficult if you first had become interested. The elective had taught her word processing and spreadsheets, and they had designed a home page. What did she like best? *I like going on the Internet, to mail people and visit their home pages and stuff like that.*

Astrid found exciting that she was able to locate and communicate with young people from other countries. She wanted to study languages or something to do with computers. Her family supported her, but knew nothing about computers. School taught her most of what she knew and provided her with the opportunity to experiment with the Internet.

3.4 Using computers as alternative mastering

We also found some working class girls who had developed an interest and skills in computers as an alternative mastering arena to other school subjects and academic achievements. One of these girls was Annie. She did not like school as she had dyslexia problems. She was given special instruction in some subjects and was allowed to use a computer for tests.

Her parents were divorced and her father had a new cohabitant. Annie lived with her mother and a brother who had been severely injured in a traffic accident 11 years ago. Her mother had quit her job in the post office to care for her injured son after the accident. The first computer which Annie saw was the one her brother was given so he could learn to communicate after he lost the ability to speak as a result of the car accident. Annie used the computer first for games, then for composing essays. She thought this computer was old-fashioned because it was not connected to the Internet. Annie was also untraditional because she was the only girl in her class to choose the computer course elective. She said: *Then we browse the net. I've found all sorts of funny documents which other people have written. I like that. The computer elective is more fun than English is.*

Her experiences with a computer as an aid for her dyslectic problem and the computer course elective had given Annie a new position in her class. She felt that she was able to help her classmates and taught them how to use the computers and the software. Because she mastered using computers, school became more interesting, and her status was raised.

Adele was another girl who had developed a positive attitude to computers. She did not enjoy school because some of the subjects were difficult, particularly mathematics. She claimed this problem was due to the fact that she was kept away from school for a several months by her parents because the local authorities would not pay for her transportation to and from school. She had been absent from many classes, and was lagging behind. Now, however, her school had set up a programme allowing her to use a few hours during the week to catch up on her class' math progress. So far Adele had lived with her mother and her father (who were both unemployed), an older brother and her young twin brothers, but she would soon be moving to foster parents.

Her English teacher had allowed her and two friends to use the computer during the lunch break to explore the use of IT. This was an important gateway to Adele's trying out typing, locating images and writing e-mails. She also felt that the mathematics subject improved when they were allowed to use computers: *So I find it fun to put in the formulas and try to solve the problems before the computer does. (...). I learned to solve equations and multiplication and division. I found this to be a lot of fun, because I had never learned how to divide either, I sort of lost that.*

Adele didn't think it was difficult to use a computer because she felt it could be learned in steps. Her interest in computers was guided more by instant gratification than by the utility of computer skills for future education or jobs. She had acquired skills she could teach to others in the class, and consequently she had gained another status.

4. CONCLUSION

The orientation towards utility for the future was typical for middle-class girls and girls motivated for education. These were 'clever girls' who wanted good grades to qualify for their further education. This motivation for education is typical of young women in Norway today, across social classes [1]. Our data suggests that computer skills are included in the expected accomplishments of young women today. When parents with higher education acquired a home computer, their decision to do so was based on the fact that it would be useful for the mother's or father's job and for the children's schoolwork.

Working-class girls spoke more frequently about computers being fun and less about their utility for their future. The element of fun was their motivation to work with it and to learn more. The talented middle-class girls mentioned only excitement and fun when they spoke about the Internet. For the majority of the girls, school had introduced them to the Internet and

opened the door to this fascinating world. When school opened for varied use of computers, this raised girls' interest in IT, regardless their background and resources. When the young girls were allowed to use computers to do what they were interested in and found useful and fun, they quickly learned to master the technology. School was very important for young girls' access to the Internet because of the high price of advanced computers, Internet access and Internet communication. Therefore we would foresee a class division quickly developing if access to the Internet depended on the home.

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