MANIFESTATIONS OF GENDERED ENGINEERING CULTURE IN TURKEY: DIFFERING EXPERIENCES OF WOMEN AND MEN ENGINEERS

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Abstract

This study aims to understand manifestations of professional culture in engineering which comforts men more than women and differing experiences of women and men engineers in contemporary Turkey by using a theoretical tool called "Gendered Engineering Culture". In order to reach this aim, ethnographic studies were conducted in one factory and two workshops in Ankara by participant observation technique. In addition, forty three in-depth interviews were accomplished with women and men engineers. Respondents were purposefully selected to constitute two main cohorts who were under and over age forty. Interviews were interpreted in regard to respondents' profesional perceptions, reactions they get from the society, education and work life experiences.

***Key Words**: Gendered Engineering Culture, Women and Men Engineer, Turkey, Participant Observation, In-depth Interview.*

TÜRKİYE'DE TOPLUMSAL CİNSİYET TEMELLİ MÜHENDİSLİK KÜLTÜRÜNÜN TEZAHÜRLERİ: KADIN VE ERKEK MÜHENDİSLERİN FARKLILAŞAN DENEYİMLERİ

Özet

Bu çalışma,"Toplumsal Cinsiyet Temelli Mühendislik Kültürü" kavramsal aracını kullanarak, yakın zaman Türkiye'sinde erkek mühendislere var olma kolaylığı sağlayan toplumsal cinsiyet temelli mühendislik kültürünün tezahür biçimlerini, kadın ve erkek mühendislerin farklılaşan mesleki deneyimlerini temel alarak anlamaya çalışmaktadır. Bu kapsamda, Ankara'da bir fabrika ve iki atölyede katılımcı gözlem metoduyla etnografik çalışmalara ek olarak, kırk üç adet kadın ve erkek mühendis ile derinlemesine mülakat yapılmıştır. Cevaplayıcılar, esas olarak 40 yaş ve üstü ve 40 yaş ve altı olmak üzere iki yaş grubundan gelmektedir. Mülakatlar, katılımcıların meslekleri hakkındaki algıları, toplumdan aldıkları tepkiler, okul ve iş hayatı deneyimleri kapsamında değerlendirilmiştir.

***Anahtar Kelimeler**: Toplumsal Cinsiyet Temelli Mühendislik Kültürü, Kadın ve Erkek Mühendis, Türkiye, Katılımcı Gözlem, Derinlemesine Mülakat.*

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** Nevin is a mechanical engineer and the dialogue is between me and a male classmate of hers.

Introduction

Me: Do you have Nevin's[1] phone number? I would like to talk to her for my dissertation about engineers.

Male Mechanical Engineer: What will you do with her? You know, Nevin does not count as woman (laughing).

Me: What do you mean by saying she does not count as a woman?

Male Mechanical Engineer: I mean she is not like other women. She can participate in "male talks", she can swear like us, drink with us.

Me: So she is one of you.

Male Mechanical Engineer: No, not one of us. She is just a friend.

Me: Do you think she is a good engineer?

Male Mechanical Engineer: Engineer?… hmmm… probably she is.

This conversation and a similar example of it took place between me and two different male mechanical engineers on separate occasions. Nevin in the conversation is also a mechanical engineer and she is a classmate of the mentioned men. Apparently, the male classmates do not see Nevin as a woman because she can participate in "male talks", which are assumed to be sexually oriented. She also can drink like men so she cannot be a woman. Even though she can swear and drink like a man, Nevin is not a part of the male classmates group, because she is *just* a woman friend at the end of the day. I guess here, *just* refers to being a woman. "Being a woman" is not the password for being a part of the social network. In addition, she *might be* a good engineer, her classmate puts a probability sign in the sentence; again, because she is a woman.

There are very limited studies concerning gender and engineering in/about Turkey. These studies were conducted particularly in 2000's and consider women's underrepresentation in engineering occupations and their coping strategies. It is noted by many authors that Turkey has been successful over the past 75 years in moving from being a society with no female participation in engineering to relatively higher participation than in USA or Europe (Tantekin-Ersolmaz et al. 2006; Bayrakçeken-Tüzel, 2004; Smitha & Dengiz, 2010) yet, many of them highlighted the discrimination women faced in male dominated occupations (Zengin, 2000; Bayrakçeken- Tüzel, 2004; Smitha & Dengiz, 2010).

