



## **Initiation into Engineering: Stability and Change in Gender Orders**

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### **ABSTRACT**

This article examines processes of doing gender during the initiation of students into engineering programs at university level in Sweden. The article draws on interviews with students, focusing on their understandings of gender. The aim is to explore difficulties with and challenges to traditional gender roles in an academic male dominated arena, by using theories of doing and undoing gender. The empirical material reveals the initiation period or 'reception' as a phenomenon both reinforcing and challenging traditional orders. The attempts to challenge norms meet resistance, revealing two paradoxes and one dilemma. In the first paradox the formal purpose of the reception (inclusion) is partly at odds with its informal consequence (exclusion of deviations). The second paradox concerns the contradictory effects of the reception. Even though the reception ensures participation of women, it reinforces existing hierarchies including gender inequality. This results in a dilemma, since in order to protect individual safety, there is a taboo on harassing women which then reproduces stable gender stereotypes. So while harassment taints the respect senior students must earn during the reception, the fact that female students exist in the engineering field challenges the established order and opens the way for change.

### **KEYWORDS**

Doing gender; engineering; initiation; gender equality; academia; paradoxes



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### **INTRODUCTION**

Feminist scholars and practitioners have been working to bring about gender equality in organizations (see for example Ferguson, 1984; Acker, 1992; Ainsworth et al, 2010). This has also been an important political issue with different instruments such as equal representation between women and men and gender quotas (Krook, 2007; Walby, 2004). Gender and equality in academia have been discussed in research and policy contexts for several decades in the Nordic countries and across Europe (Husu, 2004).

Gender equality is an institutionalised value both formally as well as in administrative practices (EU Directive, 2006). Academia also upholds this as a value. Beginning some decades ago, there has been an explicit movement for change in academia, *away from* traditional ideals of hierarchy, discipline and difference, *towards* ideals of equality and inclusiveness (Carstensen, 2004). In Sweden for example, every university has a committee concerned with questions of gender equality. Under the Swedish Act on Equality, every organization needs to make a gender equality plan every year (Discrimination Act, 2008). Despite these policies and legal rules, academia is still wrestling with gender inequalities; from a quantitative perspective women form a majority in undergraduate studies while men dominate at higher positions in academia. There are also differences between disciplines (Rees, 2002). In the humanities and social sciences the representation of gender is about equal but in science, technology, engineering and mathematics (STEM) women are underrepresented (European Commission, 2008; Blickenstaff 2005; Wahl, 2010).

Academia seems to be squeezed between two opposing sets of values: while disposed to maintain the traditional academic value structure e.g. by repeatedly performing rituals and ceremonies, it must also adapt to the requirements of modern society and its explicit demand for equality between gender, ethnic groups etc. In respect of gender equality, academia must strike the balance between equality on the one hand, and hierarchy and male dominance as inherent in the tradition on the other (cf Husu, 2005). Despite efforts to increase women's participation in academia on equal terms, academic life, perhaps particularly in the field of natural sciences, is still characterized by a significant degree of gender inequality (Demaiter et al, 2009; Gill et al, 2008; Rhoton, 2011).

In this exploratory study, I analyse academia, engineering and gender by using qualitative data from the initiation period of the engineering program at a Swedish university known as the 'reception'. I draw upon qualitative interviews with engineering students who participated in the organization of this reception. The interviews focus on their experiences and understanding of gender and equality in the context of the reception period. The overall aim of this article is to explore the complexities of doing gender and how the reception as a phenomenon may both

reinforce and challenge traditional gender orders. The article contributes to debates on gender politics and gender policies in higher education by exploring the complexity in the doing and undoing of gender.

The article is focused on the context of the engineering program at one specific Swedish university at a specific period. But in order to do justice to the question of gender equality in that context, two other perspectives are added. The first is that of gender equality within the engineering *profession*. The second, which is particularly important for the purpose of this article, is the ambivalent position of *academia* at large in modern society – in between tradition and change, in between hierarchy and equivalence, in between male dominance and gender equality.

The paper is outlined as follows. First, I describe the theoretical framework of the exploratory study. Second, I describe the method and design for collecting data. Third, I introduce four major aspects, or themes, which I have observed in the qualitative data (interviews) of the study. These are the meaning of performing respect, doing hierarchies and gender, taboo, and heteronormativity. Fourth, I conclude by formulating two gender equality related paradoxes and one dilemma. Those are then subjected to an analysis based on perspectives of doing and undoing gender and academia in a state of ambivalence between stable gender order and gender equality.

### **THEORIZING GENDER AND ENGINEERING**

The theoretical framework of this article is a doing gender perspective on gender, academia and engineering. Processes of undoing gender are also of relevance in comprehending gender changes, as several scholars emphasize (Deutsch, 2007; Risman, 2009; Kelan, 2010; Van den Brink & Benschop, 2012). In a doing (and undoing) gender perspective, gender is seen as construed through a lifelong process and in various ways depending upon the context (West & Zimmerman, 1987; Gherardi, 1994; Connell, 1995; Korvajärvi, 1998, 2003). Drawing on the ethnomethodological work of Garfinkel (1967) and Goffman (1959), West and Zimmerman developed the theoretical framework of doing gender: "Rather than as property of individuals, we conceive of gender as an emergent feature of social situations: both as an outcome of and a rationale for various social arrangements and as a means of legitimating one of the most fundamental divisions of society" (1987, p 126).

