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"I don't understand computer programming, because I'm a woman!" Negotiating gendered positions in a Norwegian discourse of computing

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Abstract

In this article I will discuss how young men and women in Norway perceive the existence of gendered expectations in relation to computers. The male and female students of computing that I have studied, share an understanding of gender and computing – a hegemonic discourse – which creates different expectations to men and women's relations to computers. Men are expected to have more interest, experience and knowledge about computers than women. The discourse affects how men and women understand and present themselves as computer users. But individuals are also free to *negotiate* the discourse, and some describe themselves as being in 'harmony' with the expectations to men and women, while others do not. Whether in harmony or not with the gendered expectations, they are all negotiating the gendered meanings of computers in a Norwegian context.
Keywords: gender and computers, computer education, women's pleasure in computers, discourse.

1 Introduction

It is a common opinion that Norway is a country of gender equality (cf. Skjeie & Teigen [11]). However, very few women choose to study or work with information technology (Corneliussen [5]). One of the problems reported by women within computer education has been related to being a minority in male dominated institutions (Håpnes [7], Stuedahl [12]). Efforts to attract more women to computer education have shown positive results, but do not seem to have long-lasting effects, and the number of women in the most male dominated areas of computer education is once again decreasing (Computerworld [1]). Although it is true that when women are a small minority, their experiences of the social setting may be negative, the recent decrease in women completing degrees in computer science indicates that the problem not only has to do with

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the male dominance in numbers. This indicates the importance of investigating other barriers women experience in their relations with computers. We need to find out more about how men and women experience themselves in relation to computers. We need to ask what it means to be a woman working with computers compared to being a man working with computers. A computer is not only a 'dead' object, but an object interwoven with culture. In order to understand how men and women experience computers, it is necessary to focus on how gender and technology interact and affect each other. In the following we will explore how ideas about gender are interwoven with ideas about computers in the Norwegian culture, and how these ideas affect men and women's personal relations to computers.

1.1 Empirical material and methodology

The empirical material is drawn from my Ph. D. thesis *The power of discourse - the freedom of individuals: Gendered positions in the discourse of computing* (Corneliussen [3]). For three months I observed and interviewed students at the Department of Humanistic Informatics at the University of Bergen on the Western coast of Norway. In Scandinavia, there is a tendency for computer studies within social sciences and the humanities to attract more women then corresponding courses associated with the natural sciences (Corneliussen [5]). As the name indicates, this is a computer course within the humanities, and it has since the latter part of the 90s had between 60 and 70% female students. The students at Humanistic Informatics are trained in technical, practical and theoretical subjects related to ICT. I followed 7 male and 21 female students in a programming course for first term students, in three classes that I was also teaching (Corneliussen [3], Corneliussen [4]).

In line with social constructivist theories, both gender and technology are seen as categories that are not stable or fixed, but are rather constantly (re)constructed in interaction with each other (Corneliussen [3], Corneliussen [4], Corneliussen [6]). I follow Joan W. Scott's insistence that gender should be investigated as a discursive category based on "perceived differences between the sexes" (Scott [10]). Simone de Beauvoir adds the important notion that we all contribute to the construction of gender, through 'what we do about what the world does to us' (Beauvoir [2], ref. in Moi [9]). It is this dual understanding of gender we will investigate here. The most important analytical concepts in the following discussion are discourse and subject position (Laclau & Mouffe [8]). Discourse refers to a limited and temporarily fixed meaning within one particular area – like the discourse of computing. Subject position refers to a discursive point of identification within a discourse. As we will see, the individual can associate with or negotiate a subject position.

1.2 A hegemonic discourse of computing

In the informants' articulations I found that they all support one particular understanding of gender and computing, which can be seen as a dominating or

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hegemonic discourse of computing. This discourse has two subject positions, describing some basic expectations towards men and women. Men are expected to have more interest, experience and knowledge about computers than women. Men are expected to be fascinated by the technology, while women are not really expected to be interested in the technology itself. Instead, women are expected to see computers as something useful, practical and something they need to address. Concerning activities, men are associated with computer games, programming and technical tasks, while women are associated with communication, information and writing – tasks that can be described without references to technology.