The conversation above reveals that isolation for women engineers does exist in engineering education and occupation as a whole. These troubles in engineering cannot be seen only from the statistics. So the question concerning women engineers is not only about numerical scarcity. The problem has other dimensions that are hidden in daily expressions, prejudices and in interaction styles. It is the gendered construction of the engineering profession. Not only are women excluded as occupants of this profession, but also this culture is built upon masculine cultural codes. This culture is a part of the patriarchal structure of Turkey. We cannot break off engineering culture from Turkey's general culture.

The importance of this research that it takes place in Turkey because there is a common idea which asserts that there are no gender problem in engineering due

to considerable ratios of women engineers. The existing literature approaches the issue from the perspective of women's work, because there is a common tendency to assume that we know all about masculinity. On the other hand, studies that analyze the masculine culture among engineers assert that the common type of masculinity in engineering might be oppressive over some men engineers as well (Cech, E.A. 2002; Cech, E. A. & Waidzunas, T. 2011). Within the frame of this study, I accept that there are several masculinities, and men as well as women are affected by the operations of gender in engineering. Thus, I aim to address experiences of both women and men engineers by using feminist approach.

Within the course of this article, my purpose is to understand gendered culture in engineering by relying on two main questions:

In what ways gendered engineering culture manifests itself and in what ways this culture favors men engineers when compared to women? I will use a theoretical tool while searching for answers to these questions. This tool is "Gendered Engineering Culture". Within the course of this study the theoretical tool refers to socially defined standard of behavior and interaction among engineers. This culture has three ideological basis. These are "the image about real engineer", "real nature of engineering practice", "ideal engineering carrier" (Robinson & McIlwee, 1991). As it will be discussed in proceeding parts, these ideal definitions is argued to be based on a stereotypical male gender role that works against women, on masculinities which are close to femininity and inconsistent with the ideal engineer stereotype.

Furthermore, in order to understand this culture this study will focus on childhood, education and work life experiences as a process in which the codes of the related culture have been seeded and diffused in engineers' behavioral and communication schemes. For this reason, it is crucial to examine participants' own narratives with their own words to understand manifestations of gendered engineering culture.

This article will firstly discuss the gender of technology and engineering, secondly it will introduce the mentioned theoretical tool, and lastly the findings will be discussed with respect to theoretical debates.

1. GENDER OF SCIENCE, GENDER OF ENGINEERING

Within the context of this study, I base my arguments on the feminist tradition which questions the gendered dimensions of scientific inquiry and technology until 1980's (Harding, 1986; 1987; 1991; 2008; Fox-Keller, 1985, Hacker, 1981; Cockburn, 1985; 1987; 1993; 2009). This tradition questions the so-called neutrality of science, by problematizing the predominance of men in natural sciences. It explores the biases in the processes of choosing and defining scientific problems, the design and interpretation of experiments, and finally the use of language in scientific theoretical formulations (Fox-Keller, 1982 in Harding & O'Barr, in 1987).

Following the tradition above, technology is conceptualized in this study as a medium of power. I argue that historically, there is a material and symbolic relation of power between men and scientific knowledge. Scientific knowledge means power for men because it produces technology to command nature. In line

with this argument, it is not surprising to see that during industrialization, men have always been in control of key technologies (Cockburn 1985:9). By the same token, engineers, as the bearers of technical and scientific knowledge, are one of the holders of this power in its symbolic meaning by being valued as scientific authorities.

The social process that shaped technological development was a men populated process. It is also the case within family. Men are repairers; broken machinery are awaited for father's deed. Women never thought to be possessors of technical ability and technical mind. Women might be the person to use vacuum cleaner but men is the one to repair. These gendered schemes exclude from the social and economic opportunities to become a producer of valuable technologies. Meanings attached to genders are not about rationality. Men biologically are thought to be stronger than women. That is why harder work is perceived as proper for men and soft tasks such as house work, for women. It is also not a coincidence that "harder" jobs take place in the public sphere so that women would be kept in the private atmosphere of household.

The idea of *hard/soft* split segregates scientific knowledge and technologies as well as it segregates professions and tasks within professions. What counts as the 'real job' in scientific occupations based on the degree of mathematization and technicality the discipline has entailed. Thus, science's legitimacy and *hardness* is related to the management of deploying "a hard cognitive approach, using a technical language, mathematical or logical formalisms, and a technical apparatus" (Edwards in Lerman et al., 2003: 181). For instance, physics is a "hard science" and "sociology" is a soft science. Also within disciplines there are hard and soft approaches.