From a doing gender perspective it is stressed that gender is an integral part of the processes of organizations, not an isolated part. In her classic article "Hierarchies, jobs and bodies", Joan Acker (1990) claims that organizations are gendered, not gender neutral, although there is a dominant assumption or image that organizations are run by meritocratic ideals. In fact, Acker, among many feminists, argues that these ideals are linked to images of a male worker: "...the abstract worker is actually a man, and it is the man's body, its sexuality, minimal responsibility in procreation, and conventional control of emotions that pervades work and organizational processes" (p 152). Acker's influential theory of gendered organizations contains five interrelated processes: divisions of labor, symbols and language, social interactions, identities and organizational logic. Gender constitutes

all these processes (p 146). Gender and hierarchies are intertwined and established simultaneously (Acker 1990; Gherardi 1994).

Gherardi (1994) analyses gender as "something we think, something we do, and something which we make accountable to others" (p 595). The doing of gender, as I interpret Gherardi, takes place at different analytical levels; both in social practices of social interaction between individuals, and on more symbolic levels, clothes, language, rituals etc. According to Gherardi, there are two practices which create gender difference and hierarchies through what she conceptualises as ceremonial work and remedial work. The ceremonial work re-creates and re-establishes the gender order and the remedial work appears when the gender order is challenged. For instance, when women enter male dominated professions and arenas, it is a challenge to the gender order. As a consequence women may act discretely and femininely, that is performing obedience and thus re-establishing the gender hierarchies. According to Gherardi the performance of obedience may be a kind of remedial work through which the gender hierarchy is restored (ibid).

There is a theoretical discussion in gender studies on doing and undoing gender. The doing gender perspective is primarily concerned with the doing of stable gender orders, but not with what makes gender orders change, the instability or the flaw of gender order. This perspective tends to stress the stability of the gender order, not the disruptions of gendered patterns (Kelan, 2010). The reproduction and stability of gender patterns have been focused on rather than challenges and flexibility of gender patterns. The literature on undoing gender criticizes the doing gender perspective for reproducing gender inequality and for focusing on "creating difference rather than erasing it" (Deutsch 2007, p 109). The critics of doing gender oppose the perspective's focus on the reproduction of gender inequality, in the sense that it only allows for narrow sighted views on stable and inert structures and institutional elements, which, in turn, reinforces and recreates gender inequality (Risman, 2009; Kitzinger, 2009; Kelan, 2010). Deutsch (2007) points out the importance of identifying and recognising "cracks in the wall" where gender is being done in unexpected and perhaps more liberated ways.

The undoing of gender perspective seems to encompass various overlapping definitions (cf Van den Brink & Benschop, 2012). According to Kelan (2010) the meaning of undoing gender depends on perspective. From an ethnomethodological perspective "...gender becomes gradually less relevant" and gender "...is just a position among others" (ibid, p 190). From a postmodern perspective undoing of gender "...would be to create gender trouble and to displace gender" (ibid). Van den Brink and Benschop (2012) examine the doing and undoing of gender inequality in academia and are inspired by the definition of undoing gender suggested by Pullen and Knights (2007): "...undoing and doing are always inextricably linked ... the undoing of gender inequality simultaneously entails a doing of something else" (ibid, p73). Deutsch (2007) argues that the "...phrase 'undoing gender' refers to social interactions that reduce gender difference" (p 122).

When West & Zimmerman (2009) respond to some of the comments about their thinking on doing gender, they argue that "gender is not undone so much as

redone" (p 118). I regard this as reasoning that gender is so fundamental that it cannot be undone but rather done again in new ways. In my view, the essential idea of the undoing gender perspective is to open up the creation of theories and notions which are suited to catch the variations and alternatives of social interaction, and also their interplay, which takes place in real life. Where people meet, interact and socialize – that is, in practice – is where there are opportunities to challenge and breach persistence of gender inequality. Such opportunities may pass unnoticed when exclusivity is afforded to perspectives focussed at the structural and institutional level (Deutsch, 2007, pp 117).

The doing and undoing perspectives are of importance for my analysis because they make it possible to capture both the stability and the fluidity/instability of gender patterns in an engineering context.

As mentioned earlier, civil engineering is still male-dominated in Sweden, as elsewhere (Schiebinger, 2010; Wahl, 2010). Since only 26 per cent of the engineering students are female, women constitute a minority in Swedish civil engineering programmes, as well as in other engineering disciplines such as computer engineering (Salminen-Karlsson, 2011). A similar underrepresentation exists in the profession as well: approximately 26 per cent of the population working as civil engineers in Sweden are women. Since 1996 the relative number of female applicants for engineering programmes at Swedish universities has decreased. Partly, this may be explained with reference to shrinking job opportunities in engineering. But the decrease of female applicants must also be seen in the light of how inviting the educational programme itself is (Swedish National Agency for Higher Education, 2006). The fact that women tend, to a greater extent, to opt for careers other than engineering, must be understood in the context of professional and social structures, working conditions, environment and the educational and professional culture (ibid).

Science, technology, engineering and mathematics (STEM) are male-dominated areas. Male dominance is evident in the sense that men outnumber women quantitatively (cf. Schiebinger 2010). But, furthermore, male dominance characterizes the understanding of the contexts and the environments which these areas cultivate (Kvande, 1999; Blickenstaff, 2005; Rhoton 2011). According to Blickenstaff (ibid) factors such as experiences of sexual harassment are decisive for women's choice to stay or leave engineering. The fact that women – and other defined groups – over the years, more or less explicitly and formally, have been excluded from university studies has been taken to imply that there is a correspondence between science and masculinity (ibid, pp 382, cf. Schiebinger 1989, Harding 1991). In practice, this may have the effect that women find themselves unfamiliar with and not welcome in natural sciences and therefore leave academia (cf. Powell et al 2009). Women who stay and claim professional roles as engineers can be stuck in a dilemma between performing professionally according to the script of engineering and performing as 'real' women according to the cultural script of gender. Women may develop different strategies in order to handle these conflicting demands or meanings (Powell et al, 2009; cf. Bagilhole, 1994).