The hegemonic discourse has a certain power: All the informants refer to this discourse. But the individual's freedom to negotiate a discourse or a subject position is illustrated in their descriptions of their own relations to the computer. They use their own arguments and make their own meaningful connections in order to describe themselves as 'understandable' in relation to computers.

Both men and women use the hegemonic discourse as a frame of reference, but they use it in different ways, and this is what I will illustrate in the main section of this article. By focussing on how the informants position themselves in relation to the hegemonic discourse, it is possible to see a pattern of 7 different positioning strategies; 3 among the men (Corneliussen [6]), and 4 among the women. Women entering computing have to deal with a masculine discourse, which makes women's strategies rather complex to understand. In the following the men's strategies will be treated briefly, before we take a closer look at the strategies found among the women.

2. Positioning strategies among the men

2.1 Rooted in 'a room for men'

The first positioning strategy among the men is articulated by men with a close relationship to computers. They have experience, knowledge and an interest in computers which seem to be in harmony with the hegemonic discourse. They articulate this in relation to the fact that they are men or boys: "… as a boy I have been involved in computing of some form or the other since I was in elementary school." (Jon) It is described as 'natural' to expect that boys have computer skills, and one of the men even thinks that "people almost expect that a boy studies computing." (Jon) The men articulating this strategy conform to the expectations towards men in the hegemonic discourse. They are rooted in the 'room' that the discourse opens up for men, and they use these expectations towards men as positive descriptions of themselves.

2.2 Aiming at 'a room for men'

The next group of men can not exhibit the same harmony with the masculine subject position. However, they aim at 'a room for men' in their positioning

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strategy, and they use the masculine subject position as a positive reference for themselves. One of them believes that he can learn tasks on the computer faster because of "the 'taken for granted' assumption that computers-are-something-I-can-handle, because I am a boy…" (Terje) This assumption about men's easy access to computer knowledge becomes a positive force of motivation in his own learning process, and he aims deliberately at gaining access to 'a room for men' by working persistently to learn as much as possible.

One of the other men describes how annoyed he gets when he tries to help the female students: "If I'm explaining something to a female student, or if I say that she has to do this or that in order to solve a problem, she seldom does exactly what I say if she does not understand WHY." (Knut) The women do not take him seriously, because he cannot answer their big 'WHY'. His irritation seems to arise from the women challenging him when he enters the position of a computer competent man – a position that he is not qualified for. But he is also aware of this dilemma himself:

> I think it is good that there are so many women at humanistic informatics, […] If men had been in the majority, you would have to (I feel) pretend all the time that you know more than you actually do, in order not to appear "stupid". (Knut)

He illustrates how he has access to the masculine subject position associated with computer knowledge, without really being qualified. Being associated with this position conceals that he does not have the knowledge that men are expected to have.

The masculine subject position is a goal for the men in this group. They use this position, either by trying to become qualified, or by using the position without being qualified. They illustrate that men are expected to have computer knowledge, but they also illustrate how they as men easily *can* be associated with computer knowledge because of these expectations.

2.3 Outside 'a room for men'

The last positioning strategy found among the men is articulated by one man who does *not* want to be associated with the masculine subject position. Instead he wants to be positioned outside 'the room for men'. In the computer lab, he seemed to be inexperienced with computers. This appearance was further strengthened when he several times spoke of himself as poorly skilled: "I have a PC with a sound board that does not work, that probably tells you how much I have acquired in that area." (Arild) He also refrained from introducing himself as a computer student in front of others, not wanting to be associated with computing. At the end of the term, however, he told me that he had studied computing before. Although I had asked the informants about their computer experience, he had not mentioned this before.

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This man clearly did not want to be associated with the hegemonic masculine subject position. He emphasized his lack of knowledge and he kept some of his computing experience hidden. He seems to illustrate how he, as a man, needs an active strategy in order to disqualify himself for the masculine subject position.

The different positioning strategies among the men illustrate that men can position themselves in relation to computing in different ways. However, the positions they describe also illustrate how they use the hegemonic discourse – they identify with it, aim at it or distance themselves from it. The hegemonic discourse gives the guidelines for which qualities or characteristics to emphasize or tone down, in order to associate oneself with or reject the masculine subject position. Even though this position involves some expectations towards computer skills, the connection between men and computer skills is so close, that being a man can function as a sign of computer competence.

