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"The Shop Floor is not for Every Woman": Narratives on Women Industrial Designers' Relationships with Shop Floor Workers

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ABSTRACT
Although considerable attention has been paid to the role gender relations play in women's disadvantaged status in technology-related professions, less emphasis has been placed on women's relationships with manual workers. This study addresses this gap by examining narratives provided by a sample of industrial designers' working in manufacturing companies in Turkey where their job also includes visiting the shop floor to supervise the workers who build the models of their designs. Exploring the relations between industrial designers and shop floor workers, this study addresses two questions: First, to what extent and in what ways does gender matter in the relationships between male industrial designers, female industrial designers and male shop floor workers? Second, what are the implications of these relationships for women's status as professional technological workers within their manufacturing organisations? The results show that contrary to the mixed gender office environment, the male dominated shop floor is an explicitly challenging work setting for women who enter there in positions of authority. This situation is created not only by the resistance of male shop floor workers to women's superior position, but is sustained mainly by men and some women industrial designers' consideration of the superior position on the shop floor as only 'authentic' for those who can display the necessary masculinity, which is characterised by aggression, self-sufficiency and toughness. Women develop individual strategies to be accepted into the shop floor and to gain the respect of shop floor workers, since the quality and the punctuality of the models which they present to management is directly related to their reputation in the office.

KEYWORDS
Gender relations, ideal worker, masculinity, technology, industrial design

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INTRODUCTION

Gendering of technology-related work is an old but still a timely issue. There is an extensive feminist literature concerned with this issue, focusing on mainly male dominated areas of technological work, particularly engineering and IT. In these studies, the strong symbolic and material relationship between masculinity and technological work has been attributed significant explanatory value with regard to the underrepresentation and/or the disadvantaged status, of women in these areas. In their analyses, some scholars have highlighted the discrepancy between the image and the practice of these occupations (Faulkner, 2000, 2007; Phipps, 2002), some others have examined the masculine culture of these occupations (Cockburn, 1985; Gherardi and Poggio, 2001; Marshall, 1993; Wajcman 2004, 2010), and others have placed emphasis on the coping strategies women develop to fit into male dominated work settings (Barrett, 2002; Demaiter and Adams 2009; Miller 2004; Powell et al. 2009; Sinclair 2005; Walker, 2001). Besides, there are some other recent studies that are interested in the contexts in which the numerical gap between women and men has been narrowed. They draw attention to the fact that despite their increasing number, women remain clustered in the lower levels of professional responsibility, without challenging men's dominance in prestigious and well-paid positions (Ayre et al., 2011; Evetts, 1998; Peterson, 2007).

In these studies, social relations between workers have been acknowledged as an important site of gendering. Although there is an extensive literature that demonstrates how women's disadvantaged status in technology-related professions is constructed and maintained through everyday relations between men and women, less attention has been paid to professional women's relationships with shop floor or field workers (for the latter see for example Poggio, 2000). It is important to clarify that with this claim I do not mean that this production site has not been explored by feminist scholars. Indeed the relations of production in the factory have been paid attention to particularly by socialist feminists in their early work (see for example Cockburn, 1983, 1985; Arnold and Faulkner, 1985). These studies have pointed to the role of class divisions as well as gender in women's exclusion from technology and craft skills. They have shown how machinery is introduced by men with men in mind, either by the capitalist inventor or by skilled craftsmen (Wajcman, 2004). Also, there are other studies that have focused on women factory workers' experiences in the production site (see for example Ecevit, 1991; Meyerson and Kolb, 2000; Pollert, 1981; Salzinger, 2003). So, gender relations in the production site have been studied, but there has not been any substantial research undertaken on the experiences of professional women who enter production sites.

The industrial design profession and its distinctive situation in Turkey offers a good place to explore these experiences. It is an interesting example of technology-related work, in which women and men are represented almost equally. Despite the

lack of statistical data on professional industrial designers in Turkey, it is possible to set the current situation by drawing on some available sources. Women constituted 47 percent of industrial design graduates between 2000-2010 (ÖSYM, 2012), and, by 2012, 47 percent of the members of ETMK (Industrial Designers Society of Turkey), which is the only professional industrial design institution in Turkey (ETMK, 2012a). Also, since its establishment in 1988, women have had a higher representation than men in the executive boards of the society (ETMK, 2012b). In such a context, in which industrial design seem to be a technology-related profession that welcomes women as well as men, we encounter many women industrial designers who pursue successful careers in manufacturing companies, where their job also includes visiting the shop floor to supervise the blue collar workers who build the models of their designs.

Empirically drawing on narratives collected through interviews with men and women industrial designers working in various industries in Turkey, this paper tackles the following two questions to study the relationships between industrial designers and manual workers in the shop floor environment: First, to what extent and in what ways does gender matter in the relationships between male industrial designers, female industrial designers and male shop floor workers? Second, what are the implications of these relationships for women's status as professional technological workers within the manufacturing organisations? Discussing these questions, this paper aims to shed light on the subtle barriers faced by women on the shop floor, where they can enter positions of authority apparently as easily as their male colleagues.

I begin with a review of literature on gender relations at work, referring to feminist organisation studies and men and masculinities studies. This is followed by a discussion of gender images associated with workers in the office and on the shop floor. The article concludes with remarks on the implications of the situated nature of gender relations in different work settings for the gendering of work.