Powell et al (2009) point out that despite several attempts to achieve gender equality and encourage women to become engineers, the profession is still male marked; that is men are in the majority and it is easier for men to adapt to the professional role. In their study of women engineering students' experiences of the workplace, they focus on gender performance and how gender is being done and undone (p 412). Similarly to Dryburgh (1999), Powell et al found that the women devoted a lot of energy to gain acceptance by the men. The women used several coping strategies, for instance acting like one of the boys, accepting gender discrimination and adopting an 'anti-woman' approach (p 425). In the doing gender perspective, from which Powell et al (2009) depart, there are multiple masculinities and femininities, there is not one way to perform gender. On the contrary it is important to make visible the heterogeneity regarding gender. Powell et al argue that in relation to engineering culture there is only one traditional masculinity performed in the professional role. From the women's perspective this creates a role conflict between being perceived as a 'defect' woman because of choosing a male profession and as a 'defect' engineer because of their lack of masculinity (p 423) (cf. Eriksson, 2004). To be accepted, women are inclined to do gender in expected ways and therefore there is a 'rejection of femaleness' (p 426). Rhoton (2011) argues that through distancing from other women and "...devaluing femininity and supporting occupational ideals " (p 711) gender inequality is reproduced. According to Powell et al, when women do engineering they undo their gender which means that gendered culture of engineering is not challenged and the hostility towards 'femaleness' in the engineering environment is upheld (2009, p 426).

Metaphors often used to describe the gendered patterns in higher education and research are for instance *the leaky pipeline*, *the glass ceiling*, *the chilly climate* (Husu, 2001; Blickenstaff 2005). These metaphors indicate that there are barriers for women and other marginalized groups which tend to be subtle but still powerful. Rhoton (2011) argues that gendered barriers are part of the socialization process in STEM disciplines because there is a strong ideal in these disciplines that gender and gender discrimination do not count and are not a problem. Rhoton finds that women scientists who she interviewed embraced gender-neutral ideals and distanced themselves from women who questioned these ideals. What is at stake, Rhoton argues, is to "demonstrate their solidarity with the occupational culture" (ibid, p 712). These processes of denying gender discrimination, sexism etc, also deny "...the influence of gendered structural and cultural factors on women's success and focus on individual-level factors that shift responsibility for failure to individual women" (ibid, p 712).

In view of this, the initiation period for engineering students at Swedish universities, is a potential instrument for keeping and attracting women in the field of engineering, reversing the negative trend. Dryburgh (1999) points out that ceremonies serve the purpose of welcoming new engineers and at the same time binding them together into the bigger community of engineers (p 677). The reception is a rite of passage, a socialization process that involves whole hearted participation in a series of games to achieve bonding and a group identity. At the

same time there is also socialization into the engineering culture ideal of working hard and playing hard (p 680). According to Dryburgh (ibid), female engineering students gradually learn to adjust to the engineering culture and as women have to adapt to professional ideals associated with the traditionally male engineer: "They [the engineers] are strong, action oriented, and ready to make a difference in the physical world of concrete realities" (p 678).

Initiation activities provide an opportunity to create a sense of community and solidarity among new students, between new students and senior students and between students and teachers, who participate in the event possibly because they remember their own introduction. The rituals performed as part of the initiation have the effect of strengthening the group of "engineers", as a whole, within as well as outside of the academic society. Following Dryburgh (1999) the rituals work as a means to characterize an individual as engineer, but also to single out the group of engineers from other groups and thereby creating and upholding a common identity and a common frame of reference. Therefore, analyses of ideals of engineers and ideals of gender equality are important.

In general, initiation rites can be conceived of as a means to create inclusiveness, to make the beginners feel welcome and a part of the context, and also to indicate which courses of behaviour it is important to adopt and which courses they are supposed to refrain from (Johnson, 2002; Waldron & Kowalski, 2009; Clayton, 2012). This emphasizes the potential of initiation rites as a tool for increasing the number of women engineering students and engineers by creating a sense of community and solidarity within the group of engineering students.

At several Swedish universities, initiation rites are more or less a mandatory part of commencing studies (Ek-Nilsson, 1999). That goes particularly for university education within STEM (ibid). In those academic fields, 'rites of passage' provide the new students with knowledge on standards and norms in the new context; the initiation serves the purpose of making the students aware of which courses of behaviour it is important to adopt and which courses they are supposed to refrain from (ibid).

Ek-Nilsson (1999) analyses the so-called 'reception' for engineering programs at the Royal Institute of Technology, Stockholm, Sweden, as a modern ritual of initiation to a specific kind of knowledge. According to Ek-Nilsson the weeks of initiation are characterized by using strong symbols like fire, fireworks and other symbols connoting life and death. There are also symbols associated with gender, especially connected to masculinity, like saunas, large amounts of alcohol and big boots – attributes associated with the military. Ek-Nilsson argues that it is clear that the women adopted the masculine norm, at the same time as expressing that being a woman could be an advantage (cf Svender, 2005).