3. Positioning strategies among the women

3.1 'A limited room for women'

Moving on to the female students, we remember that the subject position associated with women was described as *limited* in different ways compared to the masculine subject position. The first positioning strategy among the women aims at this 'limited room for women'. To be interested in computers is associated with boys, and is perceived as "boring, masculine and a bit nerdy" (Marit). It is described as 'natural' that women understand less about computers than men do:

> It's quite obvious that the boys have the best understanding of the technical stuff. [...] The fact that the girls don't quite get it and need to have the information spoon-fed is not quite as accepted. It is, after all, men that teach (those topics), or very highly educated women!! (Lillian)

This difference between men and women is described as a general difference: The lack of computer knowledge applies to every woman – except those with higher education. Women with computer skills are not seen as positive role models. Instead they are described as a special category of women that cannot see the particular needs that girls have anymore. It is this gap between women and computer skills they emphasize when they position themselves: "I don't understand computer programming, because I'm a woman!" (Lillian) Because women are not expected to have that kind of knowledge, it is sufficient for this woman to use gender to explain her relation to programming. Being a woman explains her distance to computers as 'natural'.

The women who aim at 'a limited room for women' want to learn to use the computer, but they want a very restricted amount of knowledge. They have a clear opinion of what kind of knowledge they do not want: "I am not going to be an engineer, I'm not going to poke about in a machine at all - I don't understand

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any of those things .. […] I don't want to understand it. I don't want to learn that." (Lillian) The subject position associated with women in the hegemonic discourse is seen as a valid description of women in general, and they use the expectations about women's limited interest, knowledge, and experience in order to explain their own relation to the technology. They also seem to confirm the expectation that women need to see some kind of usefulness in technology. Usefulness is however a relative concept, and while these women are critical to topics concerning programming and the technical side of computers, many of the other women point to precisely these things when they describe what they have found most interesting to learn about, as we will see in the next positioning strategy.

3.2 'A more open room for women'

The next group of women also start with a limited relation to computers, but they aim at 'a more open room for women', where women have positive relations to computers. "To me it was a conscious decision to enrol in a computer class. I did not want to continue being the illiterate that I felt I'd become." (Marte) Through their own experience at the computer course, these women expand the limited room for women. All of them had earlier experience with computers, but it is as computer students they 'realize' that they actually *can* learn about computers, and that they actually *enjoy* working with computers. These women express a great pleasure in learning more about computers:

> I started at the bottom when it comes to computer knowledge, really – but I feel that with every new day I master new things […] It feels like a new world has opened up to me … and every day I think "How on earth is it possible to walk around and cope without knowing what I know today!??" It has to be a feeling close to something like going from being illiterate to being able to read… I think that I have become addicted to the computer!!! (Helga)

Many of these women express a surprise that they suddenly have found computing both fun and useful, and many of them describe themselves as 'addicted'. To enter the world where women do not have a natural position is one of the things that seem to fascinate these women the most. Programming is one of the activities that is most exclusively associated with men. One of the women explains that she thinks about programming as a masculine activity, and says:

> Maybe that is why I want to do programming, because it is so masculine […] I feel sort of as if I were in a world that's a little bit forbidden. That is probably why I find it especially exciting. […] I think there is some status symbol connected to it. (Bente)

Programming is an exiting world because it is a forbidden world. Some of the other women find working with hardware most fascinating. In both cases their fascination derives from a feeling of having knowledge in, and authority from, a field dominated by men.

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These women appreciate the computer knowledge they have got through the computer course. They are about to create a 'room' where women *are* interested in computers, and in this perspective, they describe themselves as untraditional women. However, in relation to men in the masculine field of computing, they still describe themselves as 'typical women' – in a forbidden world. These women expand the room for women, but they also maintain the borders between men and women. They emphasize that they do use the computer, but they do not use the computer in the same playful way they associate with boys.