GENDER CONSTRUCTION ON THE SHOP FLOOR AND IN THE OFFICE

Social constructionist perspectives within gender studies from recent decades have highlighted the need to complicate the male/female and masculine/feminine dualities to recognise the instability, complexity and multiplicity of gender. This means that gender encompasses several forms of masculinity and femininity, which are not fixed, but rather differ across cultures and over time (Kimmel, 2000). Within this perspective, the concept of multiple masculinities has inspired a body of work that explores the power relations between workers. This literature argues that there is no single masculinity but many socially-constructed forms (Barrett, 2001; Bird, 2003; Connell, 1995; Connell and Wood, 2005; Hale, 2012; Martin, 2001; Morgan, 1992, 2005; Pullen and Simpson, 2009; Simpson, 2009). These masculinities are hierarchically arranged around a hegemonic form of masculinity, which is constructed in relation to both femininity and subordinated or marginalised masculinities (Connell, 1987). Hegemonic masculinity refers to the particular version of masculinity that is considered superior in a given context and time (Kimmel and Messner, 2001). It is associated with men in power and sets the standard for powerful positions in that specific setting, though it is often a standard

that is not expected to be attained, but rather one which is supported as an ideal. The notion of hegemony pertains to the consensus about this ideal, but not necessarily in realising it.

Various feminist studies have described the ideal image of the professional worker, particularly for managers, as generally aligned with traits such as independence, competitiveness, rationality, aggression and technical competence (Acker, 1990; Demaiter and Adams, 2009; Peterson, 2007). This description pictures many women as unsuitable for managerial roles and positions on two counts. First, in terms of symbolic association, since these traits are traditionally linked to a competitive form of masculinity (Collinson and Hearn, 1994), they are considered not to 'fit' women. Second, as many feminist scholars with an interest in work-life balance have demonstrated, the professional worker image is premised upon a male normative life. Such a depiction implies that the ideal worker is "work-centred, available full time for the job, has few obligations outside work and is usually supported at home by a woman" (Castro, 2012, p.534). As a result, due to their disproportionate share of family and childcare responsibilities, women are less likely to work long hours, which is in many organisations essential to compete for managerial positions (Ayre et al., 2011; Kelly et al., 2010). Moreover, other studies have shown that even when women adjust their family lives and act in ways that are consistent with this image, such behaviour is not necessarily appreciated and rewarded given its discrepancy with appropriate feminine behaviour (Evetts, 1997; Rees and Garsney, 2003).

This mismatch, particularly the one acting on the symbolic level, has been further emphasised in technology-related occupations, since technology is commonly and explicitly associated with some hegemonic forms of masculinity. Whether based on the professional rationality and competence of the professional worker or the physical strength and mechanical skills of the manual worker, the image of the ideal technological worker incorporates the abilities and traits that are historically accepted as masculine (Oldenziel, 1999; Wajcman, 2004, 2010). Both these forms of masculinity are linked to the "mastering of, and the control over, technology and nature", leading to the assumption that all men have a natural affinity with and interest in technology (Mellström, 2002, p.462; Lie, 1995). Here "gender in/authenticity" is a useful concept. I borrow this concept from Faulkner to refer to how "the normative pressures of 'the way things are'" (2007, p.333) lead people to expect to see women and men in certain roles in organisations, and to notice when they see someone in a different role. Therefore, the historical and symbolic association of technology with masculinity marks men as 'gender authentic' for both manual and professional technology-related work.

I noted earlier that women professionals' relationships with manual work has not attracted much attention from gender scholars. However, critical research on men and masculinities has shown interest in these work settings. This research has focussed on the relationships between men in different positions of authority, and the concerns regarding status, power and control that appear through these relations (Collinson, 1988, 1992; Collinson and Hearn, 1994, 1996, 2005; Alimahomed-Wilson, 2011; McDowell, 2003; Meyer, 1999; Willis, 1979). Some of

these studies have explored the construction of shop floor and office masculinities in relation to each other stressing that there are important power relations between these two distinct forms of masculinity.

Collinson (1992) indicates that shop floor masculinity is characterised by traits such as doing production work, having practical skills and knowledge, and being the family breadwinner (see also Heron, 2006). This working-class masculinity, which is subordinate to middle class office masculinity in terms of institutional power and control, is based upon homosociality and the exclusion of 'weak' men and women. It is constructed through the negation of managers, who are not knowledgeable about the processes of production; professional office workers, who are defined as 'yes-men' and 'wimps' engaged in feminine office work; and women, who do not have such a strong symbolic link to paid work and who are dependent on men (Collinson, 1992; Collinson and Hearn, 1996; Willis, 1979). Particularly in the industries that require physically demanding manual labour, working class men's collective solidarity, physical endurance and toughness constitute the key sources of power for this form of masculinity (Collinson, 2000; Collinson and Hearn, 1996; Connell, 1995; Haywood and Mac an Ghaill, 2003).

Studies that have focused on the informal relations between shop floor workers noted these relations as being often highly aggressive, sexist, humorous but also insulting and degrading (Meyer, 1999; Ackroyd and Thompson, 1999). For example, newcomers are tested to prove that they are 'men enough' to take and give insulting jokes, and those who fail to do so are likely to be kept in a distance (Collinson, 1988). Thus, not only physical, but also emotional toughness is accepted as an essential quality of shop floor masculinity.

Middle class masculinity, on the other hand, displays a more 'civilised' image, which is marked by higher educational and cultural status and an egalitarian manner toward women (Pyke, 1996). This image is not 'softer' than shop floor masculinity, rather it demonstrates the hardness of intellectual and professional competence and commercial rationality (Cockburn, 1988; Haywood and Mac an Ghaill, 2003; Morgan, 1992, 2005; Wajcman, 2004). With this image middle class men distinguish themselves from the hypermasculine and 'macho' image of shop floor workers and emphasise their superiority over them (Pyke, 1996).

As I discussed above, there is a considerable body of feminist work that has placed emphasis on the masculine image of the ideal worker in technology-related professions to show how this image pictures most men as 'gender authentic' for such work, and, as a result, empowers middle class men in relation to their female colleagues. In this paper I would like to go one step further arguing that for a comprehensive investigation of women's status in a technological profession that includes production work, we need to also consider the construction of the ideal images within this profession in relation to working class masculinity. To this end, this paper attempts to understand how the relations between the three groups: male professional workers, female professional workers and male shop floor workers, are shaped by gender when they come together in the shop floor environment. I am interested particularly in the extent and ways that women's

experiences as professional workers in positions of authority differ from men's; and also how these differences influence their success and reputation as professional workers within organisations.

