

Current Strands of Thought and Work in Progress at the Division of Gender and Technology

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Printed by Universitetstryckeriet, Luleå 2009

ISSN: 1402-1536
ISBN 978-91-86233-70-9

Luleå 2009

www.ltu.se

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Introduction

This report mirrors current strands of thought and work in progress at the division of Gender and Technology at the Department of Human Work Sciences at Luleå University of Technology. We present four different papers by Petra Jonvallen, Jennie Olofsson, Caroline Wamala, and Ulf Mellström. The aim with this series of reports is to present and deliver thoughts in progress in an easy and accessible way for anyone interested in the work at the division.

Our division is one among six at the department of Human Work Sciences. As a gender department we are rather unique in the sense that we are placed within a technical faculty and located next to neighbouring science and engineering divisions in a truly interdisciplinary research environment. In that way we are in many ways in the midst of the engineering sciences and rationalities that we are constantly trying to contextualise in terms of gender and technology relations. We see this as an advantage rather than being set apart in our own localities with mostly like-minded social scientists. As many of us depart from anthropological beginnings in our work and have gradually become identified as interdisciplinary gender and technology scholars, this also fits with a methodological stance and attitude in our respective fields within the broader field of gender and technology studies. In other words, hanging out with the people whose rationality and meaning making processes we are interested in trying to understand.

Gender and technology studies is a field that nowadays covers a vast range and body of empirical and theoretical work. It also covers vast intellectual terrains, from practical measures around gender equality and gender balance of how to attract more women to the sciences and engineering on the one hand to contemporary philosophical posthumanist discussions around nature/culture, the fusions of bodies and technologies and concurrent gendering of those bodies and technologies, on the other. As such the field is enormous and so much still needs to be investigated. Empirically as well as theoretically the field calls for a number of new interventions and intersections. In the papers in this volume we can only hint at some of these future challenges. Jennie Olofsson is in her paper working in a posthumanist

mode by locating driving as a highly situated and embodied activity where she investigates the socially mediated relations between the car, surrounding actors and social conventions as distributed materiality. She also analyses how different forms of gender scripts are inscribed into the design process as well as into how different ways of driving are promoted. In this, her work represents an important strand of thinking at the section where we investigate new forms of gendered materiality. Another important intellectual thread is represented by the work of Caroline Wamala. In her paper she challenges statistical representations and common monolithic conceptualisations of the digital divide in an African context. By introducing the notion of fringe utility she diversifies what Internet access means in different cultural contexts and emphasises that any such analyses have to be situated by looking at the lived experiences of technology. The gendered digital gap in Swaziland also becomes most evident as Wamala argues that impact indicators that further explain the figures should accompany statistical figures.

In the paper by Petra Jonvallen, she opens another key avenue of thought at our section, and that is gender and technology studies in the context of medicine and health care. Following a long feminist tradition of investigating the relation between bodies, technologies and culture, she explores how the practice of the fetal monitoring technology device - STAN – shapes perceptions of risk and safety as well as how epistemological authority, visual representations, and gendered expertise are established. An important conclusion from her work is that we see an increased focus on visual representations over other forms of evidence at the hospital birthing centre she studied. The article by me represents yet another theme in gender and technology studies. I have for many years investigated different forms of embodied, symbolic and structural connections between technology and masculinity. In this piece, originally written for the Swedish Rescue Service, I seek to develop the theme of technology, heroism and masculinity.

Historically, gender and technology studies have been more pragmatically and empirically oriented around gender equality measures and interventions rather than philosophical abstraction and research questions primarily driven by theoretical interest. There is, however, a renewed interest in marrying contemporary feminist thought with the fertile empirical soil in gender and technology studies. Critical theory driven interventions in gender and technology studies have recently highlighted the consequences of having been too focused on deconstructing technology as an analytical unit but simultaneously having operated with

rather fixed and stable gender categories. Heteronormative assumptions within gender and technology studies (cf. Landström 2007, Rommes 2007, see also Faulkner 2001) have formed empirical research, sometimes known as the ‘black-boxing’ of gender in gender and technology studies (cf. Landström 2007, Lagesen 2005, 2008, Bray 2007, see also Gill and Grint 1995).

As our colleague, the feminist theorist of science, Catharina Landström argues, feminist constructivist technology studies have had as a major epistemological mission to resist technological determinism but has in that process tended to “‘black-box’ gender identity as the major cause in the gendering of technology, which leads to analyses representing gender as stable and technology as malleable” (2007:8). She further argues that one reason for this shortcoming is the customary reproduction of heteronormativity in gender and technology studies, something that prevents a symmetric constructivist approach to gendered subjectivity, in the dominating paradigm of co-production in gender and technology studies. Instead the gendered subject functions as the determining factor in the gender/technology relationship, which counteracts the aim of understanding co-production. Arguing that gender and technology studies has been oddly disconnected from debates around the constitution of gender, Landström advocates that we turn to queer theory to open up for more open-ended approaches to gendered subjectivity beyond the ‘heterosexual matrix’ (Butler 1999), or as Landström (ibid:19) puts it: “move beyond the comfort zone of heteronormativity.” Instead of assuming gendered subjectivity as given in gender and technology relations, analyses open to new belongings, ‘unexpected connections’ (Probyn 1996) and assemblages of different elements (Currier 2002) are what Landström proposes to align gender and technology studies with current feminist theorizing. Landström’s critique is important and renders researchers in the field to invoke and question the heteronormative assumptions of our cases opening up to more mobile and fluid connections in the gender and technology relation. Landström’s critique is seminal and closely related to developing intersectional perspectives in gender and technology studies. In a similar vein Els Rommes (2007) shows in her work how the heterosexual imaginary is constantly at work reproducing gender dichotomies and hierarchies associated with computers and how through heteronormativity, technologically competent women become masculinised on various dimensions (Ibid:13). Closely associated and overlapping with Landström’s and Rommes critical interventions is also the work of Vivian Lagesen (2005, 2007, 2008) and Francesca Bray (2007), addressing the ‘black-boxing’ of gender in gender and technology relations. Although Lagesen and Bray do not problematise

the semiotics of heteronormativity as such, they nevertheless point to the analytical asymmetry in the process of co-production in gender and technology studies. Lagesen emphasise that gender in gender and technology relations are heterogenous, distributed, made and unmade in complex ways (Lagesen 2005:37).

Francesca Bray also points to a lack of research on gendered dimensions of embodied technical skills, implicitly bringing the nexus of technology, gender performance and bodies into the picture. In this she shares a common concern that is being frequently addressed in the contemporary material-semiotic turn of gender and technology studies as well as the wider field of Science, and Technology Studies (cf. Haraway 1997, 2003, Barad 2007). In gender and technology studies this has not least become evident in studies of technology and masculinity where intra-active relationships (Barad 2007) with various forms of technologies often constitute central components of masculine subjectivities (Mellström 2002, 2003, 2004). Examining the role of bodily performance in relation to diverse technologies has proven to be a fertile ground for looking into the production of gender in the field of masculinity research, something that in this volume also is shown in Jennie Olofsson's paper. Certain forms of body politics are at work in, as for example I have shown in my own research, the enactment of technical skills and bodily performance among technical specialists such as motor mechanics and engineers. As such they are also embedded in a cultural context where machines are culturally defined as an object of men's passion because they have an embodied relationship with the machine, and because the machine is often a symbiotic extension, of the person, of the man. In many cases, the machine is given a feminine persona, thereby (re)producing both normative heterosexuality and gendered differences. As an extension of the man, the machine is incorporated as a key to his identity. And this is one of the more significant ways in which the equation between technology and masculinity comes to be so pervasive and durable (see also Lohan & Faulkner 2004).

The cultural embeddedness of gender and technology relations is yet another dimension that Francesca Bray (2007:17) points to and that has been underestimated in the production of gender and technology relations, as also shown in Caroline Wamala's work in this volume. Bray argues that "in focusing so closely on the gender-technology nexus itself FTS (Feminist Technology Studies, authors note) sometimes neglects deeper-lying ideological dimensions within which any regime of truth concerning gender and technology must ultimately be understood" (Ibid:19). Thus, furthering gender varieties in gender and technology studies

also opens up for cross-cultural interventions, comparisons, and intersectional understandings. The huge spectrum and variation of gender subjectivities in relation to artefacts and technology is still a field open to analyses that can bring new perspectives to the field.

This also follows another critique that has been addressed at various stages in social studies of science and technology and the branch of feminist science and technology studies (MacKenzie and Wajcman 1999, Wajcman and Le 2007, Bray 2007), but now seems to reappear stronger than before, and that is the lack of studies of gender and technology relations in non-western societies. Bringing gender and technology studies to non-western contexts also opens up for a well needed wider scope of cultural contexts, varying gender relations embedded in a diverse range of settings investigating how technology is gendered and how gender subjectivity forms technology. Studies of gender and technology relations, and of technological change in general, consequently require attention to how gender as well as class and race often are instigating factors of changed social and cultural balance (see also Harding 2006). In reviewing existing literature in gender and technology studies, one conclusion seems inevitable and that is the lack of studies that go beyond gender and technology as analytical parameters and include intersectional understandings of the gendering of technology. In other words, if gender and technology are in theory mutually co-produced, (Faulkner 2000, 2001, Lagesen 2005), so are ethnicity and technology, age and technology, sexuality and technology, and class and technology (see also MacKenzie and Wajcman 1999:25-26). Still, these latter dimensions of cross-cultural comparisons and intersectional understandings are generally within STS, with a few notable exceptions (cf. Traweek, 1988, Traweek and Reid 2000, Dyer 1997, Verran 1998, 1999, Adams 2002), often absent, and in particular regarding gender and technology studies.

In this technical report we are showing some ways in which these parameters can be taken into account as well as how contemporary feminist theory can invigorate gender and technology studies.

With Regards

Ulf Mellström, Head of gender and technology studies at Luleå University of Technology

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Monitoring what for whom? Some views on risks and authoritative images in birthing practices

Introduction

An ambulance arrives at 8.30 and I follow, or rather run with, Maria (midwife) and Anna (assistant nurse) to the emergency elevator that connects the delivery rooms to where the ambulances drive up. “Just what are we about to see now?”, Maria says while the elevator is going down in an anxious yet calm voice. I feel considerable tension. The elevator arrives and the door opens, but is about to close behind us as we leave. “Hold the door!”, Maria says to me, as she heads out to meet the ambulance. I do and, before I blink, two ambulance guys roll in a visibly pregnant woman on a stretcher. She is bleeding intensely and crying “It’s not moving! I can feel it’s not moving!” she cries repeatedly. The elevator goes up again and we rush down the hall and reach the delivery room seconds later. The woman is gently lifted onto the hospital bed from the ambulance stretcher whose yellow cover is completely soaked with fresh blood. I am told to fetch the ultrasound and the needle tray, which I do while Maria and Anna stay in the room with the woman. When I come back into the room there are two doctors there as well. The fetal monitoring device – CTG – is now strapped to the woman’s belly. Its sound is turned on and the strap of paper is coming out, showing the heart beat of an active fetus. One of the doctors talks to her in a mild and composed way as she does a vaginal examination. The doctor puts the ultrasound transducer on the woman’s belly. What is seen on the ultrasound screen additionally confirms that the fetus is fine. The bleeding does not stop, however. Nevertheless, the woman seems to have willingly surrendered to the expertise of the doctors, midwives and machines. She seems extremely relieved. We all are. Later on, the doctor decides that the fetus “will be considered as fully developed” (even though the due date is not for another couple of weeks) and that “there’s going to be a delivery today.” (fieldnotes, January 2006)

Only thirty minutes after the onset of intense bleeding, a pregnant woman finds herself in a hospital delivery room surrounded by four highly professional doctors and midwives and fetal monitoring equipment. I, a social scientist there to study gender and audiovisual technologies in birthing practices, am also present.

Visual and graphic representations of different aspects of the body are a central part of medical practice. There are a large number of studies that point to the social and cultural character of such representations used within different areas of medicine, as well as of the machines that produce them. Taken together, the studies can be seen to argue against dominant medical and natural science paradigms that often are claimed to equate seeing with believing; or representations with the real. Furthermore, studies of visualizations of the body show how visual evidence often is more authoritative than non-visual evidence. An often cited example of the strength of visual evidence in medical practice is the ultrasound, where the image of the fetus has reached almost an iconic status. Visual representations, as compared to textual or discursive representations, seem to be objective illustrations of real objects. Visual culture theorists, however claim that visualization in science is rather to be seen as argument than illustration and that the act of making visible is an act of *trying* to make things real (Wise 2006: 81). Also, while technologies are used to control bodies of information, some argue that they simultaneously treat bodies as information (Clough 2004: 3). Making aspects of the fetus visible can result in shifting of focus away from the pregnant woman to the fetus, making the woman “transparent” (Duden 1993), thus providing data that is free from “maternal noise” (Oakley 1984). In a study on the use of ultrasound in pregnancies, Rothman has argued that the fetus’ place in relation to the woman, her pelvis, her navel etc. becomes obsolete, and that the fetus seems as if located in empty space (Rothman 1994: 114) These are but a few examples of feminist research on some implications of the new visualization techniques in pregnancy and childbirth, both on the patients implicated by the technology as well as on those who work in birthing clinics. They indicate that studies of new technology in pregnancy and childbirth are an important feminist issue.

The field note excerpt above shows how the monitoring technology gives a sense of certainty and security in an emergency situation whose outcome only minutes earlier seemed unclear. It is further used to show how well the sociotechnical system surrounding the act of giving birth works, but also to hint at the double role of visual technology in the delivery room. It is also a first introduction to the role of fetal monitors as they can be seen in the ethnographic setting. The data on which the paper draws consists of participant observation in a Swedish university hospital birthing centre and interviews with 8 midwives, 3 assistant nurses, and 1 doctor, all done during a 4 month long period. This paper is an attempt at finding relevant

themes pertaining to studies of gender and technology studies in the context of medicine and health care. This text thus centers around the authority of visualization techniques in childbirth in general, which implies a shifting of attention from the woman to the fetus. Another point of attention is the ambiguity of the device in terms of producing “safe” birthings, in which I argue that the device produces safety through increased monitoring of the fetal heart, while at the same time produces an increased awareness of risks. I will suggest avenues for further research in this research area by introducing two themes derived from the data collected: 1) gendered risk and safety perceptions in relation to technological devices and technological change, 2) epistemological authority of visual representations and gendered expertise. Departing from these themes I will discuss some implications of the shift in focus from the female body to the fetus and the device, as well as what new technology implies for changes in the gendered work organization. Before I introduce the two themes, however, a short background of the role of fetal monitoring in birthing practices will be given.

Background: from CTG to STAN

Since the 1970s, the predominant method for fetal monitoring during labor has been cardiotocography (CTG), a method used on a routine basis in many European and U.S. clinics. By use of two transducers, the CTG monitors changes in fetal heart frequency rate and uterine contractions intensity and intervals of labor pains of the birthing woman (see Figure 1). When there is a contraction of the uterus, the fetal heart rate (HR) goes down. The fetus gets its supply of oxygen through the woman’s body via the umbilical cord and placenta. When there is a contraction, this supply becomes limited, and the HR goes down, as illustrated by Diagram 1, where the tip of the bottom curve is paralleled by the dip, or deceleration, of the fetal heart rate represented by the top curve. The midwife locates a place where the fetal heart rate can best be measured and places the other transducer in a place that best measures the contractions. These two transducers are fastened to the woman’s belly by two 2-decimeter wide belts. Instead of a transducer to measure the fetal heart rate, a scalp electrode can also be fastened to the fetus’ head through the vagina (for example if obtaining a good signal through external auscultation is difficult). The scalp electrode is a metal screw that literally is screwed into the fetus’ head and enables a more accurate measure of the fetal heart rate than the external transducer. For example, the external transducer can end up close to a vein of the birthing woman and instead mistakably register the mother’s heart rate.

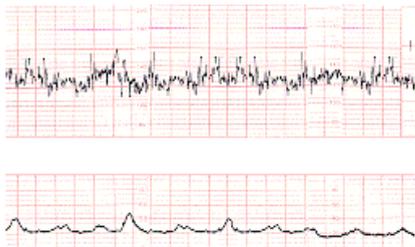


Figure 1: A CTG curve (fetal heart rate above and contractions below)

In the hospital where I conducted my fieldwork, the CTG is used on every woman. First, upon entering the birthing centre, in a standard procedure referred to as a ‘door test’. A door test is a 20 minute long measurement with CTG where the midwife looks to see that the heart rate is normal and that the curves have a variable pattern. If everything is in order and the couple seems calm and do not have questions, the midwife leaves the room while the machine is running. During the door test, the woman often leaves her private clothes on, since the labor may not have progressed enough and she may be sent home and asked to return later. The curve from the CTG can be seen on one monitor in the central office of the ward and one monitor in the coffee/lunch room. This enables a monitoring and surveillance of the progression of labour and status of the fetus without a midwife or doctor being present in the delivery room. Increasing use of surveillance technologies, in a longer term perspective, has been shown to lessen the time staff spends in delivery rooms (Villar et al 2001). As the birthing trajectory moves along, the woman presses the alarm when she feels she needs assistance.

Once the woman is admitted to the delivery room the midwife puts a needle in the woman’s arm: a standard precautionary measure to make it easier to administer drugs through it if something unprecedented occurs. It is also used in order to administer the synthetic hormone oxytocin used to induce or augment labour, or to help the womb contract in order for the placenta to come out after the baby has been delivered. In cases where women bleed excessively after the baby is out, this is of high importance since putting a needle in after large blood loss is difficult. Augmentation can be done any time during the birthing trajectory if a doctor decides that the process is taking too long and the baby might be at risk. Some women need pain reduction by epidural. The epidural also makes the contractions weaker, which in turn leads to an increase of the oxytocin infusion. Around five per cent of the women giving birth for the first time use epidural at the clinic. Augmentations and

inductions have increased, and having an epidural present indicates a need to increase the monitoring of the fetus. Augmenting contractions therefore requires increased care. The uterus can rupture if augmentation is done too forcefully, and the fetus can be deprived of oxygen. Monitoring the oxytocin that is infused causes the uterus to contract, and since the fetus reacts to the contractions it becomes important to see that the contractions do not put too much stress on the fetus. Thus, the CTG helps to control that the infusion is not so strong as to harm the fetus.

Judging the curves that are produced, however, has been a process that is difficult to standardize and an art in itself. Changes in heart frequency rates are common and do not necessarily imply a danger to the fetus. The changes in the curves can be caused by normal changes in the activity of the fetus, such as outer stress factors, fever and some pharmaceuticals. One problem with CTG is that it has been shown to lead to overreactions to fetal heart frequency rates which led to a doubling of the amount of caesarian sections (Banta and Thacker 1979). Even so, its introduction into clinics was quickly widespread and has become standard practice. That the CTG is so widespread then comes as a surprise. Especially since there is little evidence to support its merits. This can be compared with other methods that have a stronger evidence base but are less practiced, such as social support during labor (Villar et al 2001).

The paper strips derived out of the CTG imply a sharing of knowledge in a disembodied form (Bassett 1996: 286). Where the pre-CTG birthing (listening to the fetus through a wooden fetoscope) relied more fully on clinical judgement, CTG-monitored birthing has come to rely on obstetrical standards whereby judgment becomes increasingly of a collective character. Midwives frequently take the piece of paper out from the delivery rooms and into the control room and discuss what it looks like. The look of the curve is then related to other facts available about the woman and the pregnancy. Such facts can include issues such as the woman's general health such as if she is a smoker or if she is overweight (facts that are known to produce weaker fetuses), or what her potential previous pregnancies were like. Monitors have thus opened up the birthing process to the scrutiny of obstetricians.

The university hospital where I conducted research had just bought two new devices to be used in monitoring risk pregnancies. This device – STAN – is a product developed by a Swedish medical technology company that is widespread in Europe and passed the controls

of U.S. Federal Drug Administration in 2006. STAN produces graphic curves representing fetal heart rates, fetal echocardiogram and female uterine contractions, respectively. In Sweden, it can be used in deliveries of both normal and risk pregnancies, depending on guidelines adopted locally. STAN combines CTG with an analysis of the ST segment of the fetal echocardiogram ECG (see Diagram 2). It is the ST segment that is monitored to see if the fetus is deprived of oxygen. The main benefit of STAN is that it can help diagnose fetal oxygen deficiency during labor, and this effect is scientifically proven. Finding fetuses with oxygen deficiency when using CTG was done through analysis of blood sample taken from the fetus scalp. The problem with this is that it only indicates the state of the fetus when the test was taken. The advantage of using STAN is that it monitors the ST segment continuously, and is not designed to replace any of these methods, but to be used in addition.

In the clinic where I did my fieldwork, STAN is used on risk pregnancies, where it is judged that continuous surveillance is needed. This mounts up to around 20 per cent of the deliveries in Sweden (SBU Alert 2006). According to those who have done research on it, STAN is the first evidence based fetal monitoring technique that has been developed with good scientific results (Amer-Wählin 2003, Impey, Reynolds, MacQuillan et al 2003; Westgate, Harris, Curnow et al 1993). It has been shown to decrease the number of babies with oxygen deficiency by 54 per cent, and the number of invasive procedures (caesarean, forceps and sugklocka) by 18 per cent (Amer-Wählin, Hellsten, Norén, et al 2001).

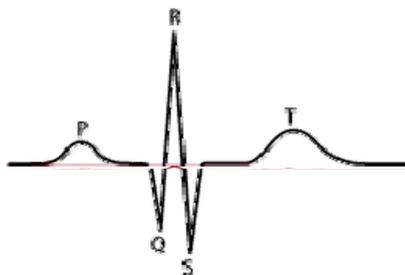


Diagram 2: The ECG complex

The screen of the STAN machine is a touch screen with different functions and interfaces. When used, the screen looks like below. Below the representations derived out of

measurements of the fetal heart and uterine contractions, respectively, is the row of X:s. The curve below is the fetal heart rate. The middle curve is the contractions. Below these two there is a line of “X”. Each individual X represents thirty heartbeats and that the quota of the T-wave and QRS is within specific limits. If not the number 2 or 3 appears, or a “flag” appears above each cross, all of which are referred to as "STAN events". The additional information provide by STAN is thus a row of x’s (at the bottom of Figure 3), and a graphic representation of the ECG as indicated by the three curves on the left side of the screen in Figure 3.