As we shall see below, engineering has also *hard/soft* connotations between and within occupations such as; mechanical and civil engineering are regarded as masculine engineering so they are *hard*, while food and environmental engineering is thought to be feminine and *soft* fields with respect to their closeness with mathematics. "Examples of differentiations within a certain branch of engineering include design and core production as hard tasks and sales and quality as soft tasks" (Edwards in Lerman et al., 2003: 181). This situation produces a hierarchy with respect to nature of engineering practice. Men populates top place in the hierarchy since they secure "harder" engineering tasks. However, women concentrate on the jobs with "softer" definitions. (Cockburn, 1981; 1983; 1987; 1993; 2009).

2."GENDERED ENGINEERING CULTURE" AS THE THEORETICAL TOOL

The concept of "engineering culture" in its original usage was used to describe the socially designed standard of behavior and interaction among engineers and is based on a stereotypical male gender role that works against women, on masculinities which are close to femininity and inconsistent with the ideal engineer stereotype. The conceptual tool of "gendered engineering culture" fits into the first definition with a slight difference: professional culture in engineering is gendered

and it is socially constructed. That is to say that, gendered engineering culture is not only experienced among engineers but also its gendered codes are known, produced and reproduced by the whole society. These codes are based on male-dominated discourses that have been monopolizing the terrain of technological know-how[1].

In addition, it is materialized by three ideological images of 'the real engineer', the real nature of engineering practice and "the nature of real engineering job," that tend to restrict the members of the profession into one specific gender role. Thus, gendered engineering culture also shapes common sense expectations and definitions about engineering, which socially constitute the culture of this occupation. This slight modification of the first definiton makes it possible for me to follow the mechanisms behind social definitions that shape gendered imagery of behavioral and interactional codes about engineering, which come into being both for engineers and for the society as a whole.

A. The Real Engineer

The "real engineer" is argued to be rational, a problem solver, someone who has hands-on experience in mechanical devices, who gets pleasure from the technical work both at work and during leisure time. The real engineer is a perfect fit for the before mentioned 'engineering work' and these two stereotypical images together draw the frame of 'engineering culture'. (Robinson & McIlwee, 1991; Brand & Kvande, 2001; Bond et al., 2002; Rapoport et al., 2002; White et al., 2003; Bastalich et al., 2007; Küskü et al., 2007; Watts, 2009)

As it can be seen, a 'real engineer' has to be a man, or a woman who leaves her femininity at home. She also better not be married and not have family responsibilities that would interrupt long workhours. If she does, she should accept being out of the competition, because she may not be able to travel or may need a maternity leave.

B. The Real Nature of Engineering Practice

Engineering work is defined as dirty, heavy, and open to physical risks. Prioritization of work/workplace is the norm, and the real engineer has unlimited time to spend at work, to stay late at the office, travel for meetings or to the field, and personal/family interests have to fit in these norms (Robinson & McIlwee, 1991; Brand & Kvande, 2001; Bond et al., 2002; Rapoport et al., 2002; White et al., 2003; Bastalich et al., 2007; Küskü et al., 2007; Watts, 2009).

C. The Ideal Engineering Career

The ideal engineering career goal is to become a senior engineer and achieve a role in management. Senior engineers are mainly the managers who are also the idols of freshmen and middle-ranking engineers. 'Seniors make more money; they have authority in addition to hands-on experience. Hands-on experience in engineering work is still important at the senior level; it is a matter of respect and

1 See, Cockburn, 1993; 2009.

the sign of technical talent. The ideal engineering career' shows the importance of seniority. This implies that age, in addition to gender might be a significant factor in understanding gendered engineering culture (Miller, 2004).

Under the light of mentioned theoretical framework, gendered culture of engineering is a discursive formation based on patriarchal ideology that equates males with rationality, objectivity and assigns them as the ultimate producers of objective knowledge. They are conceived as problem solving, analytical-minded individuals whose qualifications are consistent with their sexes. Engineering, as being the occupation of producing out-of-scientific facts, is clearly attributed to the male gender. Codes of such a discursive constitution can be seen in the gendering of children and segregation of toys and games. Later, it can be found in the separation of courses at school with stereotypical judgments such as 'boys are good at mathematics, while girls are good at social sciences'. Engineering education, as a matter of fact, draws the persona of "the real engineer" model by teaching the conditions of 'real engineering work. These categories are so suitable for the socially imagined male characteristics that the socially idealized women characteristics usually do not fit in. Within the limitations of this article, I will focus of manifestations of gendered engineering culture in differing experiences of men and women engineers.