The study which this article is based on is focused on initiation and doing gender in the context of engineering education. I am not the first one to use a doing gender perspective on gender and engineering but I find the doing gender perspective useful to expose the complexities of gender patterns in this context. But in order to

discover alternative paths for performing gender in the field of engineering, it is necessary to supplement doing gender with the undoing gender perspective.

Accordingly, since the article is concerned with the initiation process into engineering culture, it includes a complex analysis of gender and engineering (education), exploring not only the stable structure, but also the volatile and diffuse challenges and resistance to stable gender orders (cf Pullen & Knights, 2007; Van den Brink & Benschop, 2012). I argue that the essential idea of the undoing gender perspective enables the creation of theories and notions that can capture the variations and alternatives of social interaction, and also their interplay, which takes place in real life. Where people meet, interact and socialize – that is, in practice – is where there are opportunities to challenge and breach persistence of gender inequality. Such opportunities may pass unnoticed in cases which focus only on the structural and institutional levels. The analysis shows that it is possible to analyze 'the reception' as a reproducer of gender stereotypes, as well as an alternative way of undoing gender (cf. Powell et al, 2009).

### **METHOD AND DESIGN**

The study is based on semi-structured interviews with five women and two men, who participated in the organization of the initiation activities, known as the 'reception', at a university in Sweden in 2008. Due to the small sample, this piece of work has an exploratory character and may suffice as a basis for further research.

The participants were senior students between 20 and 25 years of age, some of them were midway through their education and some of them were studying the final year in the engineering program. Most of the interviews took place at the campus where the participants were located. A few interviews took place at my department at the University. The interviews lasted for 1-1 ½ hours and were tape-recorded, transcribed and analyzed according to a hermeneutic approach often used in qualitative research (Haavind, 2000; Bryman, 2008). The transcribed interviews were treated as texts where the analysis focuses on the relations between the parts and the whole (Alvesson & Sköldberg, 2000).

From the beginning, the interview questions covered four main themes; the respondent's general perceptions of the reception, the respondent's reflections on their own participation, the respondent's perceptions of gender equality during the reception and the respondent's reflections on necessary improvements regarding gender equality. During the interviews I noticed another important theme – a dramatic performance or spectacle which is planned and performed at the reception – which I therefore included in the remaining interviews. I noticed that the respondents were keen to describe the reception in a positive way. My reflection is that the reception is a contested phenomenon and has been subjected to criticism both inside and outside of academia.

In addition to the interviews, I also carried out observations. These were made during the two weeks of the reception. For ethical reasons I have chosen not to explicitly process and analyse the observations. During the fieldwork I realized that



the people I observed had not given their consent to participate in the survey. This made it difficult to explore the observations in the analysis using concrete examples because of the risk of identification. Still, the observations were valuable, especially during the interviews. They provided greater insight and understanding of the phenomenon and constituted important points of reference in the interviews. I could more easily understand some of the activities and situations the respondents referred to. For instance, when the organizers (the senior students) marched into the auditorium the first day of the reception in their outfits – dark capes, sunglasses and boots – I not only noted the importance for them of ‘performing respect’, I also physically felt it. That was also the purpose. In the analysis process, the meaning of respect turned out to be a core theme from which I could identify different but related meanings concerning gender and engineering.

Due to ethical considerations in relation to the relatively small sample of respondents, I specify gender but not age, engineering discipline, ethnicity etc in the article. The aim of the article is not to provide a general truth of gender and engineering but rather to map the dominant themes from the interviews and relate them to a wider context of gender equality in academia.

### **PRESENTATION AND ANALYSIS OF EMPIRICAL DATA**

The reception is the immediate subject of observation which the analysis in this article is based on. During two weeks in August every year, new engineering students are welcomed into the community of academia and engineering culture by senior engineering students. The reception is best described as a dramaturgical play or spectacle with 20 individuals (senior engineering students) acting according to a “manuscript” with a brief story-line; for instance they may have to act that they come from outer space with a mission to teach the freshmen “to have fun”. Every role in this drama has a specific character and outfit regarding clothes, hairstyle and make-up. Some attributes are shared by all acting senior students, like sunglasses, black capes and strange voices. “The actors”, or the senior students, play different games with the group of beginners and they make some practical jokes. Thus, they organize the reception *and* perform it as a drama. Since the senior students are outnumbered by the new students (20 individuals to 600), it is important that they are in control of the situation occurring during the reception, which is quite a big responsibility put on these young people.

Even if the reception is for fun, with childish competitions such as *follow the leader* (in Swedish *Följa John*) and songs for children, the arrangement can be seen as part of a bigger picture regarding academic studies, gender and engineering. The new students take their first steps into higher education and their forthcoming careers as engineers. The reception constitutes an important socialization process into academia and engineering.

In the following I present and analyze the interviews by focusing on four themes; the meaning of performing respect, doing gender and hierarchies, taboo, and heteronormativity in the spectacle.

### **Performing respect**

The word *respect* is recurrent in the interviews with students who organize the welcome reception. It is apparent that the students attribute different and various meanings to respect. One meaning has to do with control of the situation. According to the students interviewed, respect is important due to majority/minority aspects. The group of new students is so big and the organizers are so few: "...[W]ithout respect, it would not work, it would be chaos". There are certain rules for keeping order, for instance rules concerning alcohol and rules concerning the safety of the group of organizers. The rules of respect create control and discipline during the two week period. But respect is also important for bonding the new students together. One of the interviewed students reports:

They miss the whole process if they don't respect us, if they just find us strange and do not wanna play with us. If they get the respect, they will be a part of it and also get closer to each other. It may sound strange but through respect they get to know each other. (Male organizer)

Breaking the rules may lead to punishment, for instance a document called *the conscience* can be torn apart and the new student has to go to the *Central of consciences* and make a new *conscience*. Every novice wears *the conscience* visibly around their neck. The function and effect of consciences may be illustrated by one observation at a lecture. When students arrived at the auditorium a bit late for the lesson, they had their *conscience* torn apart in public. Symbolically, this is an act of power and control, showing the new students who is superior and who is not. A hierarchical order is embodied for which the creation of the conscience is an instrument.