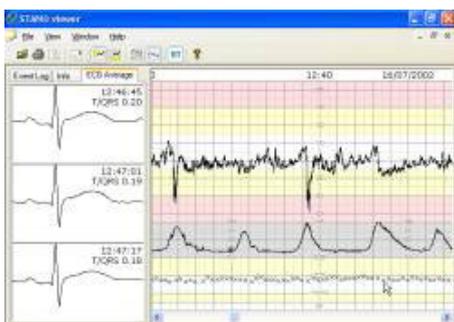


Figure 3: Screen shot of STAN interface (The row of X’s represent the ST analysis)

This description of the details of visual representations of female contractions and fetal heart beats is necessary in order to understand what the new device does in relation to the old. However, and since the fieldwork is focused how fetal monitoring is situated in and related to the gendered practices, structures and experiences of birthing, more details are not necessary. Such purposes require another set of questions. Into what gendered work organization is it introduced? How does the device affect the birthing practices in relation to traditional feminist concerns of reproductive health? What meanings do those working in the clinic, and the women giving birth, ascribe to the new device? In what follows, I will discuss some tentative answers to these questions.

1. Epistemological authority, visual representations and gendered expertise

When I did my fieldwork in 2006, two new devices had been bought, but were not used on a routine basis. According to local guidelines, it was supposed to be used in all risk pregnancies, which in concrete terms meant around twenty per cent of the deliveries. In practice, however, this was not the case. Introducing a new way of monitoring requires a

massive educational effort, according to the head of the clinic, and the difficulties in implementing it in practice was something she had expected from the start. In order to make the process easier, four midwives had been selected to be instructors to facilitate the implementation. They were given extra training and in turn taught the rest of the staff how to use the machine. The midwives and assistant nurses I interviewed, however, were skeptical towards the new device, as illustrated in the following excerpt:

As a midwife, giving birth is totally natural, the most natural and sound thing you can do. And then you get this big piece of machinery on which you can see an ECG in the room... I feel it's a bit too hospital-like, it becomes so much about being ill. (Julie, midwife)

The ECG curve, as illustrated by the citation above, seems to signal that the new device makes the natural in birthing turning into something that is “hospitalized”. The midwives focus on the experience of the mother to a higher extent than the doctors. One of the doctor says that the midwives focus on the woman’s or couple’s experiences of giving birth is “silly” and gets agitated when the subject is brought up. She says she feels responsible for the result of the birth, which according to her is a healthy baby and a healthy mother. Things that have been tried at the clinic, such as a double bed where the father could fit, is something she sneers at. One example that she brings up is the reluctance of some midwives to put the precautionary needle in the arm when a woman first comes to the delivery. She is of the view that, yes, it is only a precaution, but if you have seen a woman bleed two liters in as many minutes this is a very rational precaution, even if most women do not need it during labour. Clearly there is a tension at play here. The doctor’s views of midwifery’s focus on experience as “silly” can be seen as in line with her view of childbirth as very risky.

Many midwives I spoke to are critical towards the increasing medicalization of the birthing practice and wish for a more “natural” birth trajectory. Fjell has shown that the advances in medicine and its increasing ability to safeguard the survival of both fetus and woman is a precondition of this focus on the experience of giving birth. It is only when survival is likely that there is room for having a nice experience (Fjell 1998).

In an analysis of stories by women who have given birth, Nylund Skog takes this one step further and says that biomedical knowledge is embedded in an ideology of the natural birth.

Biomedical knowledge becomes a precondition to give birth “intuitively”. Giving birth intuitively thus only becomes possible within the frames of the biomedical birth (Nylund Skog 2002). The midwives’ focus on natural birth and intuition can be seen in this light. The technological practice of birthing is countered by a culture of intuitivity – a culture that can be seen as developed in opposition against a technoscientific development that midwives have not been part of choosing. The tension is articulated in the following by one of the midwives:

I think there is a lot of forgetting the normal... Proper breathing and relaxation is very good in preparation for delivery. But instead there is a lot of investment in reading about different forms of pain relief, about all the things that can happen... the risks of perinatal mortality, how big the risk is for... You’re so...you have to be so concrete, have done your homework, and... What I think is great is when women just come here and take it as it comes... listening to their bodies, breathing along and giving birth... Naturally.

There are several different tools and practices that aid the woman along the birthing trajectory. Midwives often stress the importance of the woman not to sit still. She is often encouraged to stand up or walk around in the delivery room or out in the corridor. There is a large rubber ball that can be used to sit on, similar looking to the ball in a pilates class. There is also a cushioned and wheel enforced metal stand that she can use to lean on while walking or standing. At the far end of the corridor is also a bathtub where the woman can sit if she feels that this will alleviate some of the pain from the contractions. The woman is also encouraged to go to the bathroom when and if she can since a smaller bladder may contribute to there being more room for the fetus to come down.

Following from this, a normal birthing trajectory implies using the techniques involved in birthing that are performed by the women themselves: breathing, relaxing and “listening to their bodies”. The midwife’s role is to give them support as they do this. The point with normal birthing is that the control over the trajectory is that of the woman giving birth, not hospital staff and their implicated technological devices.

In the following excerpt, the midwife starts talking about “the normal”. The normal is defined in opposition to the pathological and is defined in guidelines and documents.

Moreover, this difference constitutes the work division between doctors and midwives, where the former only enter the picture where there is pathology or risk involved, and the latter are only responsible for the normal. What is normal in the terms defined in PM's and documents is not always equal to what is perceived as normal by midwives.

If there is a vacuum extractor used, or something, that's normal too, but it is important that [the women] still do the large part of the labour themselves, and believe in themselves and dare to go into it, make sounds... and, well listen to their body. You can't forget what it is we're supposed to do there... guide the woman through childbirth. We're not the ones giving birth, it is the woman herself, but we are there to support her in this. So I am very *pro* focussing on the normal.

It is interesting to note that both the natural and the normal shifts over the course of time. A vacuum extractor, she says is natural. Inducing women with oxitocin after birth to help the contractions of the uterus to deliver the placenta, is that seen as normal and natural?

Listening with the wooden auscultation device, is that natural? CTG? STAN? It seems that once the technology has been around for some time it becomes more natural and its mere being there leads to staff using it. A device such as a vacuum extractor is seen as "natural" even though it is the doctor who is prescribed to use it. The more low-tech wooden auscultation, which has been around to listen to the fetus long before the CTG was introduced, is still more or less in use.

Listening with a funnel... I am really bad at that. There is a CTG device to listen with. I could just as well use the funnel if I just want to listen for a moment, but it is more smooth and easy to listen with the technology and apply the transducer.

One situation when the wooden stethoscope is more useful than the CTG is if the woman, one midwife points out, is in the bath where the electronic device cannot be used. Also, it may be more comfortable for the woman than having the straps around her belly. And in a sense, the wooden auscultation can be just as useful, she says. But she rarely uses it and refers to lack of routine. It thus seems that whether or not a device is used depends on if the midwife is used to it or not. This specific midwife has only worked at the clinic for a few

years and she is used to listening to the fetus' heart through CTG. In her words, it is more "smooth". This indicates that once the device becomes a part of the situation, as the CTG has been for decades, it becomes the tool used first and foremost. Thus, the birthing woman can be standing up next to the delivery bed, leaning against the standing device, with a chord with oxitocin going from the needle in her arm to the device that administers the drug; a chord going from her vagina (and the fetus' scalp) to the CTG or STAN. While she is experiencing labour pains, a partner, friend or relative may be standing next to her trying to help out by holding the anesthetic gas mask that, in turn, is connected to the wall on the other side of the delivery bed. The midwife who tries to examine the woman in the midst of this may have some trouble getting through these three tubes and chords as she goes along. Moreover, there may be an additional chord connected to the woman's back if she has an epidural. In such a situation, yet another machine to handle in practice is what tips the scales.

How does the new device relate to gendered ways of knowing implied in midwifery and obstetrics, respectively? The visual aids are only one part of the judgment a midwife makes of the woman and fetus. The image that emerges is of the fetus and woman as being one, but with the woman as the primary object of judgment-making as denoted by the short phrase "I see her". Furthermore, she focuses on "how it feels", something she then checks against the CTG curves. The impression that stays from this excerpt is that the CTG curve is only one part of deciding how the birthing is coming along. But this is not the only way the health of the fetus is judged. The woman and the fetus are placed in the wider context where knowledge is derived out of "experience" or "intuition", as explained by the midwife below:

It is a combined feeling. I *see* the woman, I *meet* a woman, I see what she looks like in her body and what she looks like with her belly. I feel with my hands on her belly. I feel how the baby is located. I feel when I do the examination, I also feel how open she is and what *that* feels like. And I run a CTG curve and look at the sounds of the fetus. So it's a *combined* picture.

The combination of skills used in assessing the fetus' health is often referred to. In the following excerpt, another midwife, talks about listening skills when assessing whether or not the birthing process is normal.

About listening... it's not only a printout that you use. I hear the sounds, too. You learn to hear that "this is a normal heart frequency, but this one is too low and this one is too high", but not to the extent that "this is 140 and this is 120". So it is important to be able to hear too, because it happens that you're standing in a spot where you can't see the numbers, and then you have to trust yourself that "this is normal".

The graphic representations, thus, do not replace the heart sounds coming out of the CTG. The sound can be turned on and off. Judging the health of the fetus is also done by listening, and this is something that they need practice on. It seems clear, however, that the visual representations are more authoritative than those that are only audible, since listening is only done when she is standing in a position where she cannot see the screen or printout. The device, moreover is developed from obstetrical research rather than midwifery research, which also gives it more authority. Judging the health of the fetus, then, involves the skill of listening to the heart beats as well as the skill of judging the graphic visualizations of that same sound.

2. Gendered risk/safety perceptions and fetal monitoring

From a lay-person's perspective, heart rate monitors and ECG curve, as seen in TV series and films, serve as icons of risk, danger and even death. When the blipping screens appear on film or TV series, we get the message that someone is about to die or in a very dangerous or critical situation.

The CTG is not always given highest priority of interpretation, something that reverberates in that some of the more experienced midwives decide not to use it when their interpretation differs from the CTG. It does happen that some midwives decide to disconnect the woman from it even when the curve is less than perfect, but then weigh it up in other ways, such as going in and checking on the woman more often. The CTG curve is not only displayed on the strip of paper in the delivery room, but is also visible on a screen in the control room as well and the staff lunch/coffee room. The presence of the curves here is controversial, which can be read out from this excerpt taken from an interview with one of the more experienced midwives.

I have not accepted the fact that we have one of those monitors that shows all the CTG's out in the office and in the lunch room. If you want to look at a CTG and find out how the patient is doing, I think you should go there, open the door, and go look at the CTG in there. You cannot just look at a TV screen and say the patient is not doing well. That's the problem. (Inger)

No one I talked to was against the CTG per se, but many had mixed feelings towards it. Like here, when an assistant nurse shows worry about what the women actually think about being coupled up to a machine for such a long period of time.

It is not normal to be connected to a machinery most of the time. The dads... some of them just sit there and stare at the heartbeats and are very concerned over the labour pain measurements not showing a level as high as they think it should considering how much pain the mother is in... "it's hard to see when they're standing on all four"

The expression gives a picture of a situation that is of a dramatic kind. Implied in it is a sense that an abstract looking at the screen is difficult or even absurd. Thus, and conversely, the graphic representations on the screen seem to imply a distancing to the woman in labor.

There seems to be no question that the experience would be more comfortable doing without all these devices, provided that nothing goes wrong, of course. And here, the perspectives of the midwives and doctors often differ to a significant extent. Where the midwives' perspective is that of working with normal deliveries and that of the doctors is working with deliveries that are medically defined as risky. This makes it more likely for doctors to be willing to take extra precautions where some midwives are very reluctant to.

I do see that [the device] is a good thing, I guess you save a lot of lives by it. Both mothers' and babies'. When you do an emergency caesarean and a bad baby comes out and you realise that they would not have made it otherwise.... We have had CTG or STAN, lactate that helps to indicate whether this birthing should be terminated. But sometimes I feel that it disturbs the *normal* deliveries. Sometimes when you have a CTG curve that is not bad but not perfect either, and the mother has to be connected to it, sometimes for hours.

The consequence being that she cannot move around so easily, her movement is circumvented. She will have to lie in bed, sit in bed, stand next to the bed, but cannot walk around, cannot move like one may wish to, go in and out of the bathroom, with the consequence that the urinary bladder might be in the baby's way. So I am a bit ambiguous. (Karin, assistant nurse)

Continuous monitoring of the fetus gives the impression that the birthing process follows a linear path, and leaves little room for individual variations, and when they occur, they appear as abnormal:

One of the older midwives here once said that if you were to do a CTG – this was before STAN was introduced – during a *whole* birthing, a normal delivery, there will likely be some instance where we would think it is time for a cut. I mean, somehow the baby needs to react to it being born without us having the inability to let things alone. And I think I agree with her.

(Karin, assistant nurse)

Bassett has studied birthing as a cultural performance where hospitals are seen as “cultural museums for storing, maintaining, and exhibiting some of the most important cultural goods of a social group” (Bassett 1996: 282). From such a perspective, the use of a fetal monitor is best explained “as a mechanism through which a social group works to pacify itself by displaying its concern for the fetus and its future” (Ibid: 283). A paradox in birthing practices is that patients are increasingly concerned about the possibility of a professional mistake or malpractice while maternal and infant mortality rates have fallen. Consequently, STAN is not only a device that leads to a measurable deduction in the medical risk of giving birth. It is also presented as an extra life line in a situation where there is constant uncertainty over if a seemingly normal birth will turn pathological. As expressed by another midwife:

... det jag kan säga är att jag tycker det är rätt skönt att ha den för då vet jag att jag har en till livlina att dra i om det är nåt som är konstigt. (Julie, midwife)

This statement supports what Bassett claims; that fetal monitoring, seen as a mechanism through which a group works to pacify itself. But it is not only midwives and doctors who

need to be pacified in the often dramatic delivery situation. Also the birthing woman and her partner find the new technology pacifying. In the words of another midwife:

Många tror jag tycker det känns tryggt, att de får det presenterat att det här är det senaste, [att] det är fin fosterövervakning. (Sara, midwife)

Nice fetal monitoring is here equated with the latest technology. Having STAN in the room implies giving the birthing mother the newest available monitoring technique.

Soothing as this new lifeline may seem, however, an escalating use of monitoring techniques, has been shown to make patients more aware of there being a risk in birthing. Seeing something makes it more believable. José Van Dijk goes so far as to say that a medical representation can outweigh the patient's own feeling about what is going on in his or her body. The graphic representation is more than just representation. It affects the practice in which it is a part. The STAN and CTG are powerful actors in the enactment of the situation, as indicated by the following excerpt:

What I have thought about when I have had STAN in the room is that they are so big – they steal the show in there. The dad is so fixated by the machine that he sort of forgets that he has a woman there in the bed (laughs). He sits there and looks at the screen... [mimicks the dad] “Ah, now it's like *that*... look over *there*... what does that digit mean? And there goes that curve and...” I'll say that much. So incredibly fixated by this big machine!
(Sara, midwife)

The words used to describe STAN's presence in the delivery room – “steal the show” and “fixated by the machine” - indicate that there is a perceived difference of using CTG or STAN. The presence of *high tech* STAN instead of *low tech* CTG seemed to have consequences for the situation in the delivery room. Sara continues:

The screen comes up so high, at level with your face. The CTG only has this small piece of paper that comes out, and sometimes even that is enough for the father, but when STAN comes out it's like “Wow!”. And that is too bad I think, since he is supposed to take care of his woman, not look at the machine. [...]

And we midwives do the same, I think, when we enter the room. I stand in the middle of the room and first look to see whether the curve is normal, before I look at the patient. That's not good.

(Sara, midwife)

Thus, more than just being a question of the zest of new technology, the design of the STAN machine itself is questioned. The screen is at level with your face when standing up, while the CTG is lower down.

Fetal monitoring techniques are thus double-sided. On the one hand they provide better and evidenced odds for a healthy outcome, but on the other shifting attention away from the woman to the machine. Everybody in the delivery room – the midwife, the partner, me – is looking at the screen.

But if you feel safe, it can also make you feel the worry that, oh no, it does not look good now. It is double feeling, that too. (Sara, midwife)

This doubleness is also expressed by another midwife who here says she makes an effort to make the women feel safe about having STAN:

When you know that you are to use STAN on a patient, I still try to tone down that it is something that I do to be *extra* sure. Instead I try to say that this is how we do it because the amniotic fluid is a little green, so we just what to know that the baby is fine and that this is an extra precautionary measure, but it does not have to mean that something is complicated or that the baby is feeling worse. But, those that I have used it on... I don't think they see it as a big thing. It's like listening to the heart sounds but in a different way. For the patient it is just like a regular CTG." (Julie, midwife)

It seems that this midwife feels a need to ensure that the couple does not become alarmed by STAN. She says she tones down that its use because this particular delivery is seen as risky. It is just used to make it more "safe". She indicates that there is substantial work being done in order to make the woman feel safe and to make her feel that it is a normal and not risky birth. What she says is somewhat contradictory and is indicative of the situation in which

fetal monitoring is used. On the one hand she stresses that the patients have felt that STAN is “no big thing” and that it is just another way to listen to the heart beats, and that it is just like the regular CTG monitoring. At the same time, however, she says that she tries to tone down the fact that STAN is used for women with elevated risks. That the risk is elevated does not necessarily mean that the fetus is not well. But the mere presence of the new technology manifests the fact that the particular birth is medically categorized as “risky”. Fetal monitoring through STAN, then, implies a notion of risk and danger, and a considerable amount of work is done in order to make this less apparent. The monitoring techniques are thus double-sided: they give a feeling of safety, while simultaneously implying a heightened sense of danger.

So, it is really good that we have it and that we can use it when the mothers need it, and we *shall* indeed use it. But you can not give the kind of hope to the parent couple that “ok, they are using STAN, so now nothing can happen”... I am afraid that it is becoming too medical so that people trust – even more – that nothing can happen to my child. (Julie, midwife)

Conclusions

From what can be read above, STAN has led to an increased focus on visual over other forms of evidence, both from the perspective of the midwives and assistant nurses and from the mother. I have also shown how it increases the awareness of the risks of giving birth, while at the same time gives an increased sense of security. It is important to note, however, that these changes are taking place when the device is new and not yet integrated into everyday practice and workplace culture. More research needs to be done to understand how this new device has affected birthing practices in a long term perspective. Not least important to mention here is the scientific controversy that has arisen in Sweden, where one group of scientists who have done a lot of research on STAN have been accused of data forgery. This serious accusation has led to investigations into the methods underlying the results that their scientific publications are based on. The group of scientists has appealed against the accusations, which has led to new investigations, and it is not unlikely that the controversy will go on.

This report is not a part of a specific side of this controversy seeking to establish universal evidence for or against a particular fetal monitoring method, or to take sides in the

relationship between obstetrics and midwifery. It seeks instead to provide an understanding of how technologies are used in the specific and local contexts into which these so called evidence based technologies are introduced. Important for such an understanding is the gendered division of labor between mothers with partners, midwives, assistant nurses and doctors, where the historical division of labor between (male) doctors and (female) midwives still has effects on the work practices. Related to this is another important issue for understanding how technology is adopted locally and pertains to knowledge production, where visual evidence is the most authoritative form; and where knowledge produced in the academic field of obstetric is more authoritative than that produced within midwifery.

Thus far the focus of my research has been mainly on those that work in birthing centers, but less on the woman and the partner, friend or relative present during the birthing. How does the device affect these birthing practices in relation to traditional feminist concerns of reproductive health? Does it give women increased control of her body? Do the merits of the device in terms of a small but statistically relevant decrease in babies born with conditions such as cerebral palsy outweigh a general scenario argued by some feminists where the focus is on the fetuses and less on the woman? A paradox is that patients are increasingly concerned about the possibility of professional mistake or malpractice while maternal and infant mortality rates have fallen. In what way are new methods of monitoring a part of these concerns? What happens to the woman's experience of birthing as the focus shifts, to some extent, from the female body to the fetus and the device? What does the new device imply for changes in the gendered work organization? For example, does it necessitate new forms of communication between doctors and midwives? And is it at all possible to talk about the merits and perils of specific evidence based methods without including them in an analysis of local organisational structures and workplace cultures? These questions deserve further investigation.

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“Is it unmanly to drive using the first gear?” Driving as an embodied performance in multiple forms.

Points of departure

In recent years, and due to the IT revolution, the car has been transformed into a digitalized device where computers, electronic sensors and different software programs such as GPS are integrated phenomena. Many of these inventions are also employed in order to increase what is regarded as safe driving, such as air bags, infra red cameras and hands- free sets for cell phones. Ironically, as theorist Paul Virilio claims; “[e]very time a technology is invented/.../, an accident is invented together with it/.../” (quoted in Beckmann 2004:94). Pinpointing Virilio’s statement, one does not have to search far in order to find current examples. An illustration of this, at least in Sweden, is discussions of whether or not to accept cell phones when driving. Critical examinations of devices such as DVD- and CD-players as well as of electronic sensors, GPS and radio equipment reveal that these features cannot merely be seen as instruments that facilitate the driving; their many implications can distract the operator and in the enhancement also undermine safe driving. This dilemma has previously been acknowledged in different research disciplines (cf. Oh et al. 1992; cf. Brookhuis et al. 1994) and also partly implemented in design processes of new cars (*Din Teknik* no. 05, 2007).