3. SOCIAL GROUNDS OF GENDERED ENGINEERING CULTURE IN TURKEY

Being addressed as the engine of modernization, professional engineering was brought to Turkey in the early period of Republican reforms with its pregiven masculine codes. These codes articulated Turkey's strictly gendered structure. From 1965 onwards, Turkey witnessed the rise of the male engineer as a political actor (Göle, 2008: 8). From 1965 until the 2000s engineer-originated politicians became ruling figures of Turkey's politics. Even though middle class women were encouraged to enter the profession, engineering was conceived as an appropriate profession for men, since publicly known examples in Turkey became symbols of managing politics and production.

Although engineering was thought to be a gender-free organization in Republican years because it was a new occupation in Turkey[2], in fact, masculine aspects were already part of the engineering culture. Women, even in the reform period, never considered themselves to be one of the equal members of engineers; rather, they were prepared to be assistants/sisters to male engineers (Cockburn, 1985). Composition of male domination in technique of the west, de facto dualism of public/private spheres, and inevitable realities of patriarchal relations constituted engineering occupation in Turkey with its underlying dynamics.

In line with the male image in the society, participants also defined the nature of the engineering job as suitable for men. Dirty and heavy work, and hands on

2 See Öncü, Ayşe,1981.

experience are noted as the most significant features of the engineering job. These aspects also underlined as appropriate for the male identity image. On the basis of these points, a respected engineer is a person who combines mathematical ability with the ability to cope with manual requirements of engineering.

The concept of engineers' ideology, which was introduced by Nilüfer Göle'nin (2008), and later used by Köse ve Öncü (2000) in several studies is significant for findings of this very study. Engineers' Ideology reflects the idea that engineers as being analytical minded people are also able to solve social problems by using their analytical thinking ability. That is to say, analytical thinking includes social realm and social engineering can be accomplished by engineers.

The aim of understanding manifestations of engineering culture engineers' ideology is a helpful concept to discuss the weight of pozitivist discourse during modernization in Turkey, leftist ideology's sympathy for social engineering during 1970's, and neoliberal structuring after 1980's by the hands of engineer oriented male politicians. I believe, this historical route and its gendered structure constitutes sources of the seeked manifestations.

4. DIFFERING MANIFESTATIONS OF GENDERED ENGINEERING CULTURE IN EXPERIENCES OF WOMEN AND MEN ENGINEERS

I attempt to understand the ways in which gendered engineering culture manifests through engineers' own perceptions in Turkey. In order to do this, I explore constituters of ideal images about engineering on the professional level. I ask about engineers' perceptions about characteristics of their profession, the nature of their work and ideal images of engineering for engineers themselves.

Although there is considerable ratio of women engineers in Turkey this study confirms that women engineers have to cope with gendered practices during education and work life. Women and other genders have difficulty in joining the interactional display against women through sexual jokes, stigmatizing, connotations that undermine women's technical competency, and equating professionalization with masculinity. Gendered forms of interaction also contain social networks and conversations between male colleagues.

A. University Education and Engineering Career

Despite the gendered prejudices and stereotypes in society, entering into an engineering career in Turkey seems to be a matter of choice**.** It is result of a choice that is made before a person gets her/his result of the university entrance exam and gains the right to choose a university department. In this sense, the university entrance system in Turkey has some dynamics that should be discussed in this part.

When they finish tenth year, high school students in Turkey need to make a decision about sections which determine their future choice in the university entrance exam. Each division is based on an intensive program of courses like mathematics, physics, Turkish language and history. Deciding on a division in high school is depends heavily on the student's grades and, at the last instance, with parents' preferences. For instance, students who plan to have an engineering

career would choose the mathematics and science department if they have high enough grades.

All participants in this study were graduates of mathematics and physics departments from high schools. They reported that their choice was based on ability to deal with mathematics, social approval about engineering profession, presences of role models and guidance of teachers and families. Participants were unanimous that engineering is a socially prestigious profession. They also thought that engineering is a rational choice since they have ability to analytical thinking.