THE CONTEXT OF THE STUDY

In their recent work on the conceptual triad of engineering, masculinity and technology, Holth and Mellström (2011) stress the significance of taking into account the national context and its historical and cultural specificities that form normative gender arrangements in the discussion of gender and technology relationships. Exploring the national context is particularly necessary for this study, since women's involvement in the fields of science and technology, as both professionals and academics, has attracted much attention from feminist scholars in Turkey (Acar, 1990, 1991; Ecevit et. al., 2003; Kardam and Toksöz, 2004; Köker, 1988; Öncü, 1981; Tüzel, 2004). For the last four decades these studies have focused on how and why women show a higher participation in these prestigious professions in Turkey compared to many countries in Western Europe and the US, whilst Turkey has one of the lowest female economic participation rates in Europe. They have suggested a number of reasons including, first, the strong emphasis placed on women's rights and education in the form of a 'state feminism' in the early years of the Republic, especially between 1923 and 1935. In this period, women's presence in the public sphere on equal terms with men became an important aspect of the westernisation attempts of the secular Republic regime. As a result, women were encouraged by the state to enter into higher education and pursue a career in line with the image of the 'new' Turkish woman, who works for the progress and modernisation of Turkish society together with the 'new' man in the public sphere, and who is the educated, modern and enlightened mother of new generations in the private sphere. (This image has been criticised in feminist work since the 1980s on the grounds that it was constructed in line with traditional gender roles and did not bring individual emancipation to women. See Arat, 1999; Kandiyoti, 1987)

Second, in this period the high value placed on hard sciences by the Republican ideology influenced the upper class families (who were followers of the modernist reforms) to motivate their daughters to study natural sciences at university (Acar, 1994). These women entered prestigious professions in relatively high numbers in the early years of the Republic, especially when the occupational structures and cultures of these professions were being established. For example, in 1946-47, 44 per cent of the natural sciences faculty was composed of women (Köker, 1988). Thus, unlike women in western countries, these women had a chance to take part in these occupations from the beginning, (Tüzel, 2004; Zeytinoğlu, 1999), and they became role models for next generation of women (Durakbasa and Ilyasoglu, 2001).

Throughout this historical development, professions such as medicine and engineering have to some extent come to be considered appropriate for women in the Turkish context and have also been associated with some traditionally feminine characteristics. Zengin (2010) illustrates this with a discussion of the image of women working in a lab wearing a lab coat. She suggests that a lab coat is

accepted as suitable clothing for women due to its feminine connotations such as being clean, meticulous and nice looking. However, this example also implies that women should not be expected to be represented evenly in every field of science and technology. Zengin's (2010) study of women in different fields of engineering confirms this. She finds that whether or not a particular field of engineering requires fieldwork influences women's career decisions for a number of reasons. Women may perceive that travelling may cause them to neglect their family responsibilities, night time shift work might be dangerous, and relationships with manual workers could be challenging. Whilst working in the lab or office corresponds to "the safe, sterile – including the implication of avoiding contact with unknown people, especially lower-class men – clean and 'silent' representation of the private sphere", the image of fieldwork is linked to "the dirty, wild, noisy and harsh representation of the public sphere" (2010, p. 139).

Arslan and Kivrak (2004) support Zengin's (2010) argument in their investigation of women's low level of employment in the construction sector. Their research shows that although women prefer and enjoy studying civil engineering at university, they lose their enthusiasm after they enter into the industry and meet with difficulties caused by the male-dominance and masculine culture of the construction site. Rather, they choose to work in the office environment, which results in their exclusion from the industry.

Although in the last decade particular attention has been paid to women's experiences in technology, as professionals, academics and students (Arslan and Kivrak, 2004; Healy et al., 2005; Küskü et al., 2007; Smith and Dengiz, 2010; Zengin-Arslan, 2002; Zengin, 2010), industrial design has remained under-researched. Industrial design is a young profession in Turkey, yet recently it has become prominent in industry (Hasdoğan, 2010). Whilst it is defined in the feminist design literature as the most male dominated and masculine field of design due to its relation with industrial production and technology (Clegg and Mayfield, 1999; Kirkham and Walker, 2000), in Turkey it does not seem to be identified as women's or men's work. This may be because the primary role of industrial designer's work is perceived as bringing an aesthetic appeal by many industries in Turkey, although it is not detached from technical aspects of the design and development of products (Korkut and Hasdoğan, 1998; Kaygan, 2014).

Depending on the industrial sector, designers may make decisions regarding materials or manufacturing techniques, and they may also be responsible for producing the model of their designs with the shop floor workers. Whilst there is no data available regarding women industrial designers' career preferences, e.g. how many of them work in manufacturing companies and how many of them in design consultancies, during the selection of participants for this research I encountered a lot of women working in manufacturing companies, both large scale companies and SMEs, and in a broad range of industrial sectors.

RESEARCH APPROACH

In-depth interviews with 18 women and 11 men industrial designers provided the source of data for this study. I selected participants with several years' work

experience in manufacturing companies in a wide range of industries in ten different cities in Turkey. These industries include furniture, packaging, lighting, electronic consumer goods, white goods, kitchen appliances, transportation, military products, funfair machines, construction machines and tools, kitchenware and glassware, jewellery and other fashion accessories, sanitary ware, heating devices, and building components. In order to account for the different work experiences of industrial designers in my selection of participants, I prioritised ensuring diversity in age, involvement in professional life, the industries and companies they have worked in and the positions they have held in these companies.