This study acknowledges safe driving, far from being a mere technological issue, to be fostered and encouraged as embodied interactive performances that occur in close collaboration with socio-technical factors such as the surrounding traffic situation, pedestrians and other actors¹. Subsequently, as technology is inextricably part of society (MacKenzie et al. 1999:12) driving in general and safe driving in particular materialize as socio-technical performances where factors such as gender, spatiality and embodiment are pivotal. Driving performances are highly concrete and embodied (Suchman 1987:viii); they are enacted as well as reproduced in a crucial intermingling between embodiment, vehicle, the surrounding situation, other traffickers and social conventions. Furthermore, these practices are crucial to consider when implementing novel equipment in cars. Rather than assuming driving as an activity conducted by a subject (a driver) directed towards an object (the car), this article proposes an understanding of driving as an embodied and interactive

performance constituted in the enmeshed Venn diagram below. By presenting three intertwined practices, novel ways of understanding driving will be disclosed, and in the enhancement this endeavour might foster alternative approaches when probing car design.

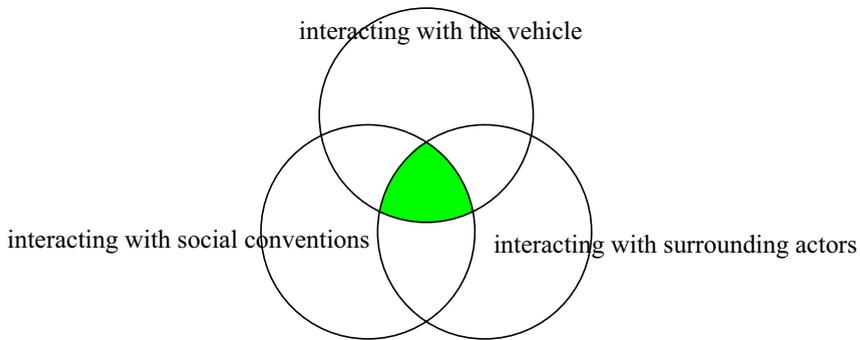


Figure 1: Intersecting practices of interaction

Acknowledging driving as a reciprocal collaboration between the three spheres illustrated above, this study engages in driving practices and safe performances of the vehicle as co-constructed and enacted in relation with design processes. This begs for critical examinations of how new features are developed and implemented within car design. Design processes are by no means completed when a product leaves the factory (Wajcman 2004:36). Quite the contrary, inventions might be turned into physical objects during the production, but the symbolic meanings attached to these artifacts are constantly being negotiated and reinvented (Wajcman 2004:47). Social conditions alter human needs; artifacts are replaced and become superfluous (Lie & Sørensen 1996:11ff) and simultaneously, consumers find new ways of using technological equipment. This capricious intermingling is indeed important to acknowledge as it yields new knowledge concerning the discrepancy between the artifacts produced and the devices desired and utilized by drivers and passengers. Scrutiny of driving performances as multilayered can therefore serve as helpful in order to understand how safe driving is negotiated and conveyed in close collaboration with the vehicle, surrounding actors as well as social conventions.

Drawing on an ethnographic fieldwork conducted during the summer of 2007, this article advocates social and technological factors as mutually co-constituted (Law 1987:111ff; Faulkner 2007). Driving exists in conjunction with, and is oriented towards materiality as

well as towards different levels of spatial settings (Hutchins 1995:121). Discussions concerning transportation, car mechanics as well as the relation between car and driver (cf. Dant & Martin 1999; cf. Beckmann 2000, 2004; cf. Dant 2001; cf. Dant & Bowles 2003; cf. Mellström 2003; cf. Nehls 2003; cf. Friberg 2005) provide advantageous points of departure. However, promoting driving as an interactive performance, this study pleads to demonstrate this activity as also *situated* and *embodied* (Suchman 1987:viii). Particular ways of thinking (and acting I'd claim) come with techniques and tools (Hutchins 1995:115), which is why thorough observations of driving might serve to disclose how this interactive performance is ordered and negotiated according to materiality, spatial settings as well as to social conventions.

Empirical material

During six weeks, from the beginning of July until the middle of August 2007, I followed trainees practicing at a small driving school in the middle parts of Sweden. The initial aim was to study driving in terms of embodied and gendered performances. Driving lessons were subsequently shadowed from 09:00 until 16:00 three days a week, Monday to Wednesday and during the time for my fieldwork, twenty trainees were encountered, five men and fifteen women. The clientele constituted a rather diverse group concerning age and previous driving experience – I had the opportunity to accompany both women and men being in their late fifties – even though the majority was seventeen to nineteen years old². The owner of the driving school, Annika³, also served as the only instructor and by this means, she had a rather busy schedule stretching from 09:00 am until 19:00 pm five days a week. Since each driving lesson was estimated to last forty-five minutes, Annika sometimes encountered nine different trainees every day. Additive to this, she offered theoretical lessons for both her trainees and their private instructors⁴.

For my part, this intense program allowed for closer investigations concerning the interaction between the trainee and the instructor as well as between the trainee and the vehicle. The schedule also enabled me to disappear or rather, to occupy a peripheral position. As Annika also cheerfully explained to one of her trainees; “let’s pretend that we do not notice the one in the backseat, I suggest you consider her as an appendix”. Moreover, due to the design of the vehicle, I believe that my presence as a researcher was less imposing as the design of the seats quite effectively closed me off from the conversation in the cockpit⁵.

Utilizing a black Peugeot 307 for teaching purposes, Annika proudly demonstrated the advantages with this particular model. As a station wagon, the design of the tailgate was of particular importance as it allowed for vision backwards. Quite apparently, Annika had tried a lot of cars before buying this model and to her knowledge only Peugeot had developed a suitable and safe concept for the rear window. Placed behind the driver's seat I was facilitated by a small mirror attached by suction cups above the rear view, which allowed me to easily view the driver's seat and the visual orientation of the trainees as they performed the vehicle. This arrangement further enabled thorough observations and scrutiny of the driver's interaction with the instrument panel as well as with the steering wheel, but also with the surrounding traffic situation. During the lessons I silently observed the activities of the drivers, and subsequently took notes. I did not initiate any conversations nor did I engage in extended discussions. When asked to comment on my own way of driving, thoughts about a particular manoeuvre and different rules I tried to keep my answers as short as possible without being too taciturn. I regarded the situation as quite stressful for the trainees – driving as an embodied practice indeed requires interaction on several different levels simultaneously – which is why I sought to make my presence as less imposing as possible. This was also one of the reasons why I did not use a video camera although I, in retrospect, can see the advantages with the method. Its capacity to capture the multilayeredness in interaction could certainly have contributed to a more thorough analysis of the material collected. In addition to my field notes, I followed, as well as partook in conversations occurring between the driving lessons; these pauses served as great opportunities to ask the trainees about their opinions regarding the design of the car, driving in general and why they wanted to attain a driving licence. These times also enabled me to discuss more extensively with Annika and ask her about the contents of the driving lessons.

Saying this, it should be mentioned that my research interest did not concern the individuals' driving skills; rather the objective was to explicate how the trainees responded to the given instructions as well as the vehicle and the current traffic situation. Nonetheless, as the situation sometimes was interpreted as quite stressful all the drivers were routinely asked for permission to follow them as they practised. Most of the responses were positive although a couple of times, the same request was met with a suggestion to remain at the driving school and not follow the trainee and Annika. Consequently, the possibility for the trainees to choose whether or not to accept me as a passenger was an important ethical aspect in the fieldwork.

Theoretical approaches

Actor-network theory (ANT) provides a sufficient point of departure for this study; as such it allows me to interpret the car and the driver in terms of parts in an intertwined network⁶ of actors. This theoretical approach elucidates the intertwined relation between human and nonhuman actors (Latour 1998:145; Verbeek 2005:112); in-as-much as human actants stipulate the use of instruments and artifacts, the instruments (in terms of nonhuman actors) mutually define the operator and regulate the possible actions conducted (Czarniawska & Hernes 2005:8; Lindahl 2005:50). Actor-network theory subsequently encourages “systematically recording the world-building abilities of the sites to be documented and registered” (Latour 1999:21). Networks as a series of transformations (Latour 1999:15) are preferably understood as emerging from, and dissolving into an ongoing play of power (Brown & Capdevila 1999:38); the actor itself is actually a network effect (Law 1999:5) in that its agency is generated by that very heterogeneous network (Brown & Capdevila 1999:40). The car as well as the driver constitutes salient actors in an erratic network of traffickers, artifacts, rules and social conventions. Driving is further viewed as a constantly negotiated activity; it is tentative and highly situated in that it takes place “in the context of particular, concrete circumstances” (Suchman 1987:viii). This multilayered activity gains meaning and is reproduced in light of traffickers, artifacts, rules and social conventions. The theoretical ambition of this article is to convey the trainees as operating, not only in relation to the vehicle, but also as parts of a network that is co-constituted and made intelligible in collaboration between human as well as non-human actors. Following the words of theorist Bruno Latour; “rather than defining entities, essence or provinces” (Latour 1999:20), I seek to follow circulations in order to disclose driving as an embodied performance in constant intermingling with the vehicle, the surrounding actors as well as social conventions.

Interacting with the vehicle

Contingent on factors such as gender (gender will be further mentioned below), age, class and previous driving experiences, the car defined as well as limited particular behaviours of the trainees. In this crucial interplay, the driver as well as the car are constituted and reproduced, or rather; particular actions and design features that are regarded as desirable are constituted and reproduced. For the individual operators at the driving school, the set of equipment however seemed to, at least at first encounter, suggest an unintelligible hotchpotch of controls, levers and devices. Additive to this, besides practicing at the driving school many trainees also drove accompanied by their parents or private instructors, which is why they

were accustomed to equipment salient in older cars. They might therefore have found the novel features even more confusing. Old (well-known) instruments had been developed, combined with, or replaced with, new ones and this fostered detailed discussions and a range of different responses from the trainees.

Novel (thus unknown) technological features seemed to especially stress the older drivers, as the trainees (quite literary, I'd suggest) were surrounded with a range of devices and signals. The Peugeot had an advanced production of sound signals that, depending on the rhythm of the sound, indicated different technical dilemmas ranging from the back sensors to the forgotten key in the ignition. These features seemed to upset some of the drivers as they, when noticing different sounds, often disrupted the proceeding manoeuvres, turned to Annika and waited for her to explain the noise. However, it was not only the sound signals that caused anxiety. The directional indicators, the controls for managing the volume on the radio, the Air Condition function as well as the different headlights were objects for further worries and enquiries. Repeatedly, Annika explained the different features, and as a consequence thereof her presentations implicitly suggested *how* to use the same.

The interaction with the vehicle was a constant negotiated performance and of particular importance for the trainees was to manage the balance between the accelerator and the clutch. With the help of these pedals, the trainees spent many hours practicing in order to keep the car in a balanced position, at the same time as they supervised the other road users, and, after leaving the site, slowly move ahead. This manoeuvre, naturalized for experienced drivers, suddenly emerged to me as one the most trying tasks to conduct. The more lessons I shadowed, the more they materialized as an advanced set of embodied performances where the car and the driver operated in reciprocity. Hence, in order for the trainees to succeed, they had to acknowledge the car and interact, not only with their eyes, but rather with a variety of senses. I often interpreted their bodies to be torn into pieces when struggling to co-operate feet, hands and eyes with the technological devices. Mistaking the clutch for the brake, forgetting the gear, causing engine failure and neglecting the handbrake can be seen as ruptures in this crucial collaboration between driver and car, between body and machine and also between varieties of body parts. Displayed in loud sighs, a roaring engine and car coughs, the material resistance certainly appeared as the resistance of the body itself (Hayles 1992:166) which is why the trainees, in order to succeed, were forced to develop an

*embodied knowledge*⁷ of the car through repeatedly incorporating practices (Hayles 1992:162).

Correspondingly, driving as an embodied performance does not merely involve the sight; rather the complexity of this practice requires a range of senses. With her left hand on the handbrake and one eye on the surrounding traffic, Annika frequently taught the trainees to *listen* to the sound of the engine as they experiment with the brake and the clutch. “Listen”, she often said and looked at the trainees as the car started to vibrate. Practicing this manoeuvre during the initial training stages, many trainees looked puzzled. “I do not hear these things [the differences in sounds]”, one driver simply responded. However, after a few times, I noticed how some of the more experienced operators started to handle the gears with guidance from the altered sound of the engine, rather than looking at the meters or waiting for instructions. The feeling of the car vibrating also gave indication to many of them. Operations thus become routinized; actions turn into operations as the driver habituates to them (Nardi 1996:75 Dant & Martin 1999). Assisted by the double setting of clutch and brake, Annika was also able to physically illustrate how to elaborate with the pedals and by this means she encouraged a feeling for how the car responded to different manoeuvres. One of the drivers strikingly enveloped this multilayeredness by stating; “to feel certainly means a lot”.

Consequently, by manifesting driving as an embodied performance, I seek to explicate this performance as multilayered, thus depending on a range of senses. Put differently; in order for the trainees to perform the vehicle adequately, it was not enough for them to develop a sense of sight. More important was to *hear* when the sound of the engine alters, to *feel* the positions of the different gears and to *touch* the pedals in gentle ways; all object-oriented activities that required continual awareness and engagement (Dant 2001:17). Moreover, successful operations of the vehicle, often attained through advanced collaborations between the senses, were closely linked to gaining control over the car. Words like mastering and controlling frequently flourished during the lessons which also contributed to underpinning particular driving performances and, in the enhancement the very notion of safe driving. Put differently; in order to master the car, the trainees needed to develop knowledge about the very same, knowledge that required intertwined sets of bodily practice.

Control as pivotal for what constitutes safe driving will be of further importance in this article. I will return to this much negotiated term below; however I currently suggest a continued discussion of driving as an interactive and multilayered practice.

Interacting with the surrounding actors

In addition to its material appearance as a vehicle, the car is preferably discerned as a moving spatial domain (Friberg 2005:193,202f) in constant collaboration with surrounding artifacts and vehicles as well as traffickers and pedestrians. Advocating driving as an embodied multilayered performance, the following section seeks to disclose interactions with the surrounding traffic. Hence, operations of cars take place in constant dialogues with pedestrians, cyclists and other drivers (Bragd 2002:164). Annika constantly reminded the trainees of the importance to supervise the current traffic situation and its road users and by this means, the trainees can be said to act in reciprocal collaboration with other actors, human as well as nonhuman. Managing the vehicle was frankly not enough. Rather, Annika repeatedly pinpointed communication as salient for driving practices; the trainees were constantly reminded to use the directional indicators before turning as well as to look in the rear mirrors and smile towards pedestrians. “By that means, they know that you’ve seen them”, Annika stated.

From my position behind the driver’s seat, I noticed how the right side of the rear-view mirror was soiled with fingerprints; Annika made frequent use of this mirror in order to direct the drivers’ attention to the situation behind. “Check out the reality”, she exclaimed and made vivid gestures towards the windscreen. In doing so she also enveloped driving as a highly interactive performance that required more than mere competence in managing brake, clutch and gears. Hence, even if the importance of operating the vehicle according to certain standardized benchmarks (as illustrated above) were emphasized, Annika required constant considerations of the surrounding traffic and its actors.

Driving is an interactive practice in multiple shapes, enacted in constant dialogue between driver, car and surrounding situations. Actor-network theory refers to this collaboration as *translations*; movements between different actors (compare Czarniawska & Hernes 2005:9). The car as a mobile space in ongoing tentative dialogues with other actors in the network constitutes an actor in a varied system of roundabouts, main roads, parking lots, shopping streets and cross roads. In order for the trainees to successfully orient in different

environments, they were encouraged to acknowledge spatiality, weather conditions and time. Every situation certainly required a range of manners. Annika often pinpointed the multiple aspects within driving performances, especially when the trainees drove in the city centre. Waiting for the green light in a long line of cars, she commented to one of her trainees; “if this would happen on a Friday afternoon you should not position yourself this far away from the car in front of you as it doesn’t give the persons behind you much space”. By this means, time was conveyed as a salient factor; the mutual agreements stipulated by the actors operating in the line of cars were consequently objects for change.

Wooden containers with flower arrangements were also pivotal actors in that they had a considerable impact on the driving practices. Placed on the roads and in the neighbourhood areas, these artifacts forced the trainees to reduce velocity and were frequently discussed at the driving school. As the trainees had to consider them and also adjust their driving performances according to their placements, the flower arrangements further contributed to conveying what was regarded as safe driving. Annika often claimed the artifacts to be employed for a reason; implicitly suggesting children to be the motive she frequently evoked the importance of driving carefully when approaching these areas, and look for further signs of where the presumed children could be found. Forgotten toys, bicycles and plastic buckets served as effective reminders when attracting the attention of the trainees. Put theoretically; these objects were attributed human-like characteristics. Insisting on rules being followed and maintained, they replaced functions of the police. By this means, these artifacts could be said to encourage certain practices. As theorist Marcus Lindahl (2005) mentions; “[v]elocities of cars are reduced even when the staff of a local police department celebrate Christmas/.../” (Lindahl 2005:51). Consequently, agency is transferred and delegated to nonhuman actors or in the words of actor-network theory; an *inscription* takes place. This can be seen as an “act by which humans cast relevant components of their agency and knowledge into artifacts” (Francesco Lanzara & Morner 2005:72).

Interacting with social conventions

Pinpointing interactivity between driver and vehicle as well as between driver and the surrounding actors, this article ultimately seeks to explicate the intermingling relation between driver and social conventions. It should be mentioned that although I acknowledge how social conventions serve to foster and reproduce, not only gendered driving practices but

also driving practices connected to class, race and age, the endeavour of this section is to dismantle driving as gendered.

As the road might be interpreted as a spatial area strongly connected to men (Nehls 2003:85f) it can be said to exclude women. The link between the road and different vehicles (especially cars) and men, contributes to critical examinations of travels and movements as gendered performances (Nehls 2003:86; Friberg 2005:208). Correlations between men and cars are further depicted by ethnographer Annika Bragd (2002). Conducting her fieldwork at the Volvo factory in Gothenburg, Bragd (2002) depicts the development of a new model, Volvo XC90, from a management perspective. In a short genealogical retrospect, Bragd (2002) meritoriously discloses the implicit exclusion of women by emphasizing how the history of the car also is the history about heroic men, grand narratives and hard work (Bragd 2002:16).

The crucial connection between men and cars was an often expressed and reproduced collaboration at the traffic school as well. At the beginning of the fieldwork, Annika conveyed an episode that had taken place between her self and one of the male trainees earlier and this clearly illustrated how men as road users were naturalized. Waiting at a cross road, Annika had, in order to provoke the male driver, referred to the surrounding drivers in terms of *she*. “How do you know”, she had asked, “that the woman on your right has any intention of slowing down”. Her trainee had looked at her and instead of answering her question, replied that the gender of other drivers was hardly ever considered by him.

To gain a deeper understanding of this episode, it should be mentioned that Annika and her trainees constantly referred to other drivers, pedestrians and cyclists as well as to cars in terms of *he*. This epithet was consequently referring to road users, not in terms of gendered beings, but as synonymous with humans. Subsequently, cars as well as pedestrians were without further ado referred to in terms of *he* or *him*, which is why references to other traffickers in terms of *she* or *her* clearly implicated a particular gender. The individuals referred to as ‘women’ were subsequently conveyed by their gender rather than understood as first and foremost human.

To further augment the discussion; prevalent at the traffic school were frequent comments (stated by Annika as well as by the trainees) about old men with caps. This (homogenized) category was assumed to constitute the most dangerous drivers. But even men in general

were to my surprise recurrently objects for critique concerning their driving skills (Friberg 2005:20). Watching one of her trainees tentatively adjusting the driver's seat, Annika smilingly gave a short comment; "you are not supposed to lean back like the boys do". Nonetheless, critiques like this, interestingly enough, failed to disclose further enquires whether men at all were suitable drivers or not. Nor was technology as closely connected to men questioned. This was evident when Annika enthusiastically conveyed a story about one of her male trainees who managed to repair one of the car's headlights by simply knocking on the glass. "They (the men) have some kind of..." leaving the sentence unfinished, Annika fell silent but continued to smile and shook her head. Not quite sure of how to respond, it remained unclear to me exactly what men (in general and this man in particular) possessed that gave rise to the presumed unique ability to find and mend technological problems, but clearly, this capability seemed to be something that women lacked (Kleif & Faulkner 2003).

Men's presumed pleasure (Hacker 1989) and profound interest in technology and vehicles was further pinpointed by Annika when a female trainee, during one of her initial encounters with the car, disclosed her lack of interest in cars and especially her aversion in adjusting the controls and levers in the cockpit. "Had you been a boy, you would have been more interested", Annika responded in a patient tone. Correspondingly, the expectations on female and male trainees seemed to differ highly; the women trainees were simply not expected to show any interest. Quite the contrary, they were excused when expressing unwillingness to try, a response that also excluded them from the more technical descriptions of the car. Men on the other hand were expected, and also many times encouraged, to develop an intimate relationship with the vehicle and these expectations tended to adopt an understanding of men and technology as the obvious companions. Consequently, the traditional social arenas allotted men and women were reproduced as strictly separated.

How social conventions serve to amplify a particular kind of driving performance can also be illustrated by critically examining the design of the Peugeot. Before each lesson started, the trainees adjusted controls, seats and levels to suit their own bodies. Nonetheless, when women trainees took place behind the steering wheel with the instant adjustment of the seat in a comfortable position, Annika often pinpointed the annoying space between driver and dashboard. Despite the advanced set of levers and shifts, this gap seemed difficult to remedy. Acknowledging the discrepancy between the bodies of the women and the instruments, Annika nonetheless claimed the problem to be found within the bodily appearances rather

than the design of the vehicle. Consequently, women's feet were acknowledged as being too small to work the foot pedals correctly and the women were considered too short for conducting adequate driving. "We have to get you a baby car seat", Annika once laughed and referred to the shortness of a woman trainee; the attempts to raise the driver seat remained fruitless as the trainee, looming on the top of the seat, still sat too far away from the dash board and the steering wheel.