Participants told me that in all departments men students were outnumbering women students. Some noted in certain departments the ration is almost equal. These participants were from feminine departments as Berna Zengin calls them in her study in 2000. Food, environment, industrial, chemical engineering is argued to be accepted as feminine engineering fields while mechanical, civil, electronical engineering is thought to be masculine fields. Participants also asserted that it is natural for engineering departments to be populated by men students, since men are closer to technology and machinery.

B. Job Seeking

I also asked whether participants found job advertisements gendered. Out of twenty women interviewees, 10 indicated that even the ads were discriminatory. Men participants did not mention any anomaly.

Women engineers from different cohorts provided diverse experiences for this matter. Members of the elder cohort told that gendered practices in job advertisements are not new in Turkey. 3 participants from Geological and Civil Engineering, with age 40 and over indicated they witnessed that two big public engineer employing organizations DSİ (The General Directorate of State Hydraulic Works) did not recruit women engineers for some time. Even one of the biggest engineer employer public firm for geological and mining engineers, MTA (General Directorate of Mineral Research ad Exploration), declared that the firm would not recruit women engineers.

DSİ declared it would not recruit women engineers for some time. Women in TMMOB immediately talked to an attorney. The attorney said that this was discriminatory based on gender. Women went back to TMMOB and they sued DSİ. The case was won on the advantage of discrimination. But this time another problem arose. DSİ could not fire the men engineers it recruited. It had to recruit women engineers as well. MTA also pulled back its discriminatory advertisement when it saw what happened to DSİ.(Gonca, Woman, Geological Engineer, 60 years old)

Members of the younger cohort, did not witness gender discrimination in job ads of state institutions. They did not also mentioned they heard of it. However, I believe being witnessed to discrimination by official ads from state institutions created a different perception about gender in engineering for elder participants of

this study. Elder cohort experienced that state institutions took a step back when women engineers organized and reacted to advertisements. They struggled to get a place in those institutions and they struggled for other women.

On the other hand, younger women engineers seem to accept the gender hierarchy within the profession. Since they do not confront with overt discrimination from state institutions, for instance, they choose to work hard within work in order to deal with hidden operations of gender.

Women participants reported that they have to work harder than their male colleagues. They had difficulty in performing their actual jobs. 7 women participants indicated that they applied to a position where they can actually "do" engineering. Yet, they were asked to work in quality and contractual departments. Three of them agreed to start working as quality assurers. Then they switched to other departments where they could work as engineers.

I found a job in an iron company in the quality department. Women engineers usually start with quality departments. Men do the production part. I worked there for two years. I showed my boss that I can do engineering. Then he allowed me to transfer to the production department.(Elçin, Woman, Metallurgy and Materials Engineer)

The important point in Elçin's words is that women usually begin working in the quality departments of factories. It means that the firm in Elçin's case did not employ her for an engineering position. She was employed because she is thought to be more effective in organization tasks rather than application.

According to some women participants, women engineers are usually preferred in fields like "quality assurance and organization". Women engineers are employed in closed, private factory environment. On the other hand, men engineers do the "real job", produce the machine and deal with men workers. A woman engineer is to be employed in quality, contractual departments; they work in an office environment without facing workers. In departments dealing with contracts, they become the presentational image of the factory and in that sense being a woman is conceived as advantageous.

Freedom to travel was noted as an advantage to be recruited. Most participants told me that once an engineer proves her/himself to be a good engineer, promotion is not about gender. However, it is also understood from above quotations that women may not have same opportunities to show their abilities and knowledge as well as they find the chance to get master-apprentice experience. Plus, *the glass ceiling affect* is very strong in engineering because of the mentioned prejudices about women's unwillingness to go to field work, family responsibilities, travelling, and maternity leave (Tonso, 2007; Watts, 2009; Faulkner, 2000; 2007; 2009). Although women and men engineers seem to have equal chances, women get little opportunity to break these prejudices and to be appointed as administrator.

C. Gender Segregation in the Workplace

Within the frame of this study, I asked participants whether they felt segregated because of their gender in the work life. Based on the findings, I can argue that

women and men engineers do not share equity even in offices because there is a huge gap in terms of numerical existence, for starters. The nominal majority of men set certain rules, daily expressions, and ways of behavior which are favorable to men more than women. These experiences manifests in jokes, prejudices, exclusion from social networks, teasing, harassment and mobbing as obstacles for engineers the work place.

a. Teasing

Jokes and teasing were referred as a segregatory mechanism in other studies (Collinson, 1988). According to Collinson, workers create "their own joking culture to be a symbol of freedom and autonomy, which contrasted with the more reserved work conditions and character of office staff" (1988: 186). Findings in my study confirm Collinson's research that especially male engineers express themselves through their own culture of jokes. Women participants reported that they sometimes have difficulty to cope with gendered jokes at the office.