### **Doing hierarchies and gender**

In order to enjoy respect from the new students, members of the group of organizers play the role of idols to which the new students should look up and whom they should adore. The idols are built from the character each person in the group of organizers play; common features of the idol are for instance coolness, distance and seriousness (no laughs or smiles).

What would happen if we just danced into the classrooms like clowns, nobody would take us seriously and they would miss the whole process of getting to know each other. (Male organizer).

But when people have respect for you and you are an idol, everyone follows you; the whole class play and sing. It is almost absurd but when a supercool person comes who acts as an idol and says "do this", then everyone can join and be a part of the play. (Female organizer)

From the respondents perspective it is important that the organizers make themselves idols, because that maintains order and contributes to their control of the situation. The relation between being idols and the need for control, indicates how the process of "making of respect" maintains a hierarchy and relations of superiority and submission.

Furthermore, there is a strong connection between the performance of respect and the use of clothes, hairstyle, colours etc. The greater the cohesion between such symbols and their attributes, the greater the appreciation of the performance. A male interviewee explains why the sunglasses and the cape are so important in creating respect:

When you wear the sunglasses, no one sees what you're looking at. It creates some mystique around you. To look and see each other's eyes is of great importance for forming contact but *rekå* [the group of organizers] do not want to form contact, on the contrary – you want distance, both physically and more abstract. You don't want to get the impression of being a sweet cuddly teddybear. As a *rekå* you want distance, respect, you want to give the impression that you are special. The glasses makes it impossible to get in contact, as well as the cape. You can do a lot with the cape, you can wrap yourself up or you can unfold it [spread it out]. [...] When you want to play, you put the cape on your shoulders and take a broad shouldered position; you can do a lot with the cape depending on what kind of impression you want to give. (Male organizer)

The cape and the sunglasses signal both distance and playfulness and they are powerful attributes in the performance. The cape is a symbol of power and control and the sunglasses mark distance and control. Other important symbols are colours; red, pink, green, yellow are associated with less power than black, brown etc. The voice is another crucial attribute to use in the performance. The group of students who organise the reception all talk "strangely", that is, in unfamiliar robotlike voices. It is interesting to notice that in risky situations where the ceremony has to be cut, they immediately start talking in regular voices.

During the reception weeks, the group of organizers play different kinds of games with the new students. It is necessary that the organizers (senior students) interact with the beginners and establish some kind of contact but, and this is important, the contact and interaction should not be on equal terms. This is also a 'desired' part of the ceremony. The organizers, who are in superior positions vis-à-vis the new students, define the situation and therefore control the situation and how the attributes and symbols are interpreted (cf. Goffman 1959).

...if you turn around with your cape, you get a space around you. It gives you respect. It's the same with the police and police horses. They have their horses and we have the cape...it creates respect. (Female organizer)

The reference to the police is interesting; it indicates that power and control are of importance. The police have their horses (big powerful animals) which create a distance and space for that matter between the general public and those who control the situation, asserting their supremacy. The senior students have their capes which symbolize something similar; the cape creates distance, space and control vis-à-vis the beginners. The symbolic meaning of the reference to the police

indicates that there is a symbolism of dominance in the performance acts; 'you should know your place'.

When women in the interviews talk about the role of organizer of the reception, it seems like the role makes it possible to act in ways different from which they are used to. There are aspects in the role that may challenge the traditional gender order:

I was the bartender, I often said no to big and tall guys, first they just laughed and thought I was stupid but I insisted 'No, you do not get another drink', I am serious. They just dropped off. There is one thing which is so good with this outfit, the glasses, the hair, the cape, you look so hard. If I didn't have these clothes, and had said 'no', the guys would not have dropped off, they would have laughed even more. You don't have to be big when you can make an impression of being big through the clothes and how you move. (Female organizer)

The role of organizer makes it possible for young women to be authoritative, to be listened to and respected in a context where women are expected to be 'good girls'. From this perspective the role, which is not associated with a cultural ideal of femininity, may challenge deeply rooted norms of gender.

The reception as a phenomenon is a ritual of initiation, an entrance into the academic world where it is important to understand and recreate hierarchies, power, positions, control and discipline. Therefore, the role of organizer and the reception can be understood as exercises in controlling the academic codex. An important factor is the departure from symbols and attributes connoting femininity (and submission) and a move towards the embracing and adoption of strategies and manners connoting superiority and masculinity.

The following example supports the interpretation of a link between gendered symbols and gendered academic structures. One of the men I interviewed was told he was far too soft in his appearance; he had to get tougher otherwise the beginners would lose respect for him. Therefore he performed a rough practical joke and regained his respect – he took a camera from a woman student, who was aware of the joke, and stamped on it and threw it out of the window.

There is an assumption that the individuals – men or women – can influence and control the impression that they evoke in the audience. And they, themselves, are also responsible for the reactions they get.