Hence, small bodies (mostly belonging to women) were objects for alteration as Annika often spoke about material enhancements and extra equipment in order for them to "fit". When tall bodies and long legs (read male bodies) occupied the driver seat, the situation nonetheless oscillated. A male trainee vehemently tried to fit his legs in a comfortable position but since the driver seat only enabled a certain distance between the driver and the dashboard he, despite the efforts, ended up sitting too close to the equipment. Interestingly, the problem was not announced by Annika as a bodily failure. Rather, she was puzzled that the seat didn't allow the possibility to move backwards further and made thorough investigations concerning the rail that the driver seat rested upon. I was also engaged in the subsequent discussion regarding this apparent technical shortage, and along with the rest of the car occupants I find myself trying to understand the scarcity of the car's equipment. Hence, the discrepancy between driver and car was suddenly understood to be an obvious design problem⁸.

Discussion

Technologies are indeed transforming communication and interaction in that they redefine the very meaning of knowing and understanding (Suchman 1987:xiiif). Hence, human machine interaction engages a range of disciplines; technical as well as popular discourses (Suchman 1987:1) and by disclosing driving as an embodied activity in close intermingling with surrounding actors, this article has promoted interaction between human machine – not exclusively as a dialogue between two entities – but rather as a tentative multilayered activity inextricably part of a volatile network.

By employing the Venn diagram in order to explicate driving as an embodied performance that soldiers operator, vehicle and the surrounding traffic situation as well as the social conventions, this article concludes by discussing how driving can be seen as an erratic practice that comprises these disparate yet intermingling practices. Correspondingly; safe

driving is promoted as a negotiated performance that comprises and conveys certain features and sets of equipments as pivotal. The car indeed defines as well as limits particular behaviours (Lindahl 2005:50); at the same time as drivers, pedestrians and other human actors enact and negotiate driving in certain ways they also re-articulate and transform the vehicle to suit these behaviours. Driving as a multilayered and interactive performance does correspondingly negotiate gender as well as embodiment and hence, actions regarded as desirable are also being manifested and reproduced.

How to operate the vehicle successfully is, as indicated above, closely linked to gaining control over the car. After six weeks of shadowing driving lessons, control appeared to constitute the very salience of safe driving. Considering driving as a gendered performance, control can preferably be interpreted and conveyed in gendered terms as well. Closely connected to men as well as to masculinity, women have traditionally been excluded from controlled practices such as driving; instead they been strongly connected with emotions and instability (Johannisson 1995:33). However, observing the trainees practice, I was confronted by a slightly deviant understanding of control, a notion that appealed to other values than the standard. Control was conveyed to be crucial in interactive performances between driver and vehicle; it materialized in actions such as driving softly, being careful when changing the gears and managing the balance with mild feet, but it was also prevalent in interaction practices between driver and the surrounding actors and could be discerned in the trainees' communicative skills; their ability to acknowledge surrounding actors, to be polite and to consider other's needs. Hence, by pinpointing these – traditional female – characteristics as signs of control and influence, Annika's requests also gave rise to alternative understandings of the terms as gendered.

As stated above, the trainees were taught how to drive by learning how to master and control the vehicle, but in slightly different ways than what conventionally is referred to as characteristic for how to express sovereignty and control. Embedded in this *ability to control*, lays the *ability to allow*. Several times, Annika instructed the trainees to allow the car to turn fully when they rotated the steering wheel. By this means, the individual operator was given agency to master and control, not only by limiting practices such as reducing speed and keeping the car in a balanced position with help from the accelerator and the clutch, but also by allowing. Acknowledging control as an ongoing collaboration between restrictions and allowances, human and non-human actors, yields novel reflections concerning driving as a

multilayered practice where the car and the driver mutually feed off from, and constitute each other.

Rather than assuming and reproducing driver and car as airtight categories – one-way human-conducted processes, simply encountered by mechanical and electronic consequences – technological devices and equipment employed at the driving school indeed affected the trainees in a range of ways, which also forced them to respond and react to the objects (Lie & Sørensen 1996:8). Consequently, far from being separated entities, the interaction between driver, car and surrounding phenomena must be understood as multilayered, thus involving a range of actors. In erratic patterns, driver and vehicle as well as surrounding practices emerge and these also constitute what I promote as driving performances (Bragd 2002:149). By this means, the driver operates in close yet volatile intermingling with the car as well as with surrounding phenomena and social conventions; a networking formation of human- as well as non-human actors.

Claiming reciprocity and multilayeredness, I ultimately seek to pinpoint the collaboration between design and driving as a gendered performance. The car constitutes a highly limited room, a mobile space in tentative dialogues with other actors in a varied network (Friberg 2005:194) and as such, it can also be seen as a gendered domain. As a non-human actor it enacts certain premises for how to conduct driving; an apparently simple action like opening the door and entering the car is indeed a highly restricted and controlled manifest, of the car as well as of the driver (Friberg 2005:202f). Scrutinizing this act also calls for design as crucial as the symbolic meanings attached to artifacts and instruments can be seen as constantly negotiated and reinvented (Wajcman 2004:47). Hence, although – as mentioned above – most women drivers are neglected in design processes, these operators sometimes re-articulate the design to suit their purposes. As can be seen below;

Preparing for an upcoming lesson, a female trainee and her private instructor were busy solving the theoretical assignments. Gathering around the table at the driving school, Annika and I joined the conversation and the topic augmented to concern the discrepancy between ergonomic implementations in cars and women bodies. Leaving for the driving lesson, the private instructor concluded by strikingly stating the problematic dilemma; “if I am to sit comfortably in my car, I need to have the roof hatch open”. We all laughed at this statement. As I disclose the comment in retrospect, I find it most interesting; it elucidates a strain of

simultaneous omission and innovation. Apparently, the private instructor was not satisfied with her position in the driver seat. Instead of sitting uncomfortably in her car, she took, for her, necessary measures in order to operate the vehicle in satisfying ways even if these procedures surely deviated from the producers' original thoughts. By pinpointing some of the consequences of being neglected as a woman driver – sitting uncomfortably, failing to reach clutch- and brake-pedal – the remark illustrates reciprocity between driving performances and design. Human practices can indeed contribute to alter the function of different technological features and this network-like collaboration fosters the most defying collaborations.

Conclusion

This article has promoted collaborations between the vehicle and the driver, not only to be regarded as multilayered, but also preferably as reciprocal and gendered. As theorist Lucy Suchman has it; “[i]nteraction between people and machines implies mutual intelligibility, or shared understanding” (Suchman 1987:6). Driving as an interactive performance negotiate gender and embodiment as well as the instruments employed, which is why this study has proposed operations of cars to take place in constant dialogue with pedestrians, cyclists and other drivers. By employing a Venn diagram in order to illustrate this network of actors, the intension has been to disclose some issues concerning driving as a multilayered and interactive practice. Moreover, by acknowledging safe driving to be fostered and reproduced in close collaboration with socio-technical factors such as the surrounding traffic situation, pedestrians and other actors, practices of driving are constantly negotiated. Safe driving is ultimately promoted as a performance that is made intelligible by comprising socio-technical factors.

Driving performances take place and are enacted in a network of actors, human as well as non-human. This intermingling contributes to simultaneous exclusion and inclusion practices; women drivers are neglected in design processes, made invisible as drivers or regarded as technically disqualified at the same time as their soft and calm ways of driving are promoted. Moreover, to perform the vehicle adequately requires embodied knowledge; the car defines as well as limits particular behaviours at the same time as instruments are objects for alternative practices. To develop an embodied knowledge of how to find the balance between the clutch and the accelerator, how to change gears and estimate the size of the car, in short; how to operate the vehicle, is further a performance where gender as well as

design are crucial aspects to consider. Hence, driving has been explicated as a crucial intermingling between embodiment, vehicle, surrounding actors and social conventions and by this means, my endeavour has been to present alternative understandings of how to perform cars according to agreed principles.

Notes

¹ Drawing on ANT this article considers actions to be performed by humans as well as nonhumans, which is why actors should be regarded as both human and nonhuman.

² In Sweden, it's possible to attain a driving licence in the age of eighteen.

³ The name of the instructor is altered to retain her privacy.

⁴ Trainees in Swedish driving schools are often encouraged to bring their private instructors such as parents, relatives and friends to the driving lessons, thus involve them in the activities taking place at the driving school. By this means, Annika and the private instructor were able to discuss how to best pursue and also to create a stimulating environment adjusted for the trainee.

⁵ Although the term cockpit is traditionally used to describe the space designated for airplane pilots, I adopt the same expression in order to explain the space in the car occupied by the driver and the passenger beside.

⁶ The term network is crucial in actor-network theory as it translates in a range of ways. Latour (1999) suggests a network to be "a series of *transformations*.../ which could not be captured by any of the traditional terms of social theory" (Latour 1999:15). A network can further be understood as assemblages of forces in that they emerge from and dissolve into a constant power-play (Brown & Capdevila 1999:38).

⁷ Theorist Katherine Hayles (1992; 1999) and anthropologist Ulf Mellström (2003) depict embodied knowledge as rarely following written manuals. Instead embodied knowledge can be seen in terms of skills learnt through practical work experiences (Mellström 2003:108).

⁸ Bragd's (2002) study at Volvo, conveys the results from a questionnaire concerning the design of the car; not even 20 % of the women who took part in the study could drive a VCC (Volvo Car Cooperation) car safely as the design of the car simply discouraged most women to reach the foot pedals (Bragd 2002:88). Conveying this dilemma in terms of a women issue – women lack the correct bodily characteristics for driving a VCC car – rather than something for the assembled group to consider, the design remains naturalized and by this means, driving as a gendered performance is also henceforth coded male.

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Lived Experiences of Technology: Challenging statistical representations with impact indicators in data on Internet use in Swaziland

Introduction

In this article I investigate how statistical representation can be used and misused to understand a situation of Internet access and empowerment in a developing country. To address this I advocate for the use of impact indicators that also address local power asymmetries creating hierarchies of use and access¹. Within the context of this article, impact indicators are defined as data that provides an assessment of social, economic, technological and scientific progression or development of a community as a result of emergent technologies. This data can serve as a tool for operationalising further development. For example measuring the information society, (a society that is influenced by the use of Information and Communication Technologies - ICT) as advocated by the International Telecommunications Union ITU, implies data that extends “beyond indicators on access to, and [instead is a measure of the actual] use of ICT². Theorists have indicated the abstractedness of statistical empirical material (C. Wright Mills cited in Silverman 1993). The current text considers what can be referred to as tensions between the statistical connectivity figure representations and the actual social impact. Quantitative indicators have been criticized in similar studies and other developmental situations, where the physical representations they demonstrated were exposed for their lack of reality depiction³.

Today’s information communication abilities are heavily technically inclined. It is suggested that those with no access to the technologies that enable this process are on the margins⁴ of the current information society. The gap that exists between those with access to the digital technologies that enable information and communication possibilities is referred to as the digital divide. This term, the digital divide, focusing substantially on Internet technology, has garnered significant interest from policy, academic and the private interests. An example from the academic sector is an editorial by Compaine 2001, which queries the existence of such a gap from various contributors. Specifically Compaine acknowledges it as a “moving target”, one that maybe “is disappearing on its own” (Compaine 2001; xiii & 334). Further (Compaine ed. 2001) volume offers an intriguing title on the cover “The Digital Divide;

Facing a Crisis or Creating a Myth?" and the contributions implicitly note the imaginary existence of this notion with not only comparable dittos such as Bell's telephone, or the industrial era in which discussions of divides or gaps were not as prevalent (Compaine 2001; 110ff); but also the evolution of the concept, digital divide, which has morphed from the type of technological artefact (Ibid: 3) to information content (Ibid: 149) to regional access concerns (Ibid: 23) to name a few. The volume ends with Compaine stating that this divide is a mythological one that is revolving everyday to incorporate new strands of experiences and it is its evanescent nature that draws these conclusions (Compaine 2001; 334). The current discussion (also giving focus to Internet Technology) fixates on this aspect of a concept that is not static but subject to recreation, not only in time and but also in place. And as opposed to a mythical consideration for the existence of this divide what this paper posits is scrutiny at the concept. The present argument offers through the analysis of access and access points, for internet users a reconsideration of the term digital divide, with the "identifi[cation] of measures that do matter in determining access (Compaine ed. 2001; 5)." This proposal offers a more situated approach to the direct use of (Internet) technology by exploring the "lived experiences of technology" (Lohan 2000: 903), which also allows for the incorporation of "physical and social impact indicators of change"⁵. Further, the dualised connotation of this term, qualifies for a capsulized social world-view of dichotomised differences such as rural/urban, woman/man, north/south, to name a few. Considering the divide as a myth (Compaine 2001) is partly in response (I opine) to the duplicity of this concept a characteristic curtailment of social existence. There are contested academic views on boundaries that actualise from divisions of either/or, views that rather acknowledge the multiplicity of various notions. Compaine eds. 2001 consider the digital divide as revolving, mutating towards new meanings not only in time and place but also in social categorisations. This paper posits that the term digital divide is revolving, but revisits the concept to offer not an allegory but an understanding of a multiplicitious regard of the concept

Research Focus and Methods

The research case, Swaziland is a small kingdom in Southern Africa and at the time of the field work exercise (July 2005), had a population of almost 1.2 million inhabitants and, as of September 2007⁶ 41, 600 people were 'users' of the internet. Like the rest of Africa, Swaziland recognises the importance of joining the Information society and a steady increase in the number of users indicates a developing interest⁷. The first Internet service provider (ISP) in Swaziland was launched in 1995. Few people understood or demonstrated an interest

in using the Internet then. Almost twelve years later, more ISPs have been introduced to the Swazi society and the interests as well as connectivity statistics continue to go up. The initial study in 2005 in Swaziland revealed 27,000 users. The number has grown since to 41 600 as mentioned before. Swaziland is a small kingdom, measuring 17, 363sq kilometres.

Looking at Swaziland's statistical figures with regards to internet usage I propose a further dismantling of the numbers to better understand the lived experiences of the technology. The other reason I propose to look at the lived experiences of the technology is because, as one of many impact indicators for emerging information societies, it allows for understanding technology integration. These experiences will indicate the impact of the transference or introduction of the technology in this Southern-African Kingdom.

As much research concludes that men have dominating positions within Internet use in Africa generally (Polikanov & Abramnova 2003, Bofo 2003 – UNESCO, Huyer and Carr 2002) I was interested in marginal positions and distributing factors in the hierarchy of use and access, which is why I chose to study women and build on the understanding of their gender relations with the technology as men occupy a privileged position when it comes to access and *use* to the internet (Polikanov & Abramnova 2003, Hafkin & Carr 2002). The target group was further narrowed to economically empowered, educated women. This limitation was imposed because literacy is a prerequisite for using the technology and to be able to gain access one must also have the financial ability to do so.

Data gathered for this study commenced with the intention of determining women's access to ICT, how the forms of access impacted their relationship with ICT, and how surrounding social issues combined to impact women's overall participation in the flow of the Information Society. The methods that informed this study were firstly quantitative, because statistics reflecting segregated data describing how many men and how many women are using the Internet were almost non-existent. 150 questionnaires were circulated and from these 123 respondents returned the survey questionnaire. The questionnaire also asked the women whether they would agree to an interview and from those that replied in the affirmative, a sample of 10% of the survey participants were chosen for interviews. Participants were chosen from a random selection of organisations within the urban areas. Further Non-governmental organisations (NGOs) were approached that worked in the area of gender equality issues on different scales. Interviews with informants working in the gender arena proved to be most revealing. For example one coordinator for a media focused NGO

noted the role ownership of technologies plays towards women's use of and access to the technologies particularly in the homes something that the questionnaire informants failed to articulate but found other ways of explaining the access situation in the home as will be further noted. This informant noted that;

... the economic empowerment of women hinges around the issue that women economically don't actually own the resources, so the computers are usually owned by the men of the family, which causes problems for the woman because even if she knows how to type she has to go and ask for permission, because she does not own the resource to be able to use it ...

With this additional data a holistic analysis of the responses from the participants is provided in the data. The quantitative data from the questionnaires were collated and analysed to obtain frequency and percentage measurements for analysis purposes.

The questionnaire circulated was two fold. One part was based on the Likert measuring scale which is designed to gauge attitudes or reactions by "quantifying subjective information⁸." The second part of the questionnaire was open-ended questions which allowed the participants the opportunity to freely elaborate on the questions asked. The questionnaire circulated also asked of the participants some biographical data such as age, educational status and civil standing. I mention these three in particular as they would be the focus of this study's analysis (a point I return to subsequently). All the participants were asked if they had regular access to the Internet and regular was defined as being at least once a day. The forms of access were also inquired upon, which is an important point because from the survey it was understood that where one gains access to the technology has a direct impact on how they use it. Question five of the questionnaire asked the participants their affluence with the Internet. It is this question that I will correlate with the three biographical data categories mentioned above.

Internet Impact Indicators

In 1999 a study documenting the impact of Internet access and use in Europe⁹ indicated that the statistics compiled that signify the number of subscribers is more of a "precise indicator of access than users"¹⁰. This statement is with regards to the current article accurate as the data henceforth presented will demonstrate. This discussion will illustrate, that statistics

should be scrutinised particularly for developing nations that are showing remarkable growth in this area. Even though Africa is lowest in the rankings of internet usage in comparison to the rest of the world, the growth of internet usage is extremely impressive at a rate of 1,100% of increased users from the period of 2000-2008¹¹. Do the increasing numbers translate to an impact usage of the same? The data for this article indicated discrepancies in this method of counting¹². From other empirical studies done in Ghana and Senegal,¹³ results point to the importance of impact indicators when measuring the impact the internet has had. Likewise, a study driven by the National Academy of Sciences in Washington DC¹⁴, also highlights the limitations of these indicators in that while they are of use to various sectors and actors they are not immune to shortcomings, points returned to in the final part of the paper when analysing the overall argument. With these studies as a basis for this particular article, I endeavour to fill the gap of a similar call for Internet Impact Indicators in developing countries. Using Swaziland as a case study, I present empirical data supporting the use of impact indicators and the use of Feminist and Technology Studies (FTS)¹⁵ as well as gender and technology theories in order to understand the social relations to technology. Within this theoretical understanding, the overall analysis in this paper hopes to inspire a better understanding of representations within the digital divide as well as propose a reconsideration of the term.

Theoretical Considerations¹⁶

Drawing on Science and Technology Studies (STS), the aim is to challenge the homogenous and stable understanding of Internet use and access which I posit dominates current discussions about the spread of ICTs to developing countries and, as in this study, in particular the African continent. Drawing from early and ongoing discussions about the meaning of technological artefacts that have been so productive in STS, I want to open for an understanding of Internet access that allows for oscillating definitions of use. Early theories about technology recognized the social values and politics which influenced their development and the forms they took (Winner 1980). Later, work within Actor Network Theory (ANT) put forward the idea that technological artefacts could function as ‘immutable mobiles’ which carry with them the original understandings of social structures, and power, within which they were developed (Latour 1988). Further work within ANT has demonstrated that artefacts are not as immutable as they may seem and can change and be changed as they move between different user groups (Law & Singleton 2005; Laet, de and Mol, 2000). Of particular relevance for the discussion here is the work which shows that a

single object, even within a specific, single context, can maintain and oscillate between different understandings of what it *is*. Thus, one *thing* can simultaneously be many to different people even as they are defining it together (Dugdale 2000, see also Mol 2002). Thinking of technology this way is useful in my study because, as the empirical material shows, various participants in the study defined Internet usage in different ways. Their varying definitions of Internet usage are important to highlight because they allow for nuanced discussions of access and show how understanding impact indicators is important if one is to really understand the situation 'on the ground' that ICT policy is supposed to address.

Likewise, leaning on ideas from the field of Feminist Technology Studies (Bray 2007; Lagesen 2008; Mellström 2008; Johnson 2007; Faulkner 2001; Lohan 2000), I look at the way technology is co-constructed and culturally embedded through age, gender and class, and ask: What do the numbers translate to and do they give a realistic translation? In the process of translating, what is gained and what is lost? I look at the power asymmetries that intersect to impact the use of Internet services. I endeavour, through demonstrating with some data from Swaziland, to explore the tensions between the impact indicators and numerical representations, and end by suggesting that the socially transformative process of Internet use involves a situated cultural analysis involving among others, factors such as gender, age, and class. A critical question emerges at this juncture. What connects statistical representations to the notion of the digital divide? How do they work with each other or against each other? The ensuing section offers some perspectives on these and other thoughts.

Fringe utility as opposed to digital divide

The concept of a digital divide suggests or constitutes a dualised nature, of access to digital information. One either has access or one does not. This is a monolithic view of the divide facile to envisage or grasp; however as will become apparent in the ensuing discussion the term or concept is multifaceted thereby disrupting the dichotomous temperament of this theorem. When scrutinising access to the Internet among Swazi women, the outcome is a versatile notion of access that does not know specific boundaries such as the haves and have not's. Some of the access patterns depicted henceforth rather suggest situated practices in which people acquire or fail to acquire adequate or comparable access as implied in the by (Compaine eds. 2001, Hafkin & Carr 2002) and this access is contingent on a number of

factors such as age, social status, gender, reinforcing the understanding that lived experiences demonstrated nuanced multilevel understandings as not static entities but oscillating in situ. Further the term digital divide is problematic as it is an irreducibly convenient way of looking at the world, it also provides statisticians numerical reductionisms that make light of the above factors (Compaine ed. 2001; 4). What of those who exist within this divide or on the border of it? In response to these existences the current argument calls for the notion of *fringe utility*. *Fringe utility* is more a process, that is dependant not just on user attributes such as age, gender, education and marital status but on external factors such as slow connectivity, internet café opening hours, access points to name a few. In the ensuing results section, a presentation of three categories namely age, education and marital status as separate sections, may give an image of separate orders of influence, what will become apparent though, is the intersection of these categories not only with each other, but with gender and other structural constructions which all serve to form a revolving concept of *fringe utility*. Fringe utility implies marginal use of the internet, within this discussion as also suggested previously by Compaine eds. (2001). The current argument does not imply a measure of scale leading to full attainment or integration with in (if I may) the side of the divide with access. What this article does is acknowledge that various attributes at any given time, situation, place, or location, can create circumstances of fringe utility of Internet.