Data were collected and analysed using a thematic narrative approach through a feminist lens (Riessman, 2008). Using this approach, narrative is taken as the "biographical particulars as narrated by the one who lives them" (Chase, 2005, p.651). Taking this view, narrative may refer to a short story around a topic and about a certain event or an autobiography that covers one's entire life, in this research the term narrative corresponds to extended accounts of participants' work lives.

Interviews were conducted in two rounds between December 2009 and January 2010, and July and August 2010. At the beginning of the interviews participants were asked to talk about what they went through in their professional lives starting from their graduation day until the time of the interview; and how gender became an issue. The interviews lasted up to two hours, and covered work contexts, gender-based and other problems in professional life and coping strategies. They all were tape-recorded and transcribed for analysis. In the analysis, the focus of interpretation was on participants' description of and reflection on their gender experiences in the shop floor environment. The sharp distinction between the gender experiences in the office and the shop floor environments appeared immediately, and formed the initial themes of the analysis, which I will present in the following sections.

GENDER RELATIONS ON THE SHOP FLOOR

Overall, there was a tendency among the participants to suggest that gender has rarely, or never, been an issue in the office environment. Their accounts show that, in line with the lack of a numerical gap, the industrial design profession offers equal opportunities to women and men. Even the women participants who encountered gender-related problems at some point in their working life preferred not to place much emphasis on them, since they did not consider these problems significant enough to prevent them from pursuing a successful career. They stated that rather than gender, it is the performance of individual designers and the quality of their designs that are taken into consideration by management in the processes of recruitment, promotion, and division of labour in the design team.

For example, Banu worked in in the Research and Development Department of an automotive company, where at the time of the interview there were no other women working. I asked her whether being the only woman in the Department had any disadvantages for her. She said,

> There wasn't any disadvantage. (…) You know, umm, it may be because of my own work, I don't know that. You know, the manager gave me praise for my talent and so on. So there wasn't anything negative. For example they sent only me to a trade fair then. It was the first time they took a designer to a fair. I mean, there were other [designers] working there since before me, and they could have gone. But they didn't refuse to take me because I'm a woman.

Like many other women participants, she underlined that it was her success, skills and good work, not her gender, which shaped her relations with her manager and her career in the company.

Among the designers who work in companies with large design teams, six women stated that being the most senior members, they led the design teams in the companies in which they worked. Moreover, two women described how they were assigned the role of team leader, even though they were less experienced than the other members of the design teams consisting of both men and women. Below Belgin explains why she was promoted to that position whilst she was the newest member of the team:

> Our previous team leader, takes the moulds for our models from us and checks them. We draw it, for example on the computer, and create a mould for our model. She checks them and sends them to the modelling machine. She oversees the modelling machine, and if it's broken, she tries to fix it. I also tried to help her now and then. Others don't want to get involved in it, because you know, with these kinds of stuff, whoever gets mixed up in s/he becomes the one responsible. Therefore when Suna gave her resignation, they directly, automatically said [to me], "You're the new team leader". Others, who were more senior than me, were of course quite resentful.

She indicated that the male designer in particular (who was the oldest member of the design team) initially complained a great deal about her unexpected promotion. I asked her if her gender influenced this situation. She said,

> No, it wasn't because he's a man, but like "I'm more senior, why does she get to be the team leader?". I mean it went as far as the salaries. There were arguments like, "Why is she paid more money, while I'm paid this much? I'm as senior as her, I have to be paid as much." So in the end the boss had to intervene. He arranged a meeting and snapped at us like, "Where do these arguments come from?"

So, Belgin believed that the disapproval of her promotion by her colleagues, both men and women, cannot be linked to gender issues. Rather, the main concern was that they did not believe that being the most junior member of the team she deserved to be promoted to the leader position and to be paid a higher salary than the rest of the team.

To summarise, according to the women participants, the industrial design profession offers them equal opportunities to those offered to men, in terms of both getting a job and promotion, and division of labour. On the other hand, without exception, all of the participants, both women and men, stated that the shop floor is where being a woman matters strongly and visibly. In their accounts, they made a clear distinction between the office and the shop floor, defining the latter as a male dominated or a male-only environment, where men show strong resistance toward women's presence, particularly when women are in positions of authority. The following quotes are from two women participants:

> Actually I think you come across the bit about gender to some degree in the workshop. We don't go through much that is related to gender in the office. When you go to the workshop, you know, because men dominate that area (laughs), it is there that you seem to come across things related to gender.

> My professional life started in a factory, in a shop floor environment. In this environment, I experienced the umm disadvantages of being a woman. (...) I didn't have problems with the upper management, but I had serious problems with the [blue collar workers]. Umm, [there were times] when I wasn't taken seriously or couldn't make them listen to me.

Workers' resistance towards women's presence and taking orders from women was underlined as a big problem in the accounts of women participants, since it directly affects their reputation within the organisation. Stories present both implicit and explicit examples of this resistance. Serpil says,

> At the beginning it was hard when I asked for something. They didn't want to do it or they would sulk. And some of the workers were older than me. Actually, most of the workers are older than me. When I requested something of them, they would give me a hard time, like "Yeah, sure, we'll do it, but..." Then I'd talk to my boss and he'd tell them. When he did, of course they'd do it. They saw that they have to do [what I say]. (laughs) If, eventually, I go to my boss and tell him that I'm not listened to, he'll go and tell them off later. They saw that it ended up bad for them. I never wanted it to come down to this, so I always asked nicely myself first.