### **The taboo**

There is a rule regarding physical contact between the organizers and the group of new students. In the written (formal) information to the beginners it is stated: "To physically touch the organizers is strongly forbidden". A woman in the interviews says: "There is only one taboo really, that is do not touch the organizers". To use the word *taboo* indicates the seriousness of this rule. Respect is therefore important, otherwise: "...they paw on women organizers". When I ask how the

beginners learn about this rule, it becomes clear that it is something they get reminded of all the time:

We tell them all the time. If they'll try, we tear *the conscience* apart and they have to go and make a new one. Most of them get it quite fast.  
(Female organizer)

Despite this, it does happen that the organizers are pawed on – especially women organizers are subject to this, but as will become clear all women students are vulnerable targets. Below are some quotations from the interviews with women respondents:

Someone pulled my hair, but I caught him and called on my male fellows so the guy really understood that that is not allowed. Someone pawed my butt, I didn't see who it was...and another time someone pulled my hair.

I think it was an evening, he came right up in front of me and another woman organizer, and he said things like 'oh, I can surely touch you if I want to and I will', he tried to physically touch us but maybe he only wanted to provoke.

There can be rumours that someone has heard that some guy is planning to violate or threaten women students (senior students and new students):

There was a guy who talked about carrying [name of a woman organizer] away, she is so short, he should lift her away, he thought that was funny. (Female organizer)

I heard of a guy who planned to get a woman drunk in the evening and then have her, I don't remember any details but something like that, it would have been very bad for the girl. (Female organizer)

Even if these threats are never carried out (they may not 'happen' physically), they create a sense of insecurity during the reception, especially for women. In an interview a male respondent tells me that it is common that women want company at nights going home because of fear of getting violated. This guy actually started crying while he talked about this. Just before the topic came up, he had questioned my study regarding gender and the reception. For instance, he had said that gender equality is not a problem unlike, say, disability is; if the study had had that perspective he would have understood its relevance but not now. And then the interview took another turn, another direction, and the tears came, accompanied by questions like "why is it like this for women?", "it is so sad, so wrong".

The organisers of the reception take safety seriously; there are different preparatory exercises and emergency plans. For protection, women are encouraged and requested to have male guardians during the reception weeks, or, as one woman interviewed puts it, "body-guards". Especially during evenings and nights:

I am very short so I was not allowed to go by myself at nights. I always had company because you never know what can happen. The new students are of all ages, they drink alcohol, and some get drunk. I was afraid to go by myself. They told me that too: "Do not go by yourself". (Female organizer)

This quotation exemplifies an assumed correlation between *bodysize* and risk of violation. That is, being short or being tall is described as an important factor when determining the risk of being subject of harassment.

In my opinion the women who got harassed were the women who looked less respectful. These women were quite short, had more clown-like clothes, they looked more cute than cool, so therefore I think that they got harassed because of how they looked. (Female organizer)

Another interviewee expressed something similar: "...girls are more interested in how they look, they are more concerned with looking sexually attractive while guys are not concerned in the same way. Therefore, women have problems because their appearance encourages guys to touch them". There are associations between outer looks (clothes, hairstyle, colours) and what kind of treatment the individual woman gets. There are associations between what kind of impression women want to make and what kind of treatment they get. In the research field of gender and violence, this kind of reasoning is familiar; women tend to be blamed for provoking male violence. And in this process, women also tend to be held responsible for what happens to them (cf. Lindberg, 2006).

The interviews reveal that women, as a group, are construed as a vulnerable category that need protection preferably from male students. But at the same time the individual woman can get blamed or even be deemed responsible if she gets violated and harassed because then she has failed to perform according to the ideals of the strong and independent individual. Body size, mixing of clothes and colours, hair etc are all important tools in performing according to desired values and ideals. It may not be possible to change body size but there are some tricks to use for instance to make the body look bigger and maybe most important – to mark distance from feminine symbols.

When the respondents try to explain or reflect on why some men harass women during the reception, they refer to society in general. In every aspect of the modern society, a few men take the liberty to harass women. Therefore, you have to expect the same behavior from a minority of men at the reception. In comparison to society in general, harassment of female engineering students is considered to be a minor problem.

Furthermore, harassment during the reception is explained with reference to some men being provoked by women in command, that is, women breaching stereotyped and expected cultural femininity. This explanation, like the former, is based on an

assumption that male harassment is a behavior which is not tolerated but must be expected, in the context of engineering education as in society in general.

During the first days of the reception it is very important that the beginners respect us but some guys don't accept that, so they have to show that 'I can pull your hair as much as I want'. Guys don't want to be inferior you know. (female organizer)

Guys who paw on women [during the reception] act like that in general I think. They think it is okay. Maybe it has to do with guys' attitudes in general or it could be that they think the girl tries to rise above and that they should have the freedom to paw on whoever they want to. Some guys seem to think it is okay to paw on women and some guys seem to believe the woman is begging for it. Linked to the role of the organizer of the reception, well, for some guys they think it is okay in general and some guys are trying to undermine women's authority by touching women on the butt. (Female organizer)

Due to a cultural gender order or script, harassment of women is perceived of as an expected behavior for some men, and the academic space is not seen as different from other spaces outside the academy and engineering education. According to the same gender order or script, harassment is interpreted as an act which occurs because the gender order is challenged. Women get harassed because they perform gender in unexpected ways, and from this perspective the gender order is disrupted.