Addressing research aims/objectives

In the course of scrutinising statistical representations with regards to Internet access and use in Swaziland, other crucial theorems emerge. The discussion of immutable mobiles as noted previously, is especially useful and noteworthy as data presented hereon, does illustrate vacillant meanings ascribed to both access and use of the Internet. These fluctuating perspectives are located within socio-cultural constructions of gender, age, and marital status. The user personal attributes combined with extenuating factors such as points of access, collectively render the concept of a digital divide mutable which will become evident with the data presentation. The other stream of thought that emerges from the dismantling of numerical representations is reconsideration of the term digital divide to incorporate a process driven theory, *fringe utility* as described above, one less stable, and more fluid. Exploring the lived experiences of technology, the data presented indicates how various situations impact use of and access of internet.

Specifically this paper addresses:

1. Scrutiny of statistical representations querying what the numbers translate to
2. Establishing the lived experiences of technology, includes the discovery of revolving definitions of understanding, and the fragility of static notions
3. Using the concept of immutable mobiles, the oscillating meanings to both internet and access are highlighted in the data presented.
4. Reconsideration for the term digital divide is provided, alluding to a process oriented notion of fringe utility particularly for those with access to the technology because it is useful to offer alternatives for that which is being dismantled.

In the ensuing results section, presentation of statistical data forms a base for further scrutiny in the form of qualitative analyses. The use of tabulated summaries of categories is to negotiate qualitatively, an intersectional understanding of user attributes together with habitual confidence of internet technology use. Star (1992) references Lave (1988) in her mention of “qualitatively different ways of using numbers depending on the situation of the activity, and [how] traditional means of testing the [same] activity, crucially, [may] ignore the context of practice (Ibid: 1992: 398).” Numerical representations are therefore a simplified depiction of reality. It does appear rather paradoxical to utilise the very analysis the current discussion seeks to dismantle, but as mentioned earlier the representation of gender segregated internet usage in numerical data particularly in Swaziland is an area that requires urgent attention. Further, statistics represent and embody the invisible in “widely lived reality” and as “impersonal” as “quantitative knowledge [can be, it is nonetheless] a vital dimension of moral political and personal reflection and action” (Haraway 1997: 199f). Essentially within the current debate, the use of statistics is both vital and strategic as it enables a situation of confronting directly, the very subject being contested.

Results

Age Impact

Age has been singled out as one of the characteristics to analyse due to the interest that different age groups have and their different opinions towards the Internet. While the

technology is not necessarily young or unknown to most Swazis, its enormous potential of its usage according to the data has yet to be realised. Hence the aim of this particular data search was to learn from the participants that responded what the different age groups' affinity or affluence with the Internet is. While the actual number of people studied was small (123), the data provided here takes into account age groups and the access points, information that generic statistics generalise on. What this data also indicates is the actual uses of the technology, information that may inform policy formulation and further efforts geared toward development.

I am comfortable using the Internet						
Age group	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree	Total
Ages: 18-22		1	1	4	2	8
Ages: 23-27	1	1	2	11	16	31
Ages: 28-32				12	12	24
Ages: 33-37	4	3	4	9	12	32
Ages: 38-42		2		5	5	12
Ages: 43+	1			5	1	7
Total	6	7	7	46	48	114

Figure 1: Correlation analysis of ease with Internet use and age

The notion of 'comfortable' on the internet is relative and individualistic for each of the respondents that participated in the research. Whether using hotmail or carrying out research on the Internet, it was understood that engaging with this technology was related to a habitualised confidence in being able to perform particular functions such as communication through hotmail. Hence "comfortable" does not necessarily measure time spent or intense use of the Internet, for the participants, but the ability to perform the tasks they do, on the Internet.

To further understand what 'being comfortable' using the internet means, the respondents were asked a follow up question: What they liked doing on the Internet? Within the low positive groups that is age groups, 18-22 and 43+, the following was expressed about the Internet: only seven participants responded in the 43+ category and the general attitude towards the Internet in this bracket was as a form of resistance to the technology even from those that refused to take part in the survey. However the seven that took part in the survey

were highly educated, most of them claiming postgraduate education, and the majority found it an extremely useful tool, claiming that they did research and communicated with friends and family through this medium. One respondent positively noted that this was “the greatest thing to happen to mankind”. Access, though, was scant on a daily basis. With only one exception, the respondents in this category claimed access only from work and therefore time spent using the Internet was limited due to their obligatory job practises that required them to be productive.

Of the 18-22 age group most of the respondents were either on part-time jobs or in between work and attending college. They claimed access at their respective educational institutions and work places. They found it useful to do research and to communicate with friends and family. Further inquiry revealed that in most cases they had access only to email communication and beyond that they had to gain access from elsewhere such as internet cafes. Within the 23-27 age groups, participants were very aware of the benefits of the internet and with the exception of two of the participants, the rest claimed to have regular access to the internet and the majority used it for communication with friends and family. As with the low-positive groups this bracket of users also claimed their access point at work, though they were avid Internet café visitors as well. Five of these participants had access at home. Those with access at home claimed that connection speed had a negative impact on their use of the service as well as the cost. For example it could take up to 15 minutes to send or download an email, which may constitute a tenuous definition of access. This particular data search sought to correlate age with internet affluence but other structural streams of influence surfaced during the qualitative research. Issues of speed connectivity, and costs of the service, were not only isolated by age, but cut across all users. Age factors into the user’s comfort using the Internet noting that within the category of respondents that claimed to be affluent with the internet 23-42 years of age, even for these users, this experience was still marred by influences of speed and costs. For some of the respondents that agreed to interviews after filling in the questionnaires, they noted that the cost of the service had proved too prohibitive for them to continue having the services in their homes.

The largest groups of respondents, in the 28-32 and 33-37 age groups, lauded the Internet’s vast wealth of information and made reference to the fact that having access opened up other countries and markets for them. There were comments to the effect that access needed to be more user-friendly and available to all. Inquiring further into this comment during the face-

to-face interviews, the forms of access were again shouldered with the blame for inadequate access. It was mentioned that at work one should not be seen to be using the Internet as it eats into their work production. The Internet Cafés close rather early, in most instances an hour or less after the work day has ended. Access points, at work places and Internet Cafes foreground the age factor with regards to their influence on a user's utility of the internet. The table above depicts certain age groups as having more affluence with internet usage, what the numbers fail to show is the experiences that even these with the seemingly privileged position of internet use, experience bouts of fringe utility brought about by these locations of access. The speed of the service and location of the service caterwaul the notion of access to mean different things. What may constitute as access to one may be non-access to another (Mol 2002), particularly if consideration is employed to for instance the time it may take for an email page to download.

The few that had access at home claimed that the cost of using the Internet allowed them only a limited amount of time on line and the speed also contributed to the usage problems. The monthly charges are difficult to budget for, and in some cases some respondents claimed to have had connectivity at home in the past but had discontinued use at home because they could not maintain its use. My material indicates that these are issues to focus on, rather than only on access. Access is only the beginning, access does not mean that the one with access will actually use it or that it will be meaningfully utilised or even maintained. Some of the studies done by Compaine eds. (2001) focus on access at home for Personal Computers, and the authors discover that the problem of income is very influential. The contributing authors assert that Internet Technology demonstrates some conflicting patterns of distribution in comparison to previous technological devices such as the telephone or the invention of electricity. The biggest factor is according to some authors such as Reina-Schement (2001) maintenance of the artefact and what it provides once access is achieved. Most interviewees found the money to gain access but maintenance proved a much longer term hurdle that required a choice between basic sustenance and access to ICT. Lack of connectivity as expressed by the empirical data from Reina-Schement (2001) was regarded as a form of isolation and deprivation to a world that would be enabled with the presence of this device. But that which inhibits access in the first and possibly last place appears to be long term maintenance more than any other issue (Reina-Schement 2001, 306-307) a factor the women in Swaziland also alluded to.

The circulated questionnaire for the empirical material provided here asked each respondent their age, and further inquired of them if they considered themselves comfortable using the internet. The five scale choice response as depicted in the table above was correlated with the different age categories. During the interviews with the respondents, various influential agents impacting access to the internet were noted by the respondents. And these agents render the notion of access erratic and not at all immutable. According to the tabulated results above; age to a degree commands comfort to the usage of internet, but it is a category among categories such as access points and service costs that intersect together to collectively impact each user's utility of the internet. These categories combined, render a situated locus of fringe utility to the internet.

Educational impact

Education levels were correlated to Internet use, with the higher educated ones noting that they were prone to using the Internet for research purposes and job enhancement. Those who were still in school also used it for school research. As an emerging Information Society, the notion of educational attributes to the level of internet use is an important indicator for policy formulation. The distribution of ICT continues in tertiary and educational institutions in the country and with the current professional workers understanding that their use of the technology may help future prospects.

I am comfortable using the Internet						
	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree	Total
Highest educational qualifications/training						
O'Level/Matric	2	3	2	10	8	25
Teachers certificate					1	1
Diploma	3	2	2	18	18	43
Bachelors degree		2	2	10	11	25
Postgraduate degree			1	3	12	16
Other				3	2	5
Total	5	7	7	44	52	115

Figure 2: correlation between level of education and Internet use.

The above data demonstrates that the diploma, undergraduate and post graduate respondents consider themselves comfortable using the internet. This is where majority of the respondents feature as the grey shading indicates, and despite the obvious relationship between higher education and internet affluence, subtle but significant theorems emerged during the qualitative interviews with these respondents. From the qualitative interviews more information to the following effect was gathered: User hierarchies within the user categories were prevalent here. As an example of this, consider one informant, who mentioned how for her the internet was 'hotmail' and that in the course of her profession she discovered that her colleagues were attending conferences out of the country because of international networks they formed on the Internet, and she wondered how they came across this information. When told they got it from the internet she mentioned her handicap of not being able to adequately use the services at the same level as others. In comparison to their male colleagues at the same education level, the women did not claim to use the internet to the same degree as their colleagues, similar to the study done on female scientist researchers in developing regions (Campion & Shrum 2004).

The majority of the female respondents were university graduates and some of the comments I received during the interviews indicated that their technical ability was related to expected roles in the workplace. One woman commented that *"women are still battling to get rid of the 'typist only' role as other areas of information technology are directed at male colleagues"*. Another informant noted that *"in a country where most people do not have access to computers and the society is patriarchal, men are threatened by skilled women in general. They feel computer skills are all right if you are a secretary"*. Both these informants are social science graduates and further explained how, in situations where male colleagues required research done on the internet, in other words technological assistance in instances where they themselves were unable to do so themselves whether through lack of knowledge or time constraints, this work tended to be undervalued specifically because it was carried out by a woman (cf. Cockburn 1994:160). The informant mentioned earlier who talked about hotmail as constituting the Internet, concluded her interview by claiming that *"[women] could have equal access [to the Internet] as men, but [the woman] is less adventurous"*. Further clarification was obtained from another informant who claimed that *"...for women in Swaziland, it's a, I don't want to call it an inferiority complex it's a feeling of not being worthy and its pervasive, its not in your face. If I overdo my job I won't live up to what is societally normal and acceptable"*. This data indicates that gender scripts heavily impact the

different social actors use of the technology despite there being equal access in places such as work, and despite both men and women having the same level of education. It is socio-culturally easier for men to travel and establish international contacts through conferences than it is for women whose “cultural disposition [may] tie them more closely to their residence for familial and security reasons” (Campion & Shrum 2004, 478). This does not stop women from having competence on the Internet, but their socialisation may also not permit them or enable the same *adventurousness* that their male counterparts enjoy.

Similar to the research by Champion & Shrum on the differences between female and male science researchers, even though the differences were minimal almost insignificant with regards to access to resources, and educational levels, the female scientists were found to have more local contacts with fellow scientists while the male scientists had international and local networks. These associations gave wider collaborative opportunities that translated into more advantages for them than the women (Ibid. 479). Drawing on well established insights in the field of feminist technology studies the analysis is that researchers must look upon technology as more than an independent artefact, and consider the social context of its use (Stamp 1989, Cockburn & Ormond 1993, Berg & Lie 2000), implying understandings of how end users construct the technology. There is a mutual shaping between gender and technology in that technology is both a source and a consequence of gender relations (Wajcman 2004, 7). Further, neither gender nor technology can be taken for granted as they are constantly feeding off from each other (Lie 2003, 21-27). How users characterise the technology by way of talking about the artefact can give an indication of their relation to it (Lie 2003: 261). Reference to hotmail as constituting the internet, implies for this specific user that the Internet is a great communicative technology. Therefore a real impact of the technological impact should be sought beyond statistical representations of users. The assumptions of the number of people logging onto the internet is a notion of a growing awareness of the technology and of possible development, but the question remains, what do people do there and if their lives are any better because of it? The noted excerpts from the informants indicate that education does assist one’s affluence with internet, but the extent of this affluence can be gender-inhibited within the socio-cultural situatedness of the user. These categories of influence are not as explicit in statistical depictions because what constitutes as internet use differs from one user to another (Mol 2002). There has been a call for more gender segregated data and this particular reflection from the informants indicates that some of the hierarchies among the user categories are clearly gender based. This

adequacy or competence, referred to by Campion & Shrum (2004) with the female science researchers, also extends to the households where couples were found to have the advantage of affording the technology in their homes, and I specifically asked of the married women what their relationship with the technology in the home was like.

Marital status impact

Marital status or civil status intersects here and is made to confront use of technology because gender scripts in Swaziland celebrate social status through marriage (see also Campion & Shrum 2004, 478). This socio-cultural norm is important to the Swazis. It is significant in this study because it was in two income households where most of the internet connectivity was found. It was therefore of interest to understand the individual’s use of the technology within the household. Specifically married women as a category were studied because those who were single mothers placed sustenance of their families above ICT procurement and maintenance, and while the single women did not display a lack of technical ability or access at work, for some their access at home had been discontinued due to the high costs an issue that also came up for some married women. The home is also an important space to investigate because outside of their work places this is where most women spend their time. Most of the married women admitted to connectivity at home. Of the 43 married women that responded to the questionnaire, only 6 mentioned not being comfortable using the Internet. The rest agreed that their relationship with the technology was good. One wife said, her husband had more to do on the internet than she did she followed this revelation with the admission that the service was very expensive. The married women did not claim not to have access to the computers in the home, but intimated towards household chores, lack of time and how expensive using the Internet was in the home. See the graph below documenting marital status with comfort using the Internet.

I am comfortable using the Internet						
Marital Status	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree	Total
Married	2	2	2	14	23	43
Single	2	3	4	28	25	62
Widow		1		1	1	3
Divorced	1			3		4
Total	5	6	6	46	49	112

Figure3: Correlating marital status with comfort when using the Internet

Some married women may not use the technology for the reasons mentioned above, even though they claim to have access. Access to internet is not in itself subversive it might as well contribute to further amplify the stereotype of men and women particularly in the home. Hafkin & Carr (2002) also ask if proximity translates into access as they consider computers in the homes, and query if the men in the homes dominate their use. It would seem judging from the respondent in this section that this maybe the case for some women. Exploring this notion of the wife stating that the husband had more to do on the internet than she did, an interview with a law graduate working for a non-governmental organisation lobbying for gender equality in the media, suggested the following; Swazi women's economic empowerment in many instances revolved around the issue that they did not actually own the resources that would grant them this empowerment (see also Hafkin & Carr 2002, 90). The same informant further stated that in most cases women do not own the computers in the home, it is the men in the family who own the technology. Instances where the woman wishes to use the technology may require that she seek permission first, because she does not own the resource. Therefore the wife who claims that the husband has more to do on the internet than she does, may in fact be understood as one who does not own the resources and therefore, leaves it to the husband.

The participants in this category when asked if they had internet access at home would readily say yes, but further probing demonstrated that very few of them actually used it there (further cementing the claim that access is beyond proximity or physical presence of the technology), the particular wife quoted here claimed that it was expensive and that her husband had more to do on the Internet than she did. The strands of influence appearing in this section, note issues such as technology ownership and roles, or gendered hierarchies within the home as having influence on the married woman's access to and use of the technology, tresses of influence that are subtly hidden in the statistics. These nuances were narrated matter-of-factly, by the respondents in this category and the women did not altogether allude to non-Internet knowledge, what did emerge from these interviews was that marital status intersects with situated gender socio-cultural relations, time, space, and domestic duties, which are multiple constructions of orders that impact or bring about fringe utility of the internet for according to this data, married women. Physical access does not translate to use, as issues of ownership and time allocation do interfere and yet the question asking the women if they have access to the internet at home, produces affirmative responses,

for these respondents access is paralleled to presence of the technology, a view that may indicate misleading data.

Overall access points affected the level of use of the technology, and speed hampered its further effective use. These features are not translated in the figures depicting the number of users in Swaziland. Communication is the main feature for most of the respondents in this particular study and maintenance is another issue requiring further scrutiny. Civil status impacts access to the physical technology in the home. This is a quick summation of some of the issues that are not documented in the statistical representation figures. These issues impact the level of use of the Internet, and indicate that in-depth studies are important towards the understanding of the sustainability of the technology amongst users.

Analysis

Three categories purported to, among other orders, influence a Swazi woman's use of the Internet in influential ways were selected and categorised together with a question of affluence with using the internet. These three categories age; education and marital status were chosen for their particular persuasion of a user's tenancy towards the internet. Age and education each have the ability to sift through users due to their fostered connection to the technology. Education, because it dictates how well one may understand the commands and opportunities available and the segregation age engages in, has to do with different generations having more contact with technologies they have grown up with. Marital status brought with it a different influential aspect in that it involved both socio-cultural relations, as well as situated gender practices. The quantitative data suggested that there was strong influence of each of these classifications, towards the women's use of the technology. During the interview process, it emerged that these three categories tended to intersect with each other as well as with other orders of influence. It became apparent that compartmentalising each of the categories in neat sets, suggested a rather frigid summation of impact something that numbers tend to do. Numbers may tend to eclipse a multilayered relational experience.

The figures, therefore, inform that 41,600 people in Swaziland are using the Internet, but further inquiry registers a limited use of the technology due to several factors. I have chosen to document as much of this as possible while still concentrating on an issue that would enable future development efforts to succeed. Gender and technology as a consideration demonstrated the understanding of the importance of power hierarchies and resource

distribution within marriage in most African culture, Swaziland being no exception. In the marital home, besides the expensive resource, the gender socio-cultural roles do not allow women to use the Internet at the same level as her spouse. The face-to-face interviews revealed that the wives had home responsibilities that they had to attend, besides the fact that the computer resources were expensive. Further interviews with the NGOs working within the area also revealed that not owning the resources, the women of the households would have to seek permission before using the technology. STS views technology as socially constructed by its end user and its social practise goes hand in hand with socio-cultural norms. The artefact can then be said to recreate society, the family as well as the individual (Stamp 1989, 1).

Orienting from a co-constructivist notion of technology, I have looked at what technology comes to mean to the end user (cf. Wajcman 2004, 104). Such a notion would also inform the present debate in that while women can not necessarily claim techno-phobia they also cannot claim techno-adequacy, (cf. Compaine [eds.] 2001). “Constructivist approaches to technology understand technologies as being non-essentialist – as not what a technology is but rather what it becomes or means to people in different contexts”(Berg & Lie 1995). Researchers working in STS and gender and technology, insist on including ‘ambiguities’ and dynamics in how the gender and technology disciplines may relate. This approach also encourages us as researchers to remain ‘wary of the intricate and sometimes stable hegemonic interconnectedness between them’ (Lohan 2001). It is therefore helpful to consider, social structures, power within which a technology is adapted, as these factor, heavily in a user’s conceptualisation and meaning of a technology. Exploring the lived experiences of technology, enables a situated understanding of different meanings ascribed to one thing.

This article acknowledges internet fringe utility influenced by revolving factors that, persuade a multifaceted category of users something the statistics gloss over. Internet users are not a homogenous group as the numbers may imply, but are composed of diverse groups some of them marginal in their exploration. Fringe utility of the internet may also orient from a user’s choice, one who may not want to do more or may not know that there is more that the Internet can offer. This assertion for the most part tends to be gendered where women constitute more of fringe users than men (See also Dholakia, Dholakia & Kshetri 2003, Hafkin & Carr 2002). Hafkin & Carr (2002), in their article punctuated the emphasis that

access to the Internet receives in relation to actual use. The same authors also indicated how women in every part of the world are likely to “constitute less than half of the Internet users” (Ibid. 2002, 90) a point that has already been highlighted. In their scrutiny at the numbers of women internet users across the world, the authors also problematise the vacuity of numbers as “misleading, and /.../ not accurately reflect[ing] the quality or even the quantity of women’s Internet use /.../ what constitutes as access? Proximity? Ownership? If there is a computer available does the woman know how to use it (Ibid. 2002, 90)? Rather what seems to emerge is that how technology is interpreted and eventually used becomes part of the “gendered division of labour and, through social relations, technologies are assigned gendered symbolic values” (Lohan 2001: 189). This follows a well-known theme in feminist studies of technology, where men’s dominating position within technology has been documented in a number of publications (cf. Cockburn 1983, 1985, Hacker 1989, 1990, Mellström 1995, 2002, 2003, 2004, Oldenzil 2004, Salminen-Karlsson 1999, Faulkner 2000, 2001, Lie ed. 2003, Wajcman 1991, 2000, 2004). Wendy Faulkner (2000:3) argues, that there exists a “pervasive and durable equation between masculinity and technology.” In short, it is often part of what it means to be a man; it is part of a masculine script in many different contexts.

In a similar vein, Lohan, in understanding gender and domesticated (2001) information communication technologies, chooses to focus on masculine interpretations and symbolic associations of such technologies. Lohan (2001) discusses men who show an association with those feminised technologies such as the telephone, and who often have to defend their dominant form of masculinity to other men. Lohan seeks to understand through the domestic telephone “gender relations and gender-technology relations by focusing on how men describe their incorporation of the telephone into their everyday family lives” (Lohan 2001, 191). Returning to the current study, there appears a rift between how the different users use the Internet. For most women, email use was the most important feature for them, and in most cases this entailed communication with friends. The men, on the other hand, used the technology to look for research interests, and establish contacts/networks outside the country, similar to the study conducted by Campion & Shrum (2004).