Although the manual workers' unwillingness to take orders from a woman is not fully and clearly expressed, Serpil is aware of it during the uncomfortable and unproductive experience of working with them. In the following story Esra, a woman designer, indicates the same problem:

> I had drawn [a design], and for its production they told me to go and get it produced at the workshop. Permissions were gotten from the managers. I went in the shop floor. I told them, "You'll make this." The worker looks at you, "I'll make this? And you're telling me to?" "Yes, I'm telling you to." Another worker laughs at it. Wow, ha ha, they laugh their guts out. "A woman has come, she'll get us to make those." [It is important to be able to establish your authority there, [to convince them that] your work is good, it'll

> come out well... Now, you shouldn't mind . It's difficult if you care and start making complaints. I never went there.

According to these accounts, male shop floor workers seem to find it either funny or frustrating, but certainly inappropriate, for a woman to come to the shop floor and give them orders regarding their job. They develop a range of tactics to avoid the orders given by women, whilst women seek ways to make themselves accepted as their superiors.

Although the extent to which such a rejection becomes a long-term disadvantage varies among the participants' experiences, it is seen as an important shared problem at the beginning. It is considered a problem due to its direct effect on the quality and punctuality of the work they present to management. Thus, their performance in supervising the shop floor workers plays an important role in their reputation as designers in the office, which is the primary work setting for professional workers. With these concerns women feel that they have to find a way to make themselves recognised and respected in the shop floor environment to succeed in their professional careers.

However, it is important to note that as the concluding sentences of the previous two stories illustrate, most of the women participants expressed an unwillingness to report these problems to their managers. Saying 'I never wanted it to come down to this, so I always asked nicely myself first.', Serpil emphasises that she initially preferred dealing with the resistance she encountered on the shop floor on her own, but had to share this with her boss 'eventually'. In a similar vein, Esra stated that she never made any complaints about the negative attitudes of the blue collar workers to her: 'It's difficult if you care and start making complaints. I never went there.' Rather, she chooses to be patient and to convince the workers to collaborate with her. These examples demonstrate how women do not address the resistance they encounter on the shop floor as an issue that should be dealt with by the management at the organisational level, but instead by themselves through personal coping strategies.

In addition, some of the participants expressed a particular interest in being close to the production site, since they believe that as they become more familiar with the requirements and potentialities of production, they can create more innovative designs. Observing shop floor workers and practising with the tools and machines enables these designers to see what else can be done using the same materials and production techniques. For example, Zehra indicates that learning techniques and how to run the machines has enabled her to work on her models by herself. Whenever she wanted to try a new form, she could go to the workshop, run the spare machines, and produce more models without someone else's help. So, in the meetings she could present these models to the managers, rather than sketches on paper, and this influenced her reputation as a designer in a positive way. This is why, she says, she struggled hard to overcome blue collar workers' resistance to her presence in the shop floor and tried to set up good relations with them despite their hostile manners.

Participants suggested that the problems women experience in the production site have their roots in the working class masculinity in Turkey. However, the characteristics associated with this form of masculinity portrayed in their accounts do not seem unique to Turkey, and parallel those described in the literature in other countries (Collinson, 1988, 1992; Heron, 2006; Meyer, 1999) i.e. being the family breadwinner, doing production work, being a working man, being able to swear and knowing how to give and take jokes. Both women and men underlined that due to their social class, shop floor workers are different from the designers in terms of lifestyle, family values, levels of education and gender relations. They used this distinction to explain why the shop floor is not a welcoming part of an organisation for women, in contrast to the office. A small group of participants (who worked in small and distinctively conservative cities where the culture is not limited to the workplace but also influences people's everyday lives), provided a relatively detailed, though still rough, description of working class men i.e. conservative and religious, who are the authoritative figures in their families, seeing themselves as the breadwinners, who usually do not allow their wives to work outside the home, and thus believe that women's place is in the home and the workplace is for men.

Ali, a male designer, compares himself to blue collar workers to explain how education and socialisation in the family and the neighbourhood hierarchically shape men's views of women and of relationships with women.

> Level of education is very important. Or the level of cultural threshold. You never know how a man who can't go beyond [that cultural threshold] will treat [a woman]. He can be brash. He makes a joke, she turns red from embarrassment among all other men. Besides, there is no female worker on the shop floor. Umm some of them have women managers. This hurts his pride and he says things and the girl has to listen. (...) In a sense it is also important how the girl views those on the shop floor. Can she open a window there for herself, can she protect herself, it is also important that before going [to the shop floor] she makes an analysis of this. I mean, a girl who can't do this has no place on the shop floor. They can mock her, humiliate her, treat her badly and send her away. This is because you are telling the man what to do. If he were as conscious as me, his pride wouldn't be hurt. But because he is at a lower level, because he has been raised in that way, at that level of perception, he can't look from that perspective; he can't see the wider picture.

In his account he distinguishes between professional and blue collar men, attributing a civilised and egalitarian manner to the former, whilst identifying the latter with an exaggerated masculinity and misogyny in their relationships with women. Making this contrast, he reaffirms middle class men's superiority over working class men (Pyke, 1996) and concurrently supports the presumption that women do not experience any exclusion or inequality in the office. However, despite his portrayal of himself as an egalitarian man who would not mind being managed by a woman, his account also presents an implied superiority of professional men over their women colleagues in the shop floor environment. According to him, women are responsible for finding a way to overcome the blue collar workers'

resistance towards their presence and those who cannot achieve this 'have no place on the shop floor'.

Kerem, another male designer, also states that although he does not approve of blue collar workers' sexist attitude, it is women's responsibility to learn how to live with this attitude and make themselves accepted onto the shop floor.

> Whether it is right or wrong, whether we like it or not... For example the old man running the … machine. Now, if according to his life standards some clothes are teasing, you have to adapt to it. I mean, if you say "Why bother?" it can have a negative outcome. I mean, a woman who is to work there— I don't think it's right, OK, I don't think it's right either, but the circumstances... The problems experienced here in turn [makes] the upper management or the professional workers [think that] women can't work in this job. But that's not true. Some women can manage this well by paying attention to this. In fact, we saw that, too.