If a woman wants to be a part of this atmosphere, she has to get used to these jokes and bad words. Otherwise they are isolated. In my study, swearing created a sense of shared masculinity (Collinson, 1988; 185). Such masculinity is usually based on the idea of men's being sexually dominant. Common swearing patters were determined by that idea of men's sexual deeds of women, the work itself, the management, and the potential problem at work. Men participants accepted that they swore because they "felt relief" or they "felt better". Women, however, were mostly irritated by swearing of men. Some reported they got used to it, and some told me they try to ignore bad language. Either way, women were oppressed by the act of swearing in the work place.

As I interpreted from my findings, production engineers whose nature of work is closest to manual tasks, created resembling joking patterns. Swearing and usage of slang language are common communication styles. Collinson argues that job-floor humor embodies pressure on conforming to working-class masculinity. He emphasizes manual workers are required to give and take a joke, to swear, to retain their domestic authority (Collinson, 1988:198). This creates such an environment for women that they have to pretend not to have heard the mentioned communication patterns. Therefore, it was a common tendency among participants to behave as if everything is normal about teasing and swearing in the work place.

b. Exclusion from Social Networks

It was indicated by six women participants that smoking is a crucial factor in building male networks. Men employees get together in smoking rooms during work hours. Another example is the relationship between football and women employees isolation. Fulya states men colleagues organize football matches outside working hours and on weekends. They even carry this togetherness to social life, including their wives, out of the work environment.

With respect to previous research, I can argue gendered culture of engineering can be traced through day to day conformity; the forms of talk, topics of conversation,

and the way people gather in social networks. These activities carry an unspoken curriculum that women and mismatched people are produced as "not members" and even "not engineers" (Cockburn & Ormrod, 1993; Mellstrom, 2002; Faulkner, 2000; 2007; 2009).

c. Encouragement for Marriage

One other important point is encouragement for marriage. In my study the majority of men participants were married. The rest told me that marriage is something they wanted for the work life. Almost half of the women participants were single. Ten women and five men participants told me that marriage is encouraged in the work environment.

Contrary to the discourse for encouraging marriage, women participants noted that maternity leave is an obstacle for promotion. Women are congested between the encouraging discourse for settling a family life with children, and disadvantages of maternity leave and other difficulties coming with reconciliation of work and family.

Family is based on unequal power balance; men have the most benefit from women's role of primary caretaker of both household responsibilities and children. Men are not thought to be responsible for many of these tasks; thus, they have more opportunity to take part in the labor market than women (Hartmann, 1976; Cockburn, 1985; Eisenstein, 1998). In addition, once women and men are in the work life, men enjoy his breadwinner status and benefit from more opportunities. Women on the other hand, are a source of lower-paid labor and they are expected to take family responsibilities as their primary role (Robinson and McIlwee, 1992:145).

d. Mobbing

Mobbing and harassment are significant problems of work life. Not only engineers but also all professional groups experience covert and overt forms of pressuring behavior.

In this study, men did not mention any kind of mobbing or harassment experience. While four women participants mentioned experience mobbing either from colleagues or from employees. They stated the most common way of mobbing is to take responsibility away from woman engineer on either temporary or permanent basis.

I experience mobbing at least one time in six weeks. As if he (her boss) does it periodically (she laughes). If I make a mistake, he takes all responsibility from me for a week or so, then, he gives them back. He thinks he punishes me. (Elçin, Woman, Metallurgical and Materials Engineer)

As seen from the example above, mobbing or "unconscious psychological impact" as Nicholson (1996) puts it, might be used in two forms. In Elçin's story, her boss intentionally takes responsibility away from her so that she will not do the same mistake in the future. In his mind, it is a punishment mechanism.

I mentioned that men participants did not mention any experiences of mobbing. I believe, they are also influenced by the impact of mobbing to some extent.

However, they do not have the social flexibility to reveal themselves in a vulnerable position.

Conclusion

Being aware that the dynamics I have mentioned above and more concrete examples from engineer's narratives are a part of the manifestation, I decided to focus on the perception of engineers about their profession in order to understand how gendered engineering culture manifests in Turkey. I found that cultural codes of this profession manifests in engineers' own perceptions about themselves and their profession, which can be seen in occupational organizations and in their declarations. Therefore, I explored ideal images of engineering on the professional level.