In the past, education has been pinpointed as an African woman’s main stumbling block to computer use, yet my work suggests that there still appears to be some challenges - even for those with an education – when it comes to gaining access. The married women, when asked

if they had access to the Internet, responded affirmatively. But further inquiry revealed that access as understood by the women could be limited, particularly in practice. They considered the presence of the computer in the home as having access but they were unable to use the technology due to local gender orders of power and subordination.

Conclusion

Far from suggesting that the statistical figures are of little relevance, this article implies that the numerical representation should be accompanied by impact indicators that further explain the figures.

This article has shown a number of these factors that continue to impede 'adequate' use of Internet for women in Swaziland, and that what 'usage' is can be a point of contestation. The above discussion has indicated the notion of fringe utility, which is a process driven idea, of internet use. Fringe utility is considered within this article as a process that emerges due to various social power asymmetries, social structures, user-attributes, categories that intersperse in different situations to impact a usage of the Internet. I also identified some socio-economic factors that continue to impede adequate use of the technology, factors such as a married woman not owning the resources in the home that would grant her access to the internet. Socio-economic factors as well as the gender scripts identified do not allow the women adequate time to spend on the Internet. Suggestions for future research would be to query what those other real indicators – besides those statistical indicators – are. I have highlighted the shortcomings of the numerical translations, not least their tendency to be based upon and reproduce an unchanging and unchallenged definition of the technology, and suggested a merge of impact indicators with statistics to gain a better understanding of the data presented.

There are various moves internationally and regionally to improve the cost of the service with the encouragement for competitive markets, as well as the introduction of issues such as satellite connectivity to improve the speed. While the technical physicalities are attended to, the social presence of the technology should also be incorporated, especially on a micro level like a family setting. The eventual statistical representations will then reveal a community or nation that is in progress with different power asymmetries at work. As mentioned in the introduction, impact indicators are not without their own shortcomings. The most glaring shortcoming is the time factor. Collecting and analysing them is a time consuming practise

for both the respondents and the researchers. The eventual data may prove overwhelming for analysis purposes. The measure of impact indicators could also need further sub sectors of measurements that may further determine the actual causality of the factor in determining Internet use. The final analysis of the use of impact indicators depends on the appropriate needs of the interested party in measuring the progress of the people's use of the technology.¹⁷ Impact indicators however provide policy makers and development efforts with core issues that may instigate further development.

Feminist technology studies see technology as socially constructed, or co-constructed, alongside gender (Faulkner, 2000). Gendered practices on the internet – women and men performing gender scripts, or doing gender when using the internet or not using it makes the point of gender mutually constructing with technology in society an important consideration. Bray, (2007) asserts that gender relations are often “expressed” in society through technology. Therefore understanding how the technology is constructed by its end users is just as important as the statistics that indicate a measuring scale of the situation. For political action which steers a seamless course between uncritical endorsement and outright rejection of technology, it is imperative to link the doing of gender to the using of the internet, which implies power, class and cultural negotiations.

Notes

¹ This term came from a joint discussion from a seminar on the global society watch report 2007. this publication inspired a few of us at the Department of Human works sciences at Luleå University of technology in Sweden to have a discussion on the reports findings, and the general consensus was the requirement for more impact indicators that further explained the rise or fall of percentage representations of connected actors in the various countries. See also (<http://www.epa.gov/owow/nps/natlstormwater03/34Shepard.pdf> (2007-09-29).

² The World telecommunication/ICT development report 2006, Technopolis – The Monitoring & Impact Assessment Indicators Study: MIPs Study Tome Casey & Isabelle Collins.

³ <http://www.nap.edu/openbook/0309060907/html/12.html> office of International Affairs, National research council, National Academy Press Washington DC 1998, Mingle, M 2000 Counting the Net: Internet Access Indicators ITU. www.isoc.org/inet2000/cdproceedings/8e/8e_1.htm

⁴ Having the ability to competitively participate in the present global era, an era often indicated as the information society that owes the acceleration of a globalised order through digitalised communication technologies such as the Internet is important. Therefore the term marginal makes reference to those who exists outside or on the edge of the information society, those who without access to the internet technologies are unable to participate in the present society for lack of “access”.

⁵ (<http://www.epa.gov/owow/nps/natlstormwater03/34Shepard.pdf> (2007-09-29)

⁶ <http://www.internetworldstats.com/africa.htm>

⁷ At the “Evolution of ICT in the SADC region” conference held at the University of Swaziland in May 2005 Mr A.S Dlamini presented the evolution of ICT in southern Africa and highlighted that Swaziland was the least developed country in terms of ICT, and therefore still had much work to do. See also Gov-Mtec-Site – [Http://www.gov.sz](http://www.gov.sz) , <http://www.uneca.org/aisi/swaziNICIws.htm>, http://www.sa2010.gov.za/news/070926_swazi_ict.php, http://i-policy.typepad.com/informationpolicy/2006/08/swaziland_ict_p.html

⁸ www.thesuabilitycompany.com/resources/glossary/likert-scale.html “Participants indicate along a continuum where their attitude or reaction resides.” This part of the questionnaire was coded from least desirable to most desirable from 1 to 5 with least being labelled as 1 and most as 5.

⁹ http://www.isoc.org/inet2000/cdproceedings/8e/8e_1.htm (2007-09-29)

¹⁰ www.isoc.org/inet2000/cdproceedings/8e/8e_1.htm

¹¹ <http://www.internetworldstats.com/stats1.htm> (2009-04-11)

¹² Taking this point further the UN in partnership on measuring ICT for development has called for a differentiation between the number of subscribers and the number of users. Something that is a little more difficult to measure but may give a more nuanced picture of the actual numbers in the country see <http://www.itu.int/ITU-D/ict/partnership/material/CoreICTIndicators.pdf> (2007-10-02)

¹³ <http://www.nap.edu/openbook/0309060907/html/12.html>

¹⁴ <http://www.nap.edu/openbook/0309060907/html/12.html>

¹⁵ Feminist technology Studies derive from a dissatisfaction of Science Technology and Society (STS) studies’ inadequate attention to gender in technology. FTS contends that technology and gender are mutually constitutive where STS has been accused of essentialising gender relations in technology (c.f. Lykke 2008:10).

¹⁶ I acknowledge the crucial contribution of this theoretical section by Ericka Johnson, as well as significant comments throughout the paper that have enriched the final product.

¹⁷ <http://www.epa.gov/owow/nps/natlstormwater03/34Shepard.pdf> (2007-09-29)

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Forskningsöversikt rörande genusfrågor och räddningstjänst

Syfte och uppdrag

I räddningsverkets kravspecifikation till uppdraget att skriva en forskningsöversikt kring den forskning som gjorts inom temat 'genus och räddningstjänst' innefattas den grundläggande frågeställningen vad formar genus och könspraktiker inom räddningstjänsten? I uppdraget ingår också att via den inventering som det innebär att göra en forskningsöversikt peka ut områden där det kan tänkas finnas kunskapsluckor samt att detta översiktarbete skall ligga till grund för framtida utlysningar av forskningsmedel. I uppdragsbeskrivningen formuleras en avgränsning till räddningstjänst som bygger på att "kommunal räddningstjänst har en mycket central roll i utvecklingen av det bredare kommunalt, lokala säkerhetsarbetet." (SRV 2008). Uppdragsbeskrivningen förtydligar också att det är inom räddningstjänsten som man sedan flera år tillbaka identifierat problem i form av "otidsenliga och mansdominerade strukturer." (Ibid.). Mer konkret innebär det brist på jämställdhet inom räddningstjänsten. Föreliggande uppdrag är m a o del i ett övergripande mål att påverka/förändra/utveckla jämställdheten inom räddningstjänsten. I uppdragets inriktning berörs många olika övergripande frågor kring säkerhet, risk, olyckor och skadeförebyggande verksamhet. Som relevanta områden för genusvetenskaplig forskning utpekas riskbegreppet som helhet och dess olika relationer till olyckor, beredskap, krishantering med mera. Andra relevanta områden som nämns är organisation och lärande, teknikhantering och teknikutveckling inom räddningstjänsten, utbildningsområdets framtida utveckling och organisation, processbaserad forskning om politiska processer kring räddningstjänst, krishantering och krisberedskap med tonvikt på efterlevnad av Lagen om skydd mot olyckor från 2004 på kommunal nivå.

Det är med andra ord ett ganska brett uppdrag som formulerats och som måste avgränsas dels på grund av att det är ett potentiellt stort forskningsområde och dels på grund av att uppdraget utförts under en kort tidsperiod (1 månad). Avgränsningen för respektive forskare sker då rimligen utifrån den enskilde forskarens eller forskargruppens disciplinära/interdisciplinära bakgrund samt hur långt man utsträcker "forskning som speglar erfarenheter från för räddningstjänsten näraliggande eller liknande områden kan vara av intresse." (SRV 2008). I mitt fall är bakgrunden genusvetenskap och teknik- och vetenskapsstudier. Ännu mer partikulärt är det teknik och manlighetsstudier. Det är det alltså

utifrån den interdisciplinära bakgrunden som jag läst och inventerat den forskning som gjorts inom temat 'Genus och räddningstjänst' inom ramen för räddningsverkets forskningsverksamhet och jämställdhetsimplementerande verksamhet. Det innebär bland annat att jag även kommer beröra publikationer som inte är direkt forskningsrelaterade men som naturligtvis har stor bäring och direkt återverkan på de könsproblematiker som räddningstjänsten brottas med (t ex Glans & Rother 2007). Jag kommer även att till viss del beröra näraliggande ämnesområden inom framförallt sk maskulinitetsstudier. Utifrån de genusmönster och den könssammansättning som räddningstjänsten uppvisar har det utan tvekan en stor betydelse. I sammanhanget vill jag också påpeka att min erfarenhet av och aktiva engagemang i de senaste tio-femton årens institutionella uppbyggnad av svensk och skandinavisk genusforskning bidrar till ytterligare perspektivering i denna forskningsöversikt. Det är bland annat därför som jag ser det som centralt och viktigt att situera olika perspektiv på genus och jämställdhet.

Det genusvetenskapliga fältet

Metaforerna är många när det gäller att beskriva det genusvetenskapliga fältet. De två mest återkommande verkar vara träd och familj alternativt syskonskara. Thurén (2003), och Andersson och Jalmert (2006:7) använder exempelvis trädmetaforen: "Ett stort träd med en rikt förgrenad krona där dess centrala stam växte fram under 70-talets kvinnoforskning, samtidigt som dess underjordiska rötter hade bildats långt före dess. Under 80-talet började trädets krona få sina tydliga förgreningar" (Thurén 2003). Trädkronan har på senare år kompletterats med berikande, ibland utmanande men likväl nödvändiga tillskott i de nya grenarna som utgörs av mans- eller maskulinitetsforskning, forskning om etnicitet och intersektionalitet samt forskning som fokuserar sexualitet såsom queer-, homo- och bisexualitetsforskning. Självt föredrar jag familj eller syskonskara som metaforiska redskap eftersom jag anser att de är mer dynamiska och interaktionsorienterade begrepp (Mellström 2006). Det är knappast en kärnfamilj vi pratar om utan snarare en storfamilj med tre syskon i centrum. Dessa tre syskon är den feministiska storasystemen, lillebror maskulinitetsforskning och det trans, bi- och homosexuella småsyskonet queerforskning. De tre syskonen är förenade av sin familjehistoria där förändring och emancipation varit del av densamma sedan slutet av 1960-talet och ännu längre tillbaka. Denna vilja till att skapa förändring genom forskning och aktivism är också vad som förenar syskonen än idag även om de ofta agerar på olika arenor. I introduktionen till det första numret av NORMA (Nordisk tidskrift för maskulinitetsstudier) (Mellström 2006:3) utvecklar jag resonemanget på följande sätt:

“Our past and our future woven together is according to me defined in terms of an emancipatory undertaking and epistemological pilgrimage towards a social science and humanities where gender is an axiomatic category for understanding societal change and stability, and generally a Science where the emancipatory objective would be to empty the category of gender, as well as other seminal social categories such as race, of their normative power. Also belonging to such a common agenda is a belief in the possibility for change in the sense that we through high-lightning and focusing by means of our engagement in research communities, scholarly practises and not least through empirical and theoretical work can twist gazes and see that femininity and masculinity are multiple and changing social categories. Neither are the biological differences between men and women a legitimate ground for inequality between the sexes. Such are the different emancipatory points of departure in an agenda that creates a sense of affinity and familism.”

Ganetz (2005:8) beskriver skillnaderna mellan forskningsinriktningarna på följande sätt: “Man brukar säga att genusforskningen idag omfattar jämställdhetsforskning (orättvisor i samhället som har med kön att göra och förslag på åtgärder mot detta), kvinnoforskning (kvinnor och femininitet), feministisk forskning (emancipatorisk forskning), mansforskning (män och maskulinitet) och queerforskning (kritik av heteronormativitet).”

Icke desto mindre kan nog de flesta enas om att genusvetenskaplig forskning berör det stora vetenskapliga fält som behandlar hur vi 'görs' till män, kvinnor, hur vi formas som individer, hur samhället både symboliskt och strukturellt organiseras efter vad som uppfattas och konstrueras som manliga respektive kvinnliga sysslor, arbeten och platser. Det innebär inte att de biologiska skillnaderna mellan män och kvinnor förbises men att de kritiskt granskas utifrån hur män respektive kvinnor lever sina liv utifrån de givna och samtidigt föränderliga samhälleliga förutsättningar som ges vid olika historiska tidpunkter. Oavsett dessa begreppsliga och ibland snåriga distinktioner är det viktigt att peka på fältets stora bredd. Utan att vidare fördjupa mig i genusvetenskapens historieskrivning är det viktigt att konstatera att genusvetenskap är idag ett omfattande vetenskapligt fält med egen grundutbildning, forskarutbildning och egna vetenskapliga excellenscentra. Det innebär att kunskapsproduktionen inom fältet är långtifrån enhetlig utan snarare karaktäriseras av en mångfald av röster. Jag skall detta till trots försöka mig på en analytisk uppdelning i syfte att sortera bland den forskning som ligger till grund för denna forskningsöversikt. Det utgör del

I av översikten och del II anlägger en tematisk sortering utifrån några av de vanligaste förekommande temana i litteratur kring genus och räddningstjänst. Del II avslutas med förslag på obearbetade områden som skulle kunna vara angelägna att uppmärksamma för framtida kunskapsutveckling.

I - Genusanalytiska skillnader i olika forskningsprojekt

I det här avsnittet gör jag några analytiska skillnader i hur man kan se på genusforskning, genusperspektiv, genusaspekt och könsvariabelforskning. Anledningen är att dessa analytiska skillnader kan fungera som sorteringsverktyg för utlysning av framtida medel, ansökningar och generellt för att identifiera skillnader och likheter mellan olika genusvetenskapliga forsknings- och jämställdhetsprojekt. Avsnittet bygger på andras (cf. Ganetz 2005, Mark 2003, Thurén 2003, Andersson och Jalmert 2006, Andersson et al. 2008, Lykke 2008) och egen genusvetenskaplig begreppsutveckling.

Genusforskning kan vara både tvärvetenskaplig och disciplinär. Den kan bedrivas inom traditionella discipliner och som tvärvetenskap. Graden av genusvetenskaplig integration i olika forskningsprojekt och jämställdhetsintegrering kan dock se väldigt olika ut i olika projekt. Vi kan här skilja mellan genusforskning, genusperspektiv, genusaspekt och könsvariabelforskning (Ganetz 2005). Nya framväxande perspektiv är också aktionsorienterad genusforskning (Andersson et al. 2008) och kritisk jämställdhetsforskning vilket jag kommer att behandla i nästa avsnitt (Lorentzen 2004, Mellström 2008). Jag diskuterar vidare aktivt jämställdhetsarbete.

Ganetz (2005) diskuterar begreppen utifrån ett tänkt projekt om TV-nyheterna i public service-kanalerna. Jag exemplifierar här utifrån räddningstjänstens verksamhet och forskning om densamma. Sophia Ivarssons och Lina Edmarks (2005) "Räddningsverkets internationella insatser ur ett genusperspektiv", Mathias Ericsons arbete (2003) "Brandman och man: Om aktualisering av kön i brandmannayrket", Manuel Missners C-uppsats (2007) i genusvetenskap "Maskulinitetskonstruktion inom svensk kommunal räddningstjänst. En studie kring föreställningar om kvinnliga brandmän och brandmän med utländsk bakgrund", Helene Hermanssons projekt "På lika villkor? Jämställdhetsfrågor angående risker i ett föränderligt samhälle" och Lisbeth Lewanders och Åsa Abelins projekt "Konstruktioner av kön i krishanteringssystem" kan sägas vara tydliga exempel på genusforskning inom tema genus och räddningstjänst. Alla projekten utgår från genusvetenskaplig teoribildning och

använder sig av metoder och teorier som utvecklats inom detta kunskapsområde. Syftet med Ivarssons och Edmarks studie är att: “undersöka hinder och möjligheter för implementeringen av FN resolutionen 1325.” Det övergripande målet med resolution 1325 är att förbättra livssituationen för världens kvinnor och flickor och att öka jämställdheten i världens länder. Även om författarna själva talar om att de utgår från ett genusperspektiv skulle jag utifrån de genusanalytiska skillnader som lyfts fram här snarare tala om en tydlig genusvetenskaplig forskning. Hermanssons projekt är ovanligt så till vida att det uttalat arbetar utifrån feministisk filosofi och kunskapsteori. Projektet är det enda i sitt slag i räddningsverkets forskningsparaply. En intressant utgångspunkt i projektbeskrivningen är problematiseringen av rationalitetsbegreppet och emotioners betydelse för riskuppfattningar. Ett ökat fokus på upp- och omvärderingen av känslornas roll för riskbeslut och riskperception är ett talande exempel på hur en alternativ epistemologi kan kasta nytt ljus på gamla riskhanteringsmodeller. Hur detta projekt som förtjänstfullt undersöker, ifrågasätter och värderar för givet tagna antaganden inom riskforskningen skall kopplas till långsiktigt jämställdhetsarbete framstår dock som något oklart. Forskningsplan, metodologi och jämställdhetsintegrering bortanför den begreppsfilosofiska argumentationen är rejält svävande. Projektet har enligt mig ett tillräckligt berättigande i dess begreppsfilosofiska utformning och pekar på svårigheten att anpassa värdefulla humanistiska projekt till en nyttobaserad och pragmatisk forskningspolitik. Lewanders och Abelins projekt är spännande men svårgreppbart och spänner över många övergripande frågeställningar. Deras undersökning avser att: “beskriva, förklara och tolka föreställningar i relation till information, kriskommunikation och samverkan inom ramen för kommuners krisberedskap och system för krishantering.” Författarna uppmärksammar bland det förhållande att genus och organisationsteoretisk- och kommunikationsförhållande i väldigt liten utsträckning har ägnat sig åt frågor om genus i kombination med krisberedskap och komplexiteten i samhällens krishanteringssystem. Hermanssons och Lewanders och Abelins projekt är de enda i räddningsverkets nuvarande och samlade forskningsportfölj på 50 projekt (oktober 2008 utifrån de projekt som finns tillgängliga via SRVs hemsida) som uttalat arbetar utifrån genusvetenskapliga utgångspunkter. Det kan naturligtvis råda delade meningar om hur vida 4 % av SRVs nuvarande forskningsparaply (6 % om man räknar Bondestams et al. kommande projekt, se nedan) skall handla om kön eller inte, men utifrån den centrala betydelse som frågor kring könsidentitet uppenbarligen har i räddningstjänsten är det inte orimligt att tänka sig att den siffran skulle kunna vara högre.

Frågans centrala betydelse visas framförallt i det kanske mest omfattande genusvetenskapliga arbete som gjorts inom räddningstjänsten och det är Mathias Ericsons arbete från 2004. Ericsons centrala frågeställning (2004:11) "hur förstås yrkesrollen och hur får föreställningar om kön betydelse i skapandet av normer kring arbetet som brandman?" vittnar om en tydlig utgångspunkt i genusvetenskaplig teori och metod. Ericsons arbete som jag återkommer till arbetar konsekvent med en genusvetenskaplig förståelse och har tydligt fokus på föreställningar och görande av kön inom räddningstjänsten. Missners arbete problematiserar bland annat attacker mot brandmän och sabotage mot deras utrustning utifrån en genusvetenskaplig ståndpunkt och ställer den (omständliga) frågan: "om det kan finnas ett samband mellan dessa problem och det faktum att räddningstjänsten än idag är en könsmässigt och etniskt mycket homogen grupp där kvinnor och personer med utländsk bakgrund oftast lyser med sin frånvaro?" (2007:3). Ericsons och Missners titlar anger vidare att man arbetar utifrån genusvetenskaplig förståelse.

Det kan exempelvis jämföras med Corinna Kruses arbete "Räddning, risk och identitet – en forskningsöversikt över brandmannayrket" (2007). Kruses arbete tar upp flera perspektiv på genus men det är inte hennes huvudsakliga utgångspunkt utan ett bland flera perspektiv på brandmannayrket jämsides med andra. Hennes syfte med studien är att: "ge en överblick över samhällsvetenskaplig forskning kring brandmän och brandmannayrket samt identifiera möjliga områden för framtida forskning." (Kruse 2007:4). Man skulle här kunna säga att Kruse anlägger ett genusperspektiv i sin forskning men utgår inte primärt från en genusvetenskaplig teoriram. Även ett genusperspektiv innebär att forskaren eller forskarna är väl insatta i forskningstraditionen, att de har en överblick över fältet och har kunskaper om teori, metodik och empiri inom området.

Att en forskare anlägger *genusaspekter* innebär att genus inte är särskilt framträdande i analyserna, men att denna dimension ändå finns med där. Men även för beteckningen genusaspekt gäller att en viss medvetenhet om och beläsenhet i de teorier och metoder som utformats inom kunskapsområdet bör existera. Det räcker inte att exempelvis i en forskningsansökan konstatera att här kan anläggas genusaspekter och att det ska göras. Det behövs också en i alla fall rudimentär beskrivning av vilken tidigare forskning man anknyter till, hur genus ska teoretiseras och hur man tänker sig gå till väga metodiskt. Även genusaspekten kan vara starkt eller svagt framträdande (Ganetz 2005). Inom ramen för de forskningsprojekt vid räddningsverket som jag granskat har jag inte hittat något exempel där

genusaspekter antyds eller är svagt framträdande och skulle kunna kategoriseras under denna beteckning.