Despite the fact that Ali and Kerem express a strong disapproval of blue collar workers' attitude toward women, they designate women as the ones who have to adjust themselves, not the blue collar workers. In this, they normalise the misogynous atmosphere on the shop floor rather than challenge or attempt to eliminate it. Their accounts illustrate well how discriminatory attitudes, sexual threat, sexual references and jokes in language are simply accepted as 'the natural form of shop floor life', leaving the articulation of manual work with this exaggerated form of masculinity unquestioned (Willis, 1979, p.196). Instead, they consider this misogynous environment a different culture that should be recognised and respected.

These two stories have two important implications. First, such an understanding seems to leave the masculine shop floor culture and its resistance to women's presence unquestioned, and therefore reproduces the identification of the technical worker with men. Second, the shop floor culture seems to serve professional men to their superior position in relation to not only blue collar men, but also professional women. Thus, women's disadvantageous situation on the shop floor is sustained by the middle class as well as working class men (and masculinity), since the former support the argument that only men are 'gender authentic' for this environment.

However, it is important to note that not all women refer to the discriminatory and hostile manner of the manual workers as the source of their 'inauthentic' situation on the shop floor. Some of the women participants stressed that the workers whom they were supervising had very positive, polite and respectful attitudes toward them. They still indicated that being a woman has always been an issue, influencing their relationships in one way or another, and they could never be a 'gender authentic' member of the shop floor, whilst their male colleagues could be.
An illustrative story was told by Nihal, a furniture designer working in a manufacturing company with a male designer, Haldun. They both spend a lot of time in the workshop among the workers. Nihal says that although they became a

good team at the end, neither she nor Haldun were quickly accepted into the workshop, because she is woman and Haldun is not a stereotypical man. She says:

> Haldun is not a man who could be considered a standard male. (…) We are talking about a person who is very different from them [that is, the shop floor workers] but eventually the same sex. (…) If you are a woman, there is no— I mean, we are talking about something entirely different. You see, it's been so many years, five years now, still when I come across Hasan Usta [one of the workers]– I'm sure we both like each other very much, but he still doesn't know what to do with his hands. After a period of getting to know Haldun, they accepted him among themselves. (…) Once the period is over, he became one of them.

Although both Nihal and Haldun are considered not to fit in the conservative working class culture of the workshop, the story is rounded off with accounts of Nihal's subtle exclusion and Haldun's visible inclusion. Despite the tensions between the shop floor men and Haldun, due to the differences in their masculine interests, values and practices, 'being a man' works as a central unitary reference point. Of course this inclusion requires significant negotiations and takes a certain amount of time. Also, some of the tensions still remain and as Collinson and Hearn (1994) state, these unities are often fragile, precarious and shifting (see also Barrett, 2001). Still, a middle class man who is definitely 'not one of them' at the beginning may become 'one of them' after some time and get a place in the informal shop floor culture

As a result, women indicated that it is their responsibility to cope with the resistance and hesitation they meet on the shop floor and to create a space for themselves in this environment. Men support this, suggesting that a woman has to adapt and behave properly if she wants to work in a manufacturing company. In the following section I will examine the individual strategies that the women participants developed for coping with the masculine shop floor settings.

WOMEN'S COPING STRATEGIES

Participants stated that if a woman wants to be accepted on the shop floor, she has to prove her competence not only for the job, but also for managing blue collar men. This means showing that she has knowledge of production and the machines used, she is able to solve technical details and recommend a technique, tool or method for production. Women designers believe that once a woman proves that she has the knowledge, skills and qualities necessary for the job, workers will start respecting her as their superior and accept her presence on the shop floor. However, in order to prove their competence, first women have to find a way to start a dialogue with the workers. Here two contrasting strategies emerged: first, adopting the role of a female family member, such as a mother, sister and daughter, and second, presenting oneself as an atypical woman with masculine traits and attitudes.

Stereotypical Family Roles: A Mother, Sister or Daughter

Adopting certain attitudes and behaviours that typically characterise family life in

their relationships with the manual workers is presented as a useful way of coping with the resistance on the shop floor. Although some participants did not assign themselves a specific role, in the interviews it was not rare to hear different versions of this expression: 'But we are like a family now and most of the problems have disappeared.'

Zehra illustrates this strategy of being an empathetic character, like a mother or a sister, who listens to workers' problems regarding their families and monetary issues:

> I always treated them well, listened to them. Because they all have problems. They all have monetary problems, they all have problems regarding their families, their children. You should listen to them, share their problems a little. You should say "don't worry", you should calm them down. You should get close to them by doing things like that.

Her account provides evidence that adopting such a role facilitates women's inclusion into masculine work settings. Ollilainen and Calasanti (2007) argue that the role of mother, in particular, provides a source of power for women, as it emphasises age and experience, which are features that call for familial respect. However, they indicate that at the same time it highlights the traditional role of mother who sacrifices herself for the good of others. Thus, the power of being accepted as mother can be limited to instructing and influencing men within the existing gender and power structures that privilege men.

Adopting the role of a female family member also helps some women remove any sexual connotations from their relationships with the manual workers with whom they work closely. Presenting themselves as mothers, sisters or daughters enables these women to disguise their sexuality and to keep their relationships simultaneously close and positive. Being treated as a female family member in the workplace translates women's unusual presence into familiar and acceptable terms. Still, it does not necessarily work to the advantage of women. Simultaneously, as some studies show, adopting such roles deflects from rather than strengthens others' belief in women's professional competence (Kleinman, 1996; McLaughlin, 1999), and such a 'role entrapment' very effectively reinforces the symbolic and structural dualisms between women and men (Kanter, 1977). This is visible in Selin's case:

> For example there is this woodcarver. He is a very sweet person. I mean he is a really good woodcarver. I mean he is very competent in what he does. You know, he came and we were trying to do something together, trying to talk about it. He says things like "You are a university graduate but... I'm sure you know better but..." (imitates the sarcasm), such sarcastic talk. (laughs) He says, "My daughter... [lit.]"– but mind you, "My daughter"! Calling me [this] he asks, "What are you doing here? What is your job here? Are you here for accountancy?" You see, people from there don't have this consciousness that a woman can go and do things there, at a different position, as a professional, that a woman can take [a] role in the management. (…) I would tell him [what to carve], but he wouldn't listen. He

> would carve the wood as he liked. Then we had to make him do it from the beginning. This time, when he had to do it again, he started listening to me. I mean, at the beginning there is always resistance from people. It comes to things like "You don't really know the job."