3.3 'A shared room' for men and women

In the third positioning strategy among the women, the goal is 'a shared room' where gender has nothing to do with possibilities or abilities. The women articulating this strategy have a lot of experience with computers. However, they have also experienced being treated in accordance with the expectation that women have limited computer knowledge:

> If I am sitting and trying out something, installing something and sitting poking about a bit, and then a boy comes and says "No, look here, I will show you", then I just get annoyed and say "Excuse me! I can do this just as well as you. Just leave me alone and let me do it." At least they often believe that they know more because they are men, even though I can't see why that's so." (Bjørg)

Even though these women reject the idea that gender has any particular meaning in relation to computers, they still find that gendered expectations are used against them. And they protest against it. Bjørg, who is talking here, claims that gender does not mean anything to her. But at the same time she experiences that gender does mean something, and she fights against it. She believes that what makes the difference is how she behaves when she is confronted with these attitudes – here from a interview together with Sara, who strongly disagrees with her:

> Bjørg: … no boy is allowed to tell me that I am not worth as much as he is, because then I'll tell him what I really think about that.
>
> Sara: Yes, but I think it doesn't matter what you say.
>
> Bjørg: Yes, it does in fact matter what I say, because if I just accept that's the way it is, nothing will happen. But if I put my foot down and say "Hey you, listen, that's not how it is!" Then the person sooner or later, depending on how much you nag and make a fuss about it, will understand …"

Bjørg needs an active strategy – to 'nag and make a fuss' – in order to protest against the meaning that is ascribed to gender. The equal position these women

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describe does not exist, but has to be created by confronting the exponents of the hegemonic discourse.

Even though these women claim that gender should not matter, they also emphasize that men and women have different relations to the computer:

> I have a partner […] and every time he passes the study where the computer is, he just has to go into the room and just press a few keys, for instance if he is on his way to the kitchen to get some coffee, he passes the study and just has to go in […] It's like 'schwoop' – as if the computer drags him in. It's the same with my brother and my father, and two other men I know.. […] I manage to go passed a computer without having to press some key. (Bjørg)

Here, men are associated with an unhealthy and uncontrolled relation to computers, in contrast to women. Men and women do different things with the computer. This has nothing to do with abilities or possibilities, but with conscious choices that women make: They just do not care for the same things as men.

This strategy is not about abolishing gender, but about being treated as equals to men. "We are not men. We don't think as men. But we have values that are just as good as men's values, but we have to show that we've got them, and show that we dare to think in a different way…" (Bjørg) These women do *not* consider themselves as 'strangers' in relation to computers. They aim at 'a shared room' of computing which tolerate both a masculine and a feminine subject position. The starting point is however that the hegemonic discourse exists, and that is why they need an active strategy. They need to protest.

3.4 Women in 'a room for men'

In the last positioning strategy, the women position themselves in 'a room for men'. These women also strongly express that men in general have advantages before women: "These thoughts reflect the structure of our society, where masculine values are always treated as better and more serious, yes, more 'human', than female values." (Sara) Perhaps it is this opinion of a general gender inequality that makes them emphasize that they qualify to enter 'a room for men', rather than 'a room for women': "Since I did not have a brother, my sister and I had to fill that 'gap' by learning practical tasks that traditionally often are performed by men." (Lise) They use their experience of performing practical tasks associated with men in order to describe their own relations to the computer.

> Tone: Both Lise and I are atypical women – have managed for years without a man, and become more and more masculine, I think. […]
>
> Lise: […] Both of us are raised so that we should know how to saw and ..

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> Tone: ... different things. My father is a craftsman, and I have worked a lot together with him, and still do.

These women have a tradition for crossing gendered borders, partly because of the absence of men, and partly because the men have brought them along. Performing tasks, operating machines and technical equipment associated with men contributes to their qualification for a positive position in the discourse of computing. They do not reject or protest against the hegemonic discourse, but rather use this as the basis for their articulations. It is within this discourse they define themselves, as women, within 'a room for men'.