Nästa nivå är könsvariabelforskning vilket innebär att forskaren har kön som variabel men inte som analytisk kategori. Det innebär inte att den här typen av forskning kan ha stor betydelse för att upptäcker i genusvetenskaplig forskning. Att arbeta med könsvariabler inom forskning om räddningstjänst uppdagar ju exempelvis den markanta snedfördelning som råder mellan manliga och kvinnliga brandmän med ett drygt hundratal kvinnor bland sammantaget 11000 brandmän (Ericson 2004). Ett sådant 'fynd' utgör självklart en viktig grund för en analys av till exempel *varför* det förhåller sig så och *hur* det görs formellt i belysning av aktuella genusvetenskapliga teorier och annan forskning på området. På så sätt skulle steget från kön som variabel till kön som analytisk kategori kunna tas samt överbrygga kvalitativa ansatser med kvantitativa. Det finns ett flertal exempel på projekt som arbetar med könsvariabler inom räddningsverkets forskningsparaply men jag exemplifierar här med två projekt. Projektet "Alkohol som riskfaktor för skador" lett av Preben Bendtsen vid Linköpings universitet konstaterar bland annat: "40-50 % av alla dödsfall i trafiken är alkoholrelaterade" och samtidigt att alkoholpåverkan var en bidragande orsak till skadebesök vid akutmottagningar i Stockholm. Forskarna beskriver samtidigt signifikanta skillnader mellan män och kvinnor, 14 % för männen och 5% för kvinnorna i en studie och i en äldre studie som projektet refererar till hade 17% av de manliga och 4% av de kvinnliga patienterna på en somatisk akutmottagning en hög alkoholkonsumtion. I det material jag granskat går dock forskarna inte vidare med dessa insikter och använder genus eller kön som analytiska kategorier för att förklara dessa till synes relevanta och signifikanta skillnader. På ett liknande sätt indikerar Enander & Lajksjö på intressanta könsskillnader som förklaringsfaktor i projektet "Riskuppfattning och säkerhetstänkande i den svenska vardagen" men de utvecklar inte skillnaderna till analytiska kategorier. Exempelvis talar Enander & Lajksjö om att säkerhetstänkande och trygghet i vardagen relateras till olika grupper av resursstarkhet kontra resurssvaghet. I de resurssvaga grupperna som karaktäriseras av bland annat hög personlig riskupplevelse samt av att tillmäta säkerhetsåtgärder stor betydelse återfinns en majoritet kvinnor. Det är naturligtvis en mycket intressant iakttagelse som utan större ansträngning skulle kunna omvandlas till hur- och-varför-frågor med hjälp av relevant genusvetenskaplig forskning.

En generell iakttagelse som direkt relaterar till könsvariabelforskningen och forskning med genusvetenskaplig grund är den diskrepans som finns mellan kvantitativa och kvalitativa forskningsansatser i SRVs forskningsparaply. Flera nuvarande kvantitativa respektive kvalitativa projekt/ansatser samt kommande ansökningar skulle tjäna på en metodologisk kombinatorik i projektdesign och resultatrepertoar. Ett större mått av metodologisk eklekticism och triangulering skulle antagligen gynna både den vetenskapliga vidsyntheten såväl som avnämarnas krav på forskningens explanatoriska spänst och dynamik. Med det senare menas att bredden av förklaringsmodeller och resultat korrelerar och erbjuder förklaringar på olika nivåer. I sammanhanget är det tydligt att genusvetenskapliga projekt i hög grad utgår från kvalitativa ansatser medan könsvariabelprojekt utgår från kvantitativa. Motsättningen mellan dessa ansatser är generellt, enligt mig, alltför betonad och till stora delar konstruerad. I praktisk verksamhet använder sig både forskare och praktiker oftast av både och. Det illustrerar inte minst nya framväxande genusvetenskapliga perspektiv när det gäller jämställdhetsintegrering.

Aktionsorienterad genusforskning och aktivt jämställdhetsarbete

I slutet av 00-talet står genusforskningen inför nya utmaningar. En av de viktigaste frågorna är genusforskningens relation till jämställdhetsintegrering och jämställdhetsforskning. Frågan om relationen mellan jämställdhet och genusforskning är inte ny i svensk politik, utan har dryftats mer eller mindre ingående alltsedan de första offentliga utredningarna i UHÄ:s regi under mitten av 1970-talet. Inom genusvetenskapen ser vid dock efter 1990-talets fjärmande av genusforskningen gentemot jämställdhetsarbete och jämställdhetsforskning behovet av att återknyta ett kritiskt jämställdhetsperspektiv till genusforskningens resultat och praktik. Det är med andra ord viktigt att det sista årtiondets uppbyggande av en stark akademisk infrastruktur och starka teoriutveckling inom det genusvetenskapliga fältet bör generera grunden för ett mer teoretiskt informerat jämställdhetsarbete. Det innefattar även metoder och 'best practices' för jämställdhetsintegrering.

I det arbetet är det vidare viktigt att arbeta både med en jämställdhetsintegrering som dels inriktar sig på representativitet och dels på en destabiliserande jämställdhetspolitisk agenda. Det första innefattar demokratiska grundprinciper men det handlar inte bara om underrepresentativitet utan också hur marginaliseringsprocesser, inkluderings- respektive exkluderingsprocesser, fungerar både när det gäller kvinnor, män och sexualitet. En representativ jämställdhetspolitik bör rimligtvis bäras upp av en destabiliserande dito där kön

som kategori ständigt kritiskt ifrågasätts. En kritisk jämställdhetsforskning utmanar idag genusforskningen till att ställa kritiska frågor som vad skall vi jämställa till och hur kan vi utveckla metoder där genusforskningens stora kunskapsmassa kan omsättas i insatser och metoder för ett jämställt arbetsliv.

Andersson et al. (2008) har utvecklat en ansats och modell som de kallar aktionsorienterad genusforskning. De definierar sin ansats utifrån att: "forskare bedriver forskning tillsammans med dem som deltar, och att det finns en tydlig handlingsorientering, att både synliggöra de sätt som genus görs och samtidigt arbeta med att förändra dem." (Ibid:22). De menar att den aktionsorienterade genusforskningen gagnar såväl deltagande organisationer som forskningen och den övergripande ambitionen är att åstadkomma genusmedvetna organisationer. Tanken bakom ansatsen är att forskare och praktiker möts utifrån sina förutsättningar där praktikern kan sin organisation och forskaren tillför genusvetenskaplig kompetens och utbildning. Gunnarsson (2006) har arbetat med samma modell även om det i Gunnarssons terminologi kallas interaktiv forskning. Modellen bygger ursprungligen på sociologen Joan Ackers (1992) arbeten kring könssegregering i organisationer och innehåller fyra organisatoriska processer: 1, könsfördelning eller segregeringsmönster, 2, interaktion, 3, symboler, föreställningar och diskurser, 4, personligt och/eller förväntat förhållningssätt. (Andersson et al. 2008:24). Olika organisationers genusordning uppkommer i skärningspunkten mellan dessa fyra organisatoriska processer. I ambitionen att förändra organisationers genusordning tydliggörs dessa organisatoriska processer via deltagarnas erfarenheter. Den aktionsorienterade genusforskningen utgör ett alternativ för de som aktivt vill arbeta med förändringsprocesser i företag och organisationer. Ett alternativ som står på en uttalat genusvetenskaplig grund.

I Räddningsverket forskningsrapport finner jag i dagsläget ett kommande projekt som har den här uttalade aktionsforskningsinriktningen "Från novis till nestor – ett aktionsforskningsprojekt om maskulinitet och risk i svensk räddningstjänst" och samtidigt vilar på en stabil genusvetenskaplig grund. Projektet vill genom sin aktionsforskningsinriktade ansats också bidra till förändringsprocesser inom svensk räddningstjänst. I sitt 'manifest' som bifogas ansökan uttalar forskargruppen GORMA (Genus, organisation, risk, maskulinitet, aktionsforskning) att de är en nybildad, genusvetenskaplig och tvärvetenskaplig forskargrupp som vill iscensätta organisatoriska

förändringsprocesser genom att sammanföra praktik och teori, frågor om risk och maskulinitet, samt lärande i alla delar av sin verksamhet. Projektets syfte är tudelat:

1. att undersöka, utveckla och förändra utbildande och utförande verksamheter knutna till svensk räddningstjänst utifrån en aktionsforskningsorienterad problematisering av maskulinitet, risk och organisation, samt

2. att teoretiskt och metodologiskt utveckla en analysmodell för maskulinitet, risk och organisation med utgångspunkt från aktionsforskningsbaserade delstudier.

Författarna visar i sin ansökan (jag har bara läst ansökan) hur teoretisk och praktisk forskning kan vävas samman inom området. De postulerar även att det är något som är starkt efterfrågat inom området. Det är möjligtvis en ansökningsretorisk figur som troligtvis inte har lika stark förankring i räddningstjänstens praktik. Det är åtminstone intrycket man får när man exempelvis läst Ericsons, Missners och Hammarbergs (2004) studier. Icke desto mindre är frågan viktig ur ett forskningsperspektiv. Det skall bli mycket intressant att se vad projektet kan åstadkomma via sitt uttalade intresse för att knyta ihop genusvetenskaplig forskning med ett aktionsorienterat perspektiv. Projektet startar preliminärt vid årsskiftet 08/09.

Ett projekt som tidigare nämnts är Ivarssons och Edmarks studie av räddningsverkets internationella insatser ur ett genusperspektiv. Enligt min läsning är studien ett lyckat exempel på dels ett tydligt genusforskningsprojekt och dels vad jag rubricerar som kritisk jämställdhetsforskning. Författarna lyckas i sin sparsmakade skrift dels visa på hur kön 'görs' inom de internationella räddningsinsatserna och dels visa på möjliga åtgärder för att förändra rådande mönster. När det gäller 'görandet' av kön i organisationen visar exempelvis Ivarsson och Edmark hur vissa sysslor och insatser könskodas samt hur dessa insatser är del av vad konstituerar manlighet respektive kvinnlighet i fält. Det handlar om vad som ger status i insatsarbetet. "Fältmässighet" är ett återkommande tema och någonting som tydligt könskodas. Författarna visar också på hur prototypen för kompetent insatspersonal är en brandman eller tekniker medan sjukvårdspersonal och dess kompetens underutnyttjas. Det leder inte minst till en ensidig och homogen rekryteringsprocess med snäva kriterier för vad som premieras. Vad Ivarsson och Edmark vidare är mycket tydliga med är att den operativa ledningen måste helhjärtat stötta jämställdhetsintegrerande projekt om de skall ha

förutsättningen till ett långsiktigt och hållbart jämställdhetsarbete. Det är också något som flera aktionsorienterade genusforskare återkommande påpekar (se t ex Andersson et al. 2008). Ivarsson och Edmarks arbete kombinerar på ett lyckat sätt kvantitativa och kvalitativa ansatser, hur-och-varför-frågor med frågor kring numerär representation och jämställdhetspolitiska interventioner.

Nästa nivå vi kan urskilja när det gäller genusanalytiska skillnader är aktivt jämställdhetsarbete. Räddningsverket har här på ett föredömligt sätt nyligen publicerat två rapporter/handböcker som på ett konkret och handfast sätt diskuterar hur man kan arbeta med genus och jämställdhet i internationella hjälpinsatser och i kommunal räddningstjänst. Jag syftar på "Handbok i jämställdhet. Praktiska råd vid internationella insatser" (2008) och "Bära slang som en man? En bok för aktivt jämställdhetsarbete i räddningstjänsten" av Hanna Glans och Bettina Rother (2007). Den förra ligger i hög grad i linje med de insikter och resultat som presenterats av Ivarsson och Edmark. Det framgår inte vem som författat rapporten men att den ligger nära Ivarssons och Edmarks arbete råder det ingen tvekan om. I rapporten (2008:13) betonas att genusanalys främst är ett bredare sätt att göra en omvärldsanalys i aktuella hjälpinsatser. Det innefattar att analysera platser, sysslor och arbetsdelning mellan män och kvinnor eller helt enkelt var finns männen och var finns kvinnorna. Rapporten adresserar också maktfrågor vilket naturligtvis är mycket centralt och det kanske tydligaste sättet att visa på korrespondensen mellan genusvetenskap och aktivt jämställdhetsarbete. I rapporten (Ibid:14) betonas vidare att genusanalysen skall utgöra ett enkelt verktyg som kan användas i många olika situationer och faser av insatsarbetet och att man inte behöver vara genusexpert för att ha nytta av en dylik analys. Med tanke på det motstånd i fält som rapporteras av Hammarberg (2004) och Ivarsson och Edmark så framstår det som en viktig insikt eftersom genus- och jämställdhetsfrågor oftast är socialt och politiskt laddade på flera olika plan. Jag skulle t o m vilja påstå att det är den mest laddade makt- och fördelningspolitiska frågan som genomsyrar alla samhällen oavsett tid och rum och så på flera olika sätt kristalliseras i räddningsverkets verksamhet. Den finns på ett individuellt plan, inom familjer och bland syskon, lokal och regional arbetsdelning och arbetsmarknad samt mellan nationer och global arbetsdelning. Man skulle lite tillspetsat kunna säga att det vore snudd på tjänstefel att inte orientera sig kring genusförhållanden vid olika former av hjälpinsatser i internationellt räddningsarbete eftersom det oftast är av avgörande betydelse för att förstå hur insatsarbetet skall organiseras. Det tydliggörs mycket väl av rapporten "Handbok i jämställdhet. Praktiska råd vid internationella insatser". Ett slående exempel som

används både i rapporten och av Ivarsson och Edmark är hur olika män respektive kvinnor blev drabbade av tsunamikatastrofen 2004.

“Två tredjedelar av dödsfallen i tsunamin år 2004 bestod av kvinnor. På grund av lokala och traditionella klädkoder hade svårt att fly eller simma ordentligt. Dessutom kunde många inte simma eftersom de aldrig fått simutbildning. Arbetsfördelningen mellan kvinnor och män innebar att kvinnorna hade ett större ansvar för barnen och därför befann sig på mer utsatta platser, exempelvis stranden, till skillnad från många män som befann sig ute på havet.”

(SRV 2008:15)

Även Glans & Rothers jämställdhetshandbok vilar på genusvetenskapliga insikter även om bokens starka teoretiska stomme i hög grad kan hänföras till forskning om jämställdhet snarare än aktuell genusvetenskaplig forskning. Det behöver i dess användningskontext inte vara ett problem. Boken är mycket instruktiv och konkret med en lättillgänglig tilltalston vilket med all säkerhet kommer att innebära att boken blir använd och läst på landets räddningsstationer. Boken bygger på ett omfattande intervjumaterial och återberättar många insiktsfulla, lärrika och instruktiva exempel. Riskerna med Glans & Rothers bok och liknande publikationer är dock att väsentliga maktaspekter försvinner samt att man i allt för hög grad fokuserar på att skillnaderna mellan män och kvinnor är väsensskilda (se också Amundsdotter & Gillberg 2003).

Sammanfattning

Sammanfattningsvis och med utgångspunkt i de genusanalytiska sorteringskriterier jag använt i form av genusforskning, genusperspektiv, genusaspekt, könsvariabel, aktionsorienterad genusforskning och kritisk jämställdhetsforskning finns det uppenbara behov för kompletterande forskningsinsatser. Jag har identifierat två pågående projekt och ett kommande projekt inom ramen för genusforskning i SRVs nuvarande forskningsportfölj. Jag har inte funnit något projekt med genusperspektiv eller genusaspekt men däremot exemplifierat två projekt och identifierat ytterligare några projekt i kategorin könsvariabelforskning, d v s där man arbetar med kön för att identifiera populationer men inte använder genus som en analytisk kategori eller förklaringsmodell. Jag har vidare problematiserat den uppdelning som finns mellan kvalitativa och kvantitativa ansatser och förespråkat att den behöver överbryggas i framtida forskningsinsatser. När det gäller de sista tre sorteringskategorierna har SRV gjort berömvärda insatser genom praktiska handböcker i

aktivt jämställdhetsarbete vid internationella insatser och i kommunal räddningstjänst. SRV har också gett medel till ett kommande aktionsforskningsprojekt som i sin ambition förtjänstfullt kombinerar genusforskning, kritisk jämställdhetsforskning och aktivt jämställdhetsarbete. Huruvida projektet lyckas i sin ambition återstår att se. Jag har vidare identifierat och delvis värderat tidigare gjorda projekt inom temat genus och räddningstjänst. Här framstår framförallt Ericsons och Ivarssons och Edmarks som lyckade forskningsinsatser som tillfört fältet ny väsentlig kunskap. Ivarssons och Edmarks arbete kring internationella hjälpinsatser visar hur-och-varför-frågor och 'görande' av kön kan kombineras med ett kritiskt jämställdhetsperspektiv. Ericssons arbete är en djupgående etnografisk studie som tar oss med till den kommunala räddningstjänstens vardag och låter oss förstå hur genus/kön 'görs' i vardagens rutinuppgifter. Det är trots allt där som förändringen måste börja, d v s i de vardagspraktiker som utgör själva kärnan i räddningstjänstens verksamhet. Ericsons arbete ger oss nycklar till att förstå hur det förändringsarbetet kan genomföras.

En slutsats som jag drar efter att ha granskat SRVs nuvarande forskningsportfölj och närliggande men ändå fristående projekt som exempelvis handböckerna i aktivt jämställdhetsarbete är att ett genomgående genusforskningsperspektiv i högre grad genomsyrar SRVs jämställdhetsimplemerande verksamhet än den externa forskning som SRV finansierar. Jag drar också slutsatsen att det finns ett utrymme för genusperspektiv och genusaspekter i ett flertal andra projekt. Det innebär inte att jag förespråkar att alla projekt skall och behöver arbeta med genusvetenskapliga perspektiv men att det i många fall faktiskt kan tillföra analyser och forskningsresultat nya dimensioner. Motståndare till genusforskning och genusvetenskapliga perspektiv, och det finns många, menar ofta att man påtvingas och avkrävs genusvetenskapliga perspektiv och jämställdhetsintegrering som en form av politisk korrekthet. Jag menar att det är viktigt att försöka komma vidare från dessa vanliga missuppfattningar och den laddning som alla organisatoriska förändringar som har med genus och jämställdhet att göra oftast leder till. SRVs GD Göran Gunnarsson uttrycker det i sitt förord till Glans & Rother (2007:5) det på följande sätt: "Det är emellertid en stor skillnad mellan att bekänna sig till jämställdhet och att aktivt arbeta för jämställdhet i ordet rätta bemärkelse". Om man vill uppnå den formen av omfattande och uthålligt lärande som Gunnarsson också talar om i sitt förord ser jag det som centralt att försöka komma vidare i jämställdhetsarbetet genom att desarmera den laddning som omgärdar begreppen genus och jämställdhet och komma till den punkt där det är just den självklarhet som Gunnarsson talar om i sitt förord. I relation till SRVs forskningsverksamhet kan möjligtvis de genusanalytiska

sorteringskriterier som jag arbetat med i del I vara ett sätt att differentiera det genusvetenskapliga fältet och ge verktyg till att genusforskning inte behöver vara antingen eller. Det är i hög grad den karaktär som SRVs nuvarande forskningsportfölj signalerar. De få projekt som utgår från genusforskningsperspektiv befinner sig inom ett vetenskapligt paradigm och de andra 96 alternativt 94 procenten berör överhuvudtaget inte genus eller jämställdhet. På ett liknande sätt som många projekt använder sig till delar av olika statsvetenskapliga modeller för beslutsfattande skulle man exempelvis kunna tänka sig att olika projekt vävde in genusvetenskapliga förklaringsmodeller. Det vore inte helt orimligt med tanke på att det faktiskt verkar ha en stor betydelse för räddningstjänstens vardagliga verksamhet vare sig det rör internationella hjälpinsatser eller kommunal räddningstjänst.

II - Tematisk sortering av litteratur kring genus och räddningstjänst

Corinna Kruse (2007) visar i sin forskningsöversikt över brandmannayrket att mycket av forskningen endast finns som opublicerade examensarbeten eller avhandlingar. Om man utsträcker det till den bredare tematiken genus och räddningstjänst är litteraturen något rikligare och något mer officiellt bibliometrisk men endast marginellt. Området har i dagsläget knappast status som ett eget forskningsfält även om det finns tydliga tendenser som pekar mot att det kanske kan bli eller t o m håller på att formeras som ett eget forskningsfält. Att området uppmärksammas genom de olika kunskapsöversikterna som nu föreligger är ett tecken på det samt naturligtvis även att temat genusfrågor och räddningstjänst nu förbereds som utlysning vid SRV. I samtida forskningspolitik är det ett vanligt sätt att generera nya forskningsfält.

Som jag tidigare påpekat utgår min läsning av detta forskningsfält i vardande från min interdisciplinära bakgrund i genusvetenskap och teknik- och vetenskapsstudier och teknik och manlighetsstudier. Heroismen är det sammanhållande temat i min läsning.