Selin does not seem to be happy with the role of a daughter, which is assigned by the craftsman to her, which implies the place available for a young woman on the shop floor. Calling her "my daughter" appears to enable the craftsman to underline his superiority that is marked by his sex, age and experience in the job. Doing this, he contrasts himself to her and seems to use this contrast to compensate for his lack of a professional degree. His emphasis on Selin's incompetence in the job is also evident in his resistance to carving the models as she wants. So, being offered the role of a daughter does not make the situation easier for Selin, but rather it stresses her inappropriate presence on the shop floor and disguises her higher position in the organisational hierarchy.

'I'm not a Typical Woman'

Some of the women participants suggested that they could easily overcome the prejudices and resistance on the shop floor due to their atypical gender traits and characteristics. They were aware of the problems women face in the shop floor environment, but indicated that they did not share such experiences frequently. These women did not associate themselves with 'other' women, who they regarded as weak, fragile, shy and in need of protection. Instead, they are strong, self-confident and self-sufficient, so can easily earn men's respect and quick acceptance into male dominated work settings.

Contrary to the women participants who adopt the role of a female family member as a coping strategy, these participants devalued the traits which they associate with typical women. As demonstrated in the previous section, the former referred to being empathetical and caring in the description of the traditionally feminine traits they display. To the extent that it was their preference to adopt such roles, they presented a positive attitude towards this form of femininity. For the latter, on the other hand, femininity is aligned with being shy and weak, having lack of confidence and need of protection. In their accounts these traits and behaviours are qualified as negative, and are suggested to be the reasons for women's inferior position. In the excerpt below, Banu criticises the image of the fragile and weak woman in high-heeled shoes indicating that she is not that kind of a woman:

> I am a person who can replace her car's tyre when it blows out. You know, I'm not a person that calls her partner or lover and complains. Maybe that's why. (...) Before I started working here, I used to run my own business in [this industrial district]. Then, too, I used to subcontract with workshops and oversee them. But, you know, [when I went to those workshops] I wasn't that fragile type of woman designer, with high-heels and so on. (...) I mean, I don't know whether it was because I behaved in this manner that I was accepted quickly. I mean I've never been a person who complains a lot, keeps making people feel that she is a woman, and causes problems.

At this point I want to go back to the quotes from Ali and Kerem, two male designers, presented above to show how these women's accounts tend to converge with their comments that the shop floor is not for 'every woman'. It is only for the women who can be 'man enough' to be accepted into the masculine culture of technical work settings. The following quote from a male designer's account illustrates how men also appreciate their colleagues when they can be 'a woman like a man'.

> But in [that company] I haven't observed any bad attitude [towards women]. There was only this small prejudice, but there have also been female colleagues who overcame it. Of course, there was especially Ms Oya, like a man in terms of, umm, character. [She was tough] like a rock. She destroyed these prejudices successfully. (laughs)

For women, this coping strategy is based on distinguishing themselves from what they identify as a typical woman, and making a constant effort to display masculine traits that an ideal professional worker is expected to possess on the shop floor. This strategy seems to help many individual women prove their superior position to the shop floor workers in these masculine and male dominated work settings and, as the above quotation by a male designer illustrated, gain the respect of their male colleagues. However, at the same time it fails to improve the collective status of women, since it preconditions being or aiming to be 'man enough' for success, and effectively makes it difficult for those who they regard as typical women to be accepted on the shop floor. Powell et al. (2009) argue that such career success is unlikely to promote women's interests, even when a sufficient proportion of women has been achieved in the profession. My findings exactly illustrate this. Supporting the strong link between masculinity and technical work, these women reproduce women's 'gender inauthenticity' for a production environment even in a context where women constitute almost half of the industrial designers. Doing this, they contribute to the empowerment of masculine images through female masculinity (Halberstam, 1998).

DISCUSSION

The findings of the study presented in this article suggest that the male dominated shop floor may be an explicitly challenging work setting for women who enter there in positions of authority – at least until they prove their competence – due to the attitude of blue collar workers. Two main themes were identified regarding the problems women encounter in their relationships with blue collar workers, namely resistance to women's presence on the shop floor and resistance to taking orders from women.

However, the disadvantageous situation of women is not only created by the resistance of male shop floor workers to women's superior position. At the symbolic level, it is also sustained by mainly male and some female industrial designers' consideration of the superior positions on the shop floor as only 'authentic' for those who can display the necessary masculinity. These designers thereby identify the image of the ideal professional worker on the shop floor with a hegemonic form of masculinity, which is characterised by aggression, self-sufficiency and toughness in

this context, and thus reinforce the ‘gender inauthenticity’ of women for this image. By male designers this image is clearly distinguished from one that is identified with less ‘civilised’ and less educated forms of working class masculinity and from versions of femininity associated with weakness and fragility. This privileges male industrial designers, and their middle class masculinity, in relation to not only blue collar workers, but also women industrial designers.