University is argued as a place that codes of gendered culture is first seeded via jokes, about numerical scarcity of women and their appearance. Masculine jargon of talk and gesture, ignorance of faculty members are reported as covert and overt forms of gendered practices. Men participants mentioned they usually felt confident and natural in the environment. While some women asserted they felt loss of self-esteem and motivation.

They mostly have outstanding success in theoretical courses yet, they lack of self-confidence when it comes to matters that require field work or hands-on tinkering. Some women prefer to take place in fieldwork because they think it is a part of their job, some simply look for jobs which do not require practical tasks. On the other hand, men engineers' success in university reported to be the average level, however they said they could find jobs easier than their female classmates.

Women and men engineering graduates told me different stories about their job seeking processes. Women participants indicated that the prejudice towards women engineering created problems. Confirming Nicholson's argument (1996), prejudice in this study is found to be a significant covert barrier that women engineers have to cope with. Stereotypical prejudices as surround the commonsense ideas about women's fieldwork, travelling and marital status and reported as difficulties of being recruited to a job.

As for the work life, my findings indicated that gendered engineering culture produced and reproduced in the work place relations with respect to social acceptances and expectations. The ideological definitions of 'real engineer', 'real engineering job' and 'ideal engineering career' were most visible in work life experiences. Both men and women engineers has certain definitions for these three ideal types which favors masculine features and keep women to be outsiders. Women participants told they need to work harder than their male counterparts. As ideal definitions require a certain type of masculinity, I believe, it does not welcome all men unless they can keep up with the ideals.

Industrial sectors in which engineers are employed in Turkey are reported as highly competitive and gendered. Confirming Zengin's findings back in 2000, I argue that some engineering departments are conceived as masculine and some

are feminine. Moreover, certain tasks in engineering are accepted to be masculine. Masculine fields and masculine tasks mostly take place in public sphere or they require close relation to work with blue collar worker or with villagers.

It is not only engineering itself which favors manly aspects but also the structure of industry is based on patriarchal acceptances. Many men participants in my study argued that women engineers can perform like male colleagues if they are given the same conditions. A few men and two women told me women do not have the natural prerequisites for engineering. It is the patriarchal industrial relations which keeps women away from getting deeper into production. Blue collar workers are resistant to women authority and employers are unwilling to recruit women engineers.

Narratives of women participants showed that women engineers are segregated just because they are women since they are accepted to be patient and careful. This creates another categorization in the existing gender hierarchy and leads to desegregation in the workplace. As a matter of fact, they are rarely assigned to tasks which counts as real engineering.

Findings also showed that women have to deal with more barriers than men with respect to promotions and getting respect within work environment. These barriers are reported as difficulties with industry culture, men's attitude towards women in the production sector, proving oneself in front of blue collar workers, lack of technical experience and lack of opportunity to gain that sort of practicality, and difficulties of managing work and family life together.

On the one hand, proving oneself and get promoted is a crucial step for all engineers in different sorts of sectors. On the other, the route for promotion is full of overt and covert barriers for women engineers. Fitting into the real engineer stereotype is difficult for women. Dealing with prejudices, accessing employment in production departments is again a hardship. Therefore, women engineers are not counted as real engineers in most cases. They are thought to be more appropriate for offices.

Moreover, mobbing, harassment and gossiping only mentioned by very few participants. As a matter of fact, I cannot create a representative argument on the basis of these examples. Nevertheless, all three cases were raised by women participants. No men ever mentioned any related experience. Thus, it may be argued that women are more likely to suffer from adverse experiences in work life and work related life.

Findings of this study revealed that not only professional culture of engineering profession but also whole value system around this culture is highly gendered and favors certain ideal types. However, within the realities of industrial production in contemporary Turkey, these ideal norms of profession rarely applies. As I mentioned before, the labor market structure in Turkey is gendered. Women and men has distinct places in the market and the distance they can get is usually premeasured. In this route, women have to cope with more structural barriers than men. Although it is frequently mentioned by participants of this study that women can accomplish engineering work as well as men do, women and men do not have

equal chances for the same missions. They also do not have equal contribution from society. Women engineers, though they are respected, are welcome up until to a certain career point. Later, they are expected to get married, have children and have a suited life to traditional gender roles.

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