For women, the reception can be understood as an opportunity to bend gender norms in unexpected ways. Still, it must be observed, that the students' explanations of male harassment contain an assumption of rigid male behavior which is unchangeable. Therefore, specific cases of harassment are viewed in respect of the individual women subject to harassment. When a woman is subject to harassment that means she does not meet the requirements of a senior student in charge of the reception. Notwithstanding, the actual cause of the harassment is considered to be a failure on behalf of the woman harassed.

### **The heteronormativity in the spectacle**

The organizers and the new students create and perform a spectacle. Men and women are separated while making and performing the spectacle. One of the respondents says that usually the spectacle is about "the girls should be in love with the guys and the guys with the girls", that is, heterosexuality is construed as a given and "natural" point of reference where men and women are assumed to desire each other sexually. "If homosexuality is mentioned it is as a joke", the male respondent says, which indicates that heteronormativity is created through marking distance from homosexuality.

A woman respondent is expressly critical of the jokes in the spectacle for being cheap as they are always about sex: "It is always about someone who desires the other, jokes about sex are too simple".

There seems to be an awareness of the production of stereotypes about gender and sexuality in this process. The organizers of the reception say that they do discuss the matter during the preparation phase. They try to make the spectacle "funny for everyone" but at the same time "...is it possible to please everybody all the time?". The spectacle has been called "the gay spectacle" which one respondent sees as typical for the engineering culture:

I think it has to do with the engineering culture somehow. It is assumed that you are straight. There are homosexuals but they do not come out of the closet. I don't know of anyone who is openly gay. They should be as many as the straights but that is not what we talk about. Engineers are in general rather conservative. It is a prejudice of engineers that they are and all in all it is quite correct. Even if it is almost as many women as men it is still quite macho. No one would admit to prejudice openly but between the lines there are attitudes which can surprise you if you think about them. (Female organizer)

Heterosexuality is taken for granted, homosexuality is marginalized and if mentioned, it is referred to as a joke. This is addressed as a problem. But on another level the margin to change the forms and contents of the spectacles seem to be limited for quite superficial reasons such as "it is not possible to please everybody all the time". Accordingly, when heterosexuality and homosexuality are made subjects of the spectacle, the questions appear to be caught up in the play with stereotypes of heterosexuality.

It's not our intention to joke with homosexuals, we just wanna show that you don't have to be tough and masculine. The thing is, if you don't want to be hard and masculine you have to hint at being gay. We wanted to perform a softer spectacle, that we shaved and waxed ourselves, we wore nylon stockings as well. The impression we wanted to give was on the contrary that it is okay to be gay. It was that message we wanted to communicate. (Male organizer)

The space to transcend the boundaries for gender and sexuality seems to be limited. Even if the intention is to challenge the heterosexual ideal, the dominance of the heterosexual script is evident, the only available space seem to be to do the opposite within the already known gender boundaries (cf. Cech *et al*, 2011).

## **DISCUSSION AND CONCLUSION**

An analysis of the themes emerging from the interviews and observations reveal gender paradoxes and dilemmas which come into play during the reception at the engineering program at the university. I have observed three conflicts between stable gendered patterns and gender equality, two of which can be seen as paradoxes and one as a dilemma. These conflicts provide a basis for elaborating on some of the events which surface at the reception and which are of importance for understanding gender issues in engineering education.



*The first paradox* concerns the manifest purpose of the reception for new students at universities (which promotes inclusion) and the more informal effect (which is about exclusion of deviations). The formal agenda and aim is to create good conditions for the new students so that they get to know each other and also understand what it means to be a student in an academic context and participate in the engineering educational environment. From the point of view of the manifest purpose, the reception can be seen as an activity of team-building. On the other hand, it is possible to interpret the reception as a lesson in learning a specific academic order of hierarchies, power and submissiveness.

The symbolic meaning of the clothes, the colours, the accessories, and the bodies emphasise the importance of power and hierarchy (Gherardi, 1994). From a doing gender perspective it is through using symbols and attributes associated with authority and supremacy that respect is produced. And, as a corollary, respect is also produced by demonstrating distance from symbols and attributes associated with softness and childishness. By way of adopting powerful symbols and rejecting symbols of weakness, a traditional academic order is (re)produced. Furthermore, it becomes clear that the meaning of respect is linked to ideas of strength, toughness and authority. What seems to be crucial in this process is to mark and demonstrate a distance from symbols and attributes associated with submissiveness. In Gherardi's way of thinking, this could be seen as a form of "symbolic work" which tends to reproduce a stable gender order. Those individuals who do not succeed in performing respect – men as well as women – are perceived of as soft and wimpy. Still, it would seem as if there is a gender difference in the opportunity to correct a bad performance. For instance, the man who was told he was too soft in his performance could compensate for that mistake by performing a rough and violent joke – throwing a camera out of a window. This can be analysed as showing that the doing of remedial acts works in different ways for women and men in a traditional male dominated context (ibid).

Thus, even if the reception has the explicit purpose of including new students, the inclusion is implicitly qualified by requirements to meet a certain standard. When this standard is not met, the consequence is exclusion. Consequently, the paradox concerning the explicit purpose of inclusion and the practical effect of exclusion dissolves when you consider the implicit qualifications of inclusion.

*The second paradox* concerns the contradictory aims of the reception. It both *establishes* and *challenges* a traditional academic order, gender patterns and gender stereotypes. It is about obedience and challenge. In order to ensure women's participation in the reception, and thus their equal opportunity to be initiated into academia, certain measures have to be taken; women are encouraged not to move by themselves on campus and women have to be accompanied by male guardians during the two weeks. On the one hand, such measures make change possible; women can participate in a masculine environment. But on the other hand, these measures confirm the traditional academic hierarchy including the inequality between men and women in respect of participation.