4. The power of discourse – the freedom of individuals

Through this short presentation of the different positioning strategies in this group of students we can see how men and women perceive different possibilities. Within these possibilities there are some gendered patterns which seem to open up or restrict their perceptions of themselves as computer users. We could probably find other subject positions and other positioning strategies among other social groups, in other contexts. The tendency shows, however, that it's easier for men to be associated with computer competence. Based on gender, men can easily be ascribed a positive relation to computers. Women on the other hand, have to negotiate in order to be ascribed a positive relation to computers. In this landscape, women are 'the others' – outside the masculine norm. To some of the women this becomes a shelter ("I don't understand computer programming, because I'm a woman!"), while it is more problematic to others, who raise a protest against being excluded. If we compare the strategies among men and women, we can see a greater variation among women's negotiation with the discourse than it is possible to see among the men. The women introduce more new elements in their discursive negotiations than the men, who rather seem to line up in a continuum according to how well they conform to the hegemonic discourse. All the positioning strategies use the hegemonic discourse as a valid frame of reference. It is not necessarily accepted, but it is seen as an existing discourse, as something they meet and have to deal with, and they deal with it in different ways. It is through 'what they do with what the world does to them' they construct their positioning strategies. By negotiating with what they perceive as available subject positions they also contribute to the construction of gender, by proposing that being a man or a woman with a relationship to computers can have other meanings than those described by the hegemonic discourse.

Both in academic discourses and in everyday discourses we refer to myths about gender and computers. These myths have been a rather unclear area, often treated as unsettled questions or as 'fallacies' that simply can be rejected. In my research it has been important to take such myths seriously – not as myths meaning something which is not true, but as cultural stories about the relation between gender and computers. As long as these cultural stories are perceived as a valid frame of reference to men and women who are trying to find their own positions in relation to computers, they also have real effects on real people.

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Another point I want to emphasize is the enormous pleasure and joy these women express when they talk about their new relationship to the computer, about the computer in general, about programming or hardware – things that are associated with men in the hegemonic discourse. During the last ten years there have been a number of attempts in Norway to attract women to computer education, not by accentuating women's pleasure in technology, but rather using slogans emphasizing that computing is about communicating with people, a skill specially associated with women. It is as if the stories about women's pleasure in computing are drowned in the hegemonic discourse's claim that 'women do not care for computers'. One of the challenges for the future is thus to make the stories about pleasure in computing 'stick' to women.

References

[1] Kvinneandelen ved NTNU halvert på ett år. *Computerworld*, 24.10.2003.
[2] Beauvoir, S. d., *Det annet kjønn*, Pax: Oslo, 2000 (1949).
[3] Corneliussen, H., *Diskursens makt - individets frihet: Kjønnede posisjoner i diskursen om data (The power of discourse - the freedom of individuals: Gendered positions in the discourse of computing)* Dr. art. thesis, Dep. of humanistic informatics, University of Bergen, 2002.
[4] Corneliussen, H., The multi-dimensional stories of the gendered users of ICT. *Researching ICTs in context*, A. Morrison, InterMedia Report: Oslo, 3/2002**:** 161-184, 2002.
[5] Corneliussen, H., Konstruksjoner av kjønn ved høyere IKT-utdanning i Norge. *Kvinneforskning*, **27(3)**: 51-50, 2003.
[6] Corneliussen, H., Male positioning strategies in relation to computing. *He, She and IT Revisited. New Perspectives on Gender in the Information Society*, M. Lie, Gyldendal Akademisk**:** 103-134, 2003.
[7] Håpnes, T., Hvordan forstå mannsdominansen i datafaget? En dekonstruksjon av fag- og kjønnskultur. *Utdanningskultur og kjønn*, T. Annfelt & G. Imsen, NTNU, Senter for teknologi og samfunn 3/92: Trondheim**:** 155-183, 1992.
[8] Laclau, E. & C. Mouffe, *Hegemony & socialist strategy. Towards a radical democratic politics*, Verso: London, 1985.
[9] Moi, T., *What is a woman? And other essays*, Oxford University Press: Oxford, 1999.
[10] Scott, J. W., *Gender and the politics of history*, Columbia University Press: New York, 1988.
[11] Skjeie, H. & M. Teigen, *Menn imellom. Mannsdominans og likestillingspolitikk*, Gyldendal akademisk: Oslo, 2003.
[12] Stuedahl, D., Studenten i informatikkstudiet - en rapport om studenters situasjon ved Institutt for informatikk, UiO, Kirke-, utdannings- og forskningsdepartementet, Likestillingssekretariatet: Oslo, 1999.