Heroism, maskulinitet och brandmän

Maskulinitetsforskaren Stephen Whitehead (2002:123) skriver: "For most men, any 'heroic project' begins when they leave for work." När det gäller räddningstjänst är det snarare tvärtom. Deras heroiska projekt börjar på arbetet och är en konstituerade del av arbetet. Det är få yrken som fortfarande bär upp klassisk manlig heroism på det sätt som räddningstjänstens centrala yrkesgrupper gör och i synnerhet brandmän. I forskningen kring framförallt brandmannayrket är ett återkommande tema 'brandmän som hjältar' (cf. Ericson

2004, Baigent 2001, 2008, Missner 2007, Kruse 2007, Lorentzi 1997, Olofsson 2009, m fl). Heroismen som tema är vidare återkommande i maskulinitetsforskningslitteraturen i stort (cf. Dawson 1994. Whitehead 2002, 2005, Kimmel 1994, Wetherell & Edley 1999, Andersson 2008) Whitehead är kanske den forskare som drivit temat manlighet och heroism tydligast. Enligt honom är hjälten själva sinnebild för ett idealt alternativt idealistiskt maskulint själv. Hjälten är en omnipotent symbol för manlighet och maskuliniteter, en karaktärstyp som skär över olika sociala grupperingar av män. Hjälten är med andra ord en form av mytologisk karaktär som delas av män i alla samhällsgrupperingar. På engelska finns begreppet 'cultural imaginary', d v s en form av fantasibild som aktivt göder våra kulturella föreställningar om vad som är manligt respektive kvinnligt. Heroismen som kulturellt ideal och 'imaginary' är djupt rotat i västerländsk kultur och ett kulturellt ledmotiv för att förstå olika former av manlighet i tid och rum. Kärnan i det ledmotivet är enligt Whitehead (2005:413) modet att kunna bemästra rädsla och risk. I genusvetenskapliga termer betyder det att 'göra' maskulinitet är liktydigt med att visa mod, övervinna rädsla och att våga utsätta sig för risk. Maskulinitet och manlighet blir i den här tolkningen något som skall uppnås, övervinnas och bemästras. Det är ett kulturellt ideal att sträva mot och samtidigt ett populärkulturellt ledmotiv i ett oändligt antal olika varianter.

Den manliga heroismen tar sig många uttryck men grunddragen är förvånansvärt lika. Det innefattar bland annat könskomplementära diskurser kring kvinnlig omsorgsrationalitet och manlig beskyddarrationalitet och implicerar tydliga manliga respektive kvinnliga sysslor och platser. Den klassiska uppdelningen mellan manlig offentlighet och privat kvinnlighet är ett exempel på en sådan både konkret och symbolisk uppdelning. Ett konstituerande drag i en manlig beskyddarrationalitet är då att ge sig ut i offentligheten, att övervinna och bemästra densamma vare sig det är i form av arbetsmarknad eller andra konkurrerande arenor. Whitehead (2002:119) skriver exempelvis:

Despite its inherent flaws, the image and mythology of man leaving home to engage in a heroic project maintains a resounding presence in most societies.

Som läsaren säkert märker är detta en metaforik som kan bära långt och som är just ett mycket centralt ledmotiv när maskulinitetshistoriker och andra maskulinitetsforskare försöker förstå och förklara historia och samtid. I en samtid som ibland beskrivs som en tid av brist på hjältar är det kanske inte konstigt att ett av de yrken som fortfarande bär en

kraftfull nimbus av maskulint hjältemod också är en av de starkaste bastionerna för klassisk maskulin homosocialitet och gemenskap och samtidigt ett motståndsfäste mot jämställdhetspolitiska interventioner. Det historiska arvet laddas i vissa kritiska situationer också med en nästan övermäktig ridderlighet där ett helt samhälles värden kristalliseras och står på spel (se också Faludi 2008). Den engelske f d brandmannen och numera forskaren David Baigent (2008:1) skriver t ex angående 11e septembertragedin i New York 2002:

As firefighters picked their way through what remained of the World Trade Centre, they, and the rest of the world, paused to realise that once again firefighters have become a symbol of all that is good in the world. In particular, firefighters' masculinity appears as a counter to the toxic masculinities that caused the very scene in which they as firefighters prove themselves. New York's 'finest' are indeed a shining symbol of the very best in courage and humanitarian selflessness.

I ett vidare maskulinitetsforskningsperspektiv är det också olika former av maskulinitet som ställs mot varandra. De heroiska brandmännen vid 11e septembertragedin i New York kom att symbolisera den amerikanska nationens ära och hjältemod gentemot de fundamentalistiska muslimska terroristerna. Hjalteglorian vilar med andra ord tungt över brandmannayrket men är också det som ger yrket dess aura och nimbus av upphöjdhed. En aura som uteslutande är en maskulin sådan för även om kvinnor utövar yrket och faktiskt är del av dramatiska räddningsinsatser som t ex vid 11e september så föregår de kulturella föreställningarna om hjältemod och maskulinitet de faktiska skeendena. Baigent (Ibid.) igen angående 11e septemberhändelserna:

Firefighters are indeed a masculinity that needs to be celebrated but in that typical irony that is the group who are proud to call themselves men, many of those firefighters who are acting out this masculinity were female.

Hjalteglorian med dess tunga men förvisso ärofulla historiska arv och medföljande kulturella föreställningar är uppenbarligen en bärande delförklaring till åtminstone den kommunala räddningstjänstens kraftiga obalans mellan könen. Lite tillspetsat skulle man kunna säga att räddningstjänsten mycket väl har förvaltats den exklusiva heroiska maskulina ridderlighetens

historiska arv genom att vara 20 år senare med kvinnors inträde i jämförelse med andra yrkesgrupper som polis, militär och verkstadsindustri (se t ex Ericson 2004).

Heroism, fysisk styrka och homosocialitet

En nodalpunkt som litteraturen kring brandmannayrket uppehåller sig vid är rökdykning (cf. Ericson 2004, Chetkovich 1997, Baigent 2001). Rökdykningen är s a s brandmannayrkets 'credo', d v s en form av höjdpunkt där yrkeskompetensen och de heroiska förväntningarna ställs på sin spets. Baigent (Ibid.) använder begreppet 'getting in' som ett övergripande begrepp och yrkesmetafor för att illustrera den centrala betydelse rökdykningen har inom yrket. Det är här maskulinitetsidealen prövas och tvivlen på kvinnors förmåga att vara brandmän kristalliseras. Ericson & Rutström (2000:50) och Ericson (2004:33) visar hur förtroendet mellan de manliga kollegorna kokas ner till hur vida de klarar att dra ut en kollega i en krissituation vid rökdykning. De återkommande argumenten handlar om den egna säkerheten. Kan man lita på en kvinna i en krissituation? Förutom det återkommande argumentet att kvinnor saknar den erforderliga fysiska styrkan finns det också en underström av argument kring kvinnlig irrationalitet och rädsla som förstärker och förstärks av en könskomplementär förståelse av könen. Ericson & Rutström (Ibid.) visar exempelvis hur en av de kvinnliga deltidsbrandmän som de intervjuade misstroddes trots att hon klarat de fysiska inträdestesterna och tvingades bevisa sin duglighet genom att "hon (...) drog runt killarna lite grann".

Den omfattande diskussionen kring fysisk styrka och kondition är genomgående i litteraturen och ett tydligt exempel på hur på hur biologiska skillnader mellan män och kvinnor också essentialiseras i diskussionen kring genusfrågor inom räddningstjänsten. Som Ericson (2004:42ff.) tydliggör så är fysisk styrka något som är givet individen, d v s medfött medan kondition är något man kan få genom träning. Trots de stora variationer som finns inom gruppen män respektive kvinnor är den genomsnittliga tjugoprocentiga muskulära skillnaden mellan män och kvinnor det som är själva grundstenen i argumentationen och den symboliska markör som essentialiserar till synes väsensskilda uppfattningar om könen. Baigent (2001, 2008) och Ericson tolkar det snarare i termer av rädsla för en 'feminisering' av yrket med åtföljande möjliga sänkning av yrkets status och respekt. En demaskulinisering av yrket handlar då också om ett försvar av privilegier samt den manliga heroiska självbilden. I maskulinitetsteoretiska termer hotas den exklusiva manliga homosocialiteten. Baigent (2001) använder här en närbesläktad övergripande yrkesmetafor till 'getting in',

nämligen 'fitting in' för att beskriva denna homosociala manlighet. Begreppet homosocialitet har inom organisationsforskningen använts för att förklara könssegregeringen i organisationer och hur det kommer sig att män dominerar på ledande positioner (Holgersson 2006). Homosocialitet handlar generellt om processer där män orienterar sig mot och identifierar sig med andra män. Charlotte Holgersson (2003, 2006) har i sin forskning bland annat visat att homosociala processer inom organisationer visar att män blir bekräftade i sin position och identitet och att det fungerar som osäkerhetsreduktion trots att just detta också genererar osäkerhet. Holgersson visar också att det finns homoerotiska inslag av begär och förförelse i processerna. Enligt Holgersson handlar jargongen män emellan om att befästa mäns överordning genom avståndstagandet från kvinnor och män som inte anses duga utifrån en gemensamt skapad idealbild. Homosociala processer bidrar till att skapa kretsar som inkluderar vissa män och exkludera kvinnor och andra män, vilket vidare resulterar i att arbetsplatser segregeras och att överordnade grupper av män återskapas (Holgersson 2006:26).

Brandmannyrkets homosociala processer är ett fenomen som känns igen från andra tidigare exklusivt manliga yrkesgrupper som exempelvis sättnare inom tryckerinäringen eller civilingenjörer inom verkstadsindustri (se t ex Berner 1989, 1996, Cockburn 1983, 1985, Mellström 1995, 1999). Argumentationen mot kvinnors inträde i dessa yrkesgemenskaper har tagit fasta på de biologiska skillnaderna mellan könen och essentialiserat desamma snarare än relativiserat dem. Vill man gå längre tillbaka i den historiska forskningslitteraturen kring exklusiva maskulina yrkesgrupper hamnar man ofelbart i det gamla skråväsendets organisation. Organisationen av brandmannyrket bär på många av det manligt formade skråväsendets kännetecken; homosocialitet, kroppens lärande, förkroppsligade kunskaper, praktisk materialkänedom, 'förakt' mot teori, informellt lärande genom muntlig trading som delas av en kärna av invigda, ett manligt vänskapsbegrepp byggt på broderskap, lojalitet och inte minst hjältemod och förmågan att hantera risk. I maskulinitetsforskningslitteraturen är homosocialitet och könssegregering en omfattande forskningsinriktning och har studerats både på längden och tvären. En central dimension av det homosociala broderskapet som dock inte undersökts speciellt mycket och också är centralt för räddningstjänstens verksamhet är genus och teknik i relation till teknikhantering och teknikutveckling.

Heroism, genus och teknik

Manliga vänskapsband och manlig fostran har djupa historiska rötter, som jag tidigare visat, i det som Nardi (1992) kommit att kalla broderskapets logik och vad jag pekat på som kännetecken för skråväsendets organisation. Att behärska och kontrollera verktyg och artefakter i gemensamt arbete eller kamp och att dela den kunskapen är också ett kännetecknande drag för maskulina vänskapsband och fostran. Ursprunget inom den tekniska världen kan vi hitta i ett skrå- och hantverkarideal där kännedomen om material och verktyg är intimt förknippade med en lång praktisk läroprocess. Genom lärlingskap och gesällprov tillägnar man sig den praktiska förkroppsligade kunskapen. Det är en kunskap som finns i känsel, hörsel och syn, med andra ord en förkroppsligad kunskap som knappast kan läras ut verbalt utan måste praktiseras. I denna prövning av kroppens färdigheter som ett bevis på manlig duglighet finns bortom kontrollaspekter och bemästrande också stunder där närhet och intimitet formas. I delandet av erfarenheter och prövningar finns dimensioner där vänskapen formeras och livslånga homosociala band upprättas. Det är en form av socialitet där ting och delandet av minnen och praktisk kunskap kring desamma är centrala för att förstå vänskap och fostran. Implikationerna av ett sådant förståelsesätt pekar mot en interaktionistisk analys där maskiner står i centrum för umgänget dels som objekt men också som subjekt i interaktion med andra aktörer i vad vi skulle kunna kalla en maskulin teknisk sociabilitet. Det är med andra ord viktigt att införliva maskinerna i analysen av den här formen av sociabilitet och maskulint identitetsskapande i relation till teknologi och maskiner.

Inom brandmannayrket finns ett flertal exempel på hur intimiteten mellan män, verktyg och räddningsutrustning är en konstituerad del av yrkesidentiteten och den formen av 'fire fighters masculinity' som Baigent (2008) menar är en ytterst central komponent i att sammanlänka de övergripande begreppen 'getting in' och 'fitting in'. I ett skarpsynt arbete av Jennie Olofsson (2009) visar hon hur maskulinitet, identitet, teknikhantering och artefakter är intimt förknippade i brandmannayrket. Vid två katastrofala olyckor och explosiva bränder i USA med fyrtiofem års mellanrum dog sammanlagt tjugosju brandmän, tjugotre män och fyra kvinnor. En bidragande orsak till att så många dog i olyckorna i Mann Gulch, Montana 1949 och South Canyon, Colorado 1994 var att brandmännen trots upprepade order vägrade släppa sina verktyg ta av sig den tunga utrustningen och fly från eldens lågor. Varför flydde inte brandmännen och varför släppte de inte sina verktyg? Frågan har förbryllat forskare och författare (cf. Weick 1993, 1996, Maclean 1992, Olofsson 2009). Olofsson pekar på fyra orsaker: kontroll, förkroppsligade verktyg, misslyckande och identitet. I Olofssons analys

visas tydligt hur yxa, spade och såg är en självklar och naturlig del av brandmännens förkroppsligade aktionsrepertoar och hur verktygen i krissituationer ger en känsla av kontroll. Enligt Weick och Olofsson (2009) var en anledning till att brandmännen tappade kontrollen var: The equipment indeed encouraged them “to *feel* that [they were] still in it and still winning” (Weick 1996:307, my emphasis and comments within square brackets) and by this means, the sense of control interpreted in saws, axes and shovels can be seen as a salient reason for why the fire fighter failed to drop their tools.” Bränder bekämpas med kroppens aktionsrepertoar och att släppa verktygen är då också att ge efter och tappa kontrollen. Att ge efter är också liktydigt med misslyckande vilket i sig är hotande för yrkes såväl som personlig identitet men inte minst potentiellt hotande mot en heroisk maskulinitet.

I Olofssons diskussion kring brandmän, maskulinitet och artefakter konkluderar hon bland annat att vi i teoretikern Judith Halberstams (1998) efterföljd måste förstå maskulinitet som prostetisk. Med tydlig koppling till heroism skriver Halberstam om en ikonoklastisk maskulin hjälte (1998:3ff.): “[w]ithout the slick suit, the half smile, the cigarette lighter that transforms into a laser gun, our James ((Bond) författarens anmärkning) is a hero without the action or the adventure.” Olofsson visar här vad andra maskulinitetsforskare också konkluderat, nämligen att maskulinitet är performativt men måste också förstås i relation till andra medskapande ontologiska subjekt/objekt, d v s andra verklighetsskapande faktorer såsom teknologi, artefakter och maskiner. Maskulinitet blir med andra ord till eller konstitueras genom användningen av föremål, artefakter och maskiner. I genusvetenskapliga termer kan vi tala om en performativ könsidentitet uttryckt med och genom artefakter eller att genus och teknik samkonstrueras. Genom att använda nyare genusvetenskaplig teori i kombination med insikter från fysik och teknik- och vetenskapsstudier utvecklar Olofsson analysen av prostetisk maskulinitet i en riktning som pekar mot alltmer hybrida subjektspositioner i relationen mellan ‘man and machine’.

Bortom denna delvis teoretiska överkurs som vi på avdelningen för genus och teknik vid Luleå tekniska universitet förvisso delar fascinationen inför, kan vi också se att genus och teknik har ett starkt förklaringsvärde när det gäller teknikhantering och teknikutvecklingen i relation till räddningstjänstens verksamhet. Rekryteringsvägarna till brandmannayrket och speciellt lokala räddningstjänster ute i landet präglas av en homogen rekryteringsprocess där teknisk yrkeskompetens och hantverkskunnande står högt i kurs. Det kan exempelvis vara elektriker, snickare och bilmekaniker (Ericson 2004:59). Könskodningen av dessa yrken är

entydig och bottnar i informella rekryteringsprocesser. Enligt Ericson (Ibid:65) leder det på lokal nivå ofta till att det nödvändigtvis inte är de bästa som rekryteras utan snarare de med rätt bakgrund och de som känner rätt personer. Ericson visar vidare på att yrket traderas och i många fall ärvs från far till son. På ett liknande sätt som inom ingenjörsyrket eller mekanikeryrket finns det olika former av socialisationsmotorvägar in i maskulint och förvisso även feminint kodade yrken (Mellström 1995). Brandmannayrket är utan tvekan ett sådant yrke där familje- och släktband, idrottsföreningar och överhuvudtaget lokala informella nätverk är formerande för rekrytering och social sammansättning av yrkeskåren. En central komponent i de processerna är delandet, uppskattandet och utförandet av praktisk förkroppsligad teknisk kunskap. En kunskap som nästan uteslutande är maskulint kodad.

På ett liknande sätt visar Ivarsson och Edmark (2005:41) när det gäller rekryteringsprocesser inom räddningstjänsten hur kraven på genomgången grundutbildning vid internationella hjälpinsatser kringgås och kontakter och rekommendationer leder till en homogen och ganska slutet rekryteringscirkel. I Ivarssons och Edmarks arbete (2005:39) tydliggörs också kopplingen mellan teknisk kompetens och rekryteringsvägar ifråga om internationella hjälpinsatser:

Den ensidiga eller homogena rekryteringen har satt en särskild prägel inte bara på de typer av insatser som Räddningsverket vanligtvis genomför utan också på den insatskultur som utvecklats. Normerna är i huvudsak manligt könsmärkta och präglas av teknik och fysisk styrka. Till exempel är prototypen för den kompetenta insatspersonalen brandman eller tekniker.

Överhuvudtaget är det som vid internationella insatser benämns som fältmässighet någonting som utgår från en manlig norm. Det innebär bland annat uttalade och outtalade förväntningar på kvinnors anpassning till ett liv i fält som i praktik såväl som i förväntningshorisonter skall präglas av tuffa villkor. Fältmässigheten ligger här självklart i linje med de heroiska förväntningar av vad 'en riktig man' skall klara av. Det är som jag tidigare visat en del av det heroiska projektets grunddrag, d v s att hårdas i olika former av 'stålbad', att övervinna svårigheter och övervinna livets praktiska problem genom 'smartness' och teknisk fingerfärdighet.

Är brandmannaheroismen i ett skede av förändring?

Yrkets symboliska laddning av tung maskulinitet och heroism är som bland annat Ericson (2004 cf. Kap 8) visar dock inte alltid något som delas och uppskattas av yrkesverksamma brandmän. Många verkar snarare just tyngda av den symboliska laddning som finns i populärkulturella föreställningar och överhuvudtaget i det som jag benämner 'the cultural imaginary'. Som både Ericson (Ibid.) och Baigent (2001) visar var många brandmän negativa till förväntningarna kring stora starka män och menade att det snarare hade negativa konsekvenser för brandmännen själva genom t ex att hålla lönerna nere. Bilden av yrket som ett kall med en självuppoffrande altruism som drivkraft i kombination med ett kulturellt, ofta sexualiserat, machoideal är med andra ord ett tveeggat svärd och någonting som brandmännen ständigt behöver förhålla sig till både på och utanför arbetet. De forskare som studerat yrket visar också att möjligheten till förändring ligger i den ambivalens och dubbelhet av heroism å ena sidan och omsorg å den andra som är yrkets innehållsmässiga poler. Att uppnå en större balans mellan dessa poler låter sig säkerligen göras genom ett långsiktigt och uthålligt jämställdhets- och utbildningsarbete inom räddningstjänsten men hur en förändring av de kulturella föreställningarna kring maskulinitet, sexualitet och heroism låter sig göras är på många sätt en betydligt mer komplicerad fråga.

Ivarsson och Edmark (2005:41) pekar också på hur en ökad balans mellan det heroiska och det omsorgsorienterade skulle kunna effektivisera och tydligare nyttja hela insatspersonalens resurser vid internationella insatser. Att bättre utnyttja sjukvårdspersonalens kunskaper i riktning mot förebyggande lokalt anpassade hälsofrågor skulle exempelvis vara ett sätt att skapa en bättre balans mellan det reaktiva arbetet och det omsorgsorienterade. Ivarsson och Edmark menar att sjukvårdspersonalens kompetens sällan kommer till sin rätt eller utnyttjas till fullo på det sätt som internationella hjälpinsatser är utformade idag.

Att skapa en större balans mellan reaktiva räddningsinsatser (heroism) och förebyggande arbete (omsorg) är ju för övrigt något som den tvååriga eftergymnasiala utbildningen syftar till. Det innebär större fokus på förebyggande arbete och en ny syn på olyckor. Kruse (2007:28) sammanfattar: "Denna syn delar in en olycka i olika skeenden, varav flera inträder innan själva olyckan har skett. Med detta synsätt blir förebyggande arbete en oundviklig del av räddningstjänstens arbete." Det pekar vidare på utbildningens centrala betydelse för en omorientering och förändring av räddningstjänstens verksamhet. Kruse visar i sitt arbete på hur yrkets akademisering genom krav på högskolebehörighet på den eftergymnasiala

utbildningen kan medföra en statushöjning. Akademiseringen av yrket med dess större tonvikt på teoretiska inslag är dock inte oproblematiskt. I ett yrke präglad av en klassisk arbetarklassmaskulinitets kännetecken (se t ex Willis 1977, Cockburn 1983, 1985, Mellström 2003), ofta av nästan skråliknande karaktär i kombination med passion för s k praktiska handfasta kunskaper och ett lätt förakt för vad som uppfattas som teoretiska kunskaper, finns det s a s ett inbyggt motstånd. Den stora utmaningen för utbildningen är följaktligen att förena yrkesutövningens praktik och teoretiska utgångspunkter.

I förskjutningen mellan att i högre grad förebygga olyckor snarare än att reagera på desamma ligger vidare en möjlig identitetsförändring av brandmannayrket och dess maskulina konnotationer. Som Corinna Kruse (2007:29-30) tydligt visar så är yrkesidentiteten idag i stor utsträckning uppbyggd kring de risker som släckning och rökdykning innebär. En akademiserad utbildning med starkare fokus på det förebyggande arbetet: "skulle kunna förändra inställningen till vad som är den viktigaste aspekten av arbetet." (Ibid:29). En förskjutning av den kollektiva yrkesidentiteten och meningsskapandet kan på sikt möjliggöra att andra typer av personal kan attraheras av yrket bortanför det heroiska släcknings- och rökdykningsarbetet.

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