The aspect of challenge in the paradox becomes visible in respect of the parts played in the 'drama'. The role of organizers is described by the female respondents as an opportunity to challenge traditional gender patterns and themselves for that matter. The qualities and characteristics of the organizers are not associated with cultural (stereotyped) notions of femininity; on the contrary the role is a role of authority, dominance and leadership, qualities which are referring to perceptions of masculinity. Especially for women the experiences of raising the voice, shouting out loud in public rooms, claiming physical space and insisting on respect at the same time, can be analyzed as important signs of on-going challenges and changes regarding oppressive gender patterns in academia (Deutsch, 2007). Is it because of these challenges women get harassed?

*The dilemma* emerges when comparing a woman's claim for a position of authority as organizer and the students' explanations of harassment. The respondents' descriptions of how respect should be performed show implicit assumptions that the individual by herself or himself, is in control of the performance and of the kind of impression the individual gives. Women's experiences of harassment tend to be explained as the individual woman's failure to deliver an 'accurate' performance. Yet, the explicit need for male protection seems to acknowledge the existence of male violence as a part of the underlying gender structure.

When the respondents talk about how to express and perform *respect*, it becomes clear that the *making* of respect is perceived as something over which the individual possesses control. Both men and women can be corrected by their co-students if they fail in their performance to create respect, but there is a gender difference here. For instance, women who have been harassed are seen as if they have failed – and are blamed – in their making of respect. They have not succeeded in acting as authorities in the performance. There is a strong individualization underlying this kind of reasoning. If an individual (man or woman) does not create respect, it is possible to correct this by changing composition and using the right mix of symbols. These frames for interpretation make the academic context of engineering, the hierarchies and gender order invisible and illegitimate and therefore not challenged in practice. This pattern and similar patterns have been observed by previous research on gender and engineering (cf Rhoton 2011; Dryburgh, 2009; Powell 2009). There is both a strong gender neutral ideal in the engineering discourse in parallel with distancing from interpretations of gender inequality, harassment, discrimination etc.

In order to attain positions of accepted organizers, the students have to meet a number of requirements which have been mentioned above, but female students have to meet the extra requirements of not being harassed. Thus, although the prohibition on harassment is set out to protect individual women, in practice there is a requirement on individuals that they should not get harassed. And that is the essence of the dilemma. The engineering context seems to advocate ideals of dominance, autonomy and authority, and these are ideals which do not recognize harassment.

Thus, from the analysis of conflicts, it seems that the terms for attaining prestigious positions in the community of engineering education are not equal; the order maintains a number of obstacles which particularly affect women. This is similar to that described by several scholars (cf. Dryburgh, 1999; Powell *et al*, 2009; Demaiter *et al*, 2009; Rhoton, 2011). In order to fully capture these processes of marginalization and for real change to happen, I argue for the need to question the hegemonic culture of engineering and the ideals, norms and values which tend to favor male heterosexuals (cf. Cech, 2011).

Value conflicts and paradoxes are apparent where measures are taken to create equal terms in contexts where inequality exists within a hierarchical order, e.g. in order to strengthen the position of individuals belonging to subordinate groups. Measures to promote equality have the effect of strengthening a structure which is basically unequal. From the perspective of doing gender, this is not a paradox. Measures are taken when the hierarchical order needs adjustment to new societal values, but the measures chosen are those that cause least interference with the inherent structure of the order. Therefore, it is not surprising, and no paradox, that the effect of measures taken to impair structural inequality is to preserve the prevailing order by minimal interference.

If we focus on the measures taken to enhance equality and consider alternative measures *not* taken, it is clear that the initiation ritual serves the underlying purpose of submission to a given order. Thus, the paradoxical nature of measures both enhancing and impairing equality is merely illusory since the prevailing value is preserving a hierarchical order including structural inequality.

Gender stereotypes are reproduced by upholding ideals and qualities such as physical strength, physical size, a determined attitude, leading and protective capacity etc. The space to do gender and sexuality in more unexpected and perhaps more liberated ways – undoing gender – are limited. Still, from an undoing gender perspective, gender issues must be addressed with a view to the context of the specific area of investigation. The very fact that female students – and other marginalized groups – actually exist in the engineering field and in its education, is a challenge to the stable order and its boundaries. From this perspective, the reception is an arena where there is constant negotiation of meanings, and in these processes stereotypes and prejudices are challenged and change is possible. The reception may be seen as an opportunity for individuals to bend gender in ways which deviate from attitudes culturally coded as masculine or feminine. Thus, the reception ritual both reinforces prevailing gender structures and opens up the possibility for developing alternative interpretations and meanings of gender over time.

This article contributes to knowledge on gender and engineering by analyzing the reception of engineering students as an arena where embedded values and norms are performed and expressed, making it possible to both visualize and question them. This study is of an exploratory character – the results do not aspire to be generalized. Still, the study clearly indicates that there are a number of important points of conflict between stable gendered patterns and the promotion of gender

equality when new students are introduced to study engineering. This requires further research. For instance, the processes of doing gender and engineering in relation to intersections of ethnicity, sexuality, age, disability and class should be examined more closely. Furthermore, it is important to understand how challenges to stable gender orders in engineering can be made more powerful, in order to make change possible and achieve gender equality.

To conclude, although there are some openings for gender change, these alone are not sufficient to attract more women to engineering education. For real change there is a need to question the ideals and norms of engineering and examine the effect of gender equality policies in practice.

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