Earlier I noted that according to the participants in the mixed-gender office, women industrial designers' 'authenticity' for a technological job is not questioned due to their gender. However, the accounts above showed that when women enter the shop floor, their competence is questioned by both blue collar workers and male industrial designers, and they are expected to demonstrate two different types of competence. In this work setting, in line with the literature on men and masculinities, technical competence for the ‘hard’ production work appears as an important issue among blue collar workers (Collinson, 1992; Heron, 2006). Women designers feel that they have to prove that they are competent with machines and production techniques in order to gain the respect of shop floor workers. For male industrial designers, on the other hand, what matters on the shop floor for a professional worker is social competence. From their point of view, the question is not whether a woman industrial designer has technical competence, since they already take this for granted, but whether she is socially competent enough to exercise authority over blue collar workers. Thus, in the production site women are expected to have two sets of skills to prove themselves to two groups of men.

What is the impact of women’s status in this work setting on their status in the office, which is the primary work setting for professional workers? Women’s concerns were clearly indicated in their accounts. The quality and the punctuality of the models of their designs is directly related to the success of the work they present to management. Thus, their performance in supervising shop floor workers plays an important role in their reputation in the office as industrial designers. However, most of the women participants indicated that they prefer dealing with the resistance of workers using strategies they developed individually and in specific contexts, rather than reporting it to management, since they see overcoming men’s resistance as their responsibility and as a means to prove their competence as professionals.

The individual strategies women develop help them cope with the situation to a certain extent. Among the participants of this study, some women prefered to adopt the role of a female family member in order to legitimate their unusual presence in familiar and acceptable terms. For others, presenting oneself as an atypical woman with masculine traits and attitudes served as a useful strategy to exercise authority over shop floor workers. The analysis of these coping strategies has important implications for constructions of femininity on the shop floor. The two strategies are based on two different conceptualisations of 'typical femininity': one is an empathetical and caring form of femininity, and the other is a weak and fragile form of femininity. Although neither of these forms of femininity is considered 'authentic' or idealised for the shop floor, the former is presented as acceptable whereas the latter as unacceptable. Women tend to position themselves as

gendered beings in relation to one of these two forms of femininity, by either approving of the former, or criticising the latter. Doing this, they contribute to the argument of their male colleagues that 'the shop floor is not for every woman'.

CONCLUSION

This paper aimed to shed light on the experiences of women who enter production sites in positions of authority and responsibility. To this end it examined the relationships between male industrial designers, female industrial designers and male shop floor workers when they come together on the shop floor. Its results confirm the strong link between masculinity and production work and work settings, but also offer new insights regarding gender constructions in the male dominated production site in the presence of professional women.

Numerous feminist studies that have investigated the masculine and male dominated culture of technological professions indicated that many women attempt to cope with the mismatch between their gender image and the masculine images that are idealised in these professions, by downplaying their femininity and displaying the masculine traits, which an ideal worker is expected to possess (Demaiter and Adams, 2009; Evetts, 1998; Marshall, 1993; Miller, 2004; Powell et al., 2009; Walker, 2001). However, these studies stressed that women cannot go too far in performing like a man, since this strategy can also backfire and women who over comply with the masculine image of the profession may be criticised for not being feminine enough. This situation is termed the dilemma of double-bind, whereby the woman professional is 'measured against a double yardstick of gender appropriateness and masculine work ideals' (Peterson, 2010, p.69).

The results support previous research on the point that presenting oneself as an atypical woman with masculine traits and attitudes works as a successful strategy for many women industrial designers. However, none of the men and women interviewed indicated the necessity of having a limit to women's masculinity in their relationships with shop floor workers. Instead, for a woman 'being like a man' on the shop floor was described as an achievement without any exceptions, since it is accepted as a condition of being superior to working class men. Such an assumption, in turn, reinforces male industrial designers' 'gender authentic' powerful position in relation to both their female colleagues and shop floor workers.

Thanks to feminist technology studies of the past three decades, we know that women's acceptance into production sites as competent workers is a challenging process, since technical mastery and skill have historically been male dominated realms (Cockburn, 1983, 1985; Wajcman 2004). Turkey is no exception. Despite their overall high participation in technological professions, women are underrepresented in the industries that rely on manual work (Arslan and Kivrak, 2004; Zengin, 2010). Similarly in this study, women participants placed considerable emphasis on the strong link between technical competence and working class masculinity, stating that manual workers' respect can only be gained by demonstrating the necessary skill and competence for production work. The lack of such a concern in men's accounts, however, is worth noting and questioning, since having technical skills and doing production work are important sources of

power for working class men in relation not only to women but also middle class men (Collinson, 2000; Collinson and Hearn, 1996; Haywood and Mac an Ghaill, 2003). This situation raises the question of whether the influence of 'being a man' as a central unitary reference point on two groups of men increases in the presence of women, when the issue is about possessing technical competence.

It is also important to note however, that the lack of such a concern in men's accounts does not mean that all men feel confident about their class- and gender-based superior position on the shop floor. Some men might also find it difficult to fit into the strongly masculine culture of the shop floor, where being an 'authentic' member requires tolerating or disregarding the discriminatory attitudes towards women as well as other men who do not demonstrate the necessary physical and emotional toughness. More research in this area, particularly 'beyond the comfort zone of heteronormativity', is needed to capture the gender diversity among both middle class and working class men in technology-related work (Landström, 2007, p.19).

Demonstrating how gender experiences can differ significantly between the shop floor and the office, this paper highlighted the contextual and situated nature of gender and technology relations. It concludes with the recommendation that to expand our understanding of the gendering of technology-related work, research should address specific work settings as sites of gendering, rather than the occupations and organisations per se. Doing this reveals that the images that are idealised in one particular profession or position are not fixed, but change depending on the requirements and priorities of different work settings. A worker that feels competent and successful in one setting, e.g. an office, can experience incompetence and failure in another one, e.g. a shop floor, due to the differing gender constructions between the two settings. Examining only one of these settings, possibly the most visible one, may limit our analysis of gender inequality experienced by the members of that profession.

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