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Women Engineering in Turkey: Case of Istanbul

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Abstract

There are fewer women prefer the engineering fields compared to men. Many obstacles are existed which suspend women from the engineering, and examinations of three of them is the aim of this study. The obtained findings from the literature review results and based on the related studies held in Turkey and other countries, it has been tried to analyze the three obstacles: the existence of male-dominated organizational culture at work, the existence of the presence of lack of job satisfaction at work, and the existence of the work-family conflicts, that are confronting women in entering and remaining in engineering occupations. In the application part of this research, via the findings from the literature, the survey covers 112 women employees graduated from the engineering domain. The research was done particularly in the city of Istanbul, Turkey. From the answers of the participants, it has been attempted to find out their views, feelings and opinions about the existence of the three barriers are mentioned above, according to their demographic peculiarities. The finding are showed that these reasons, which are the existence of the men-dominated organizational culture, the presence of lack of job satisfaction, and the work-family conflict are existed and confronted women from entering and remaining in engineering occupations.

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1. Introduction

Today our world faces rising of many interlinked challenges. The most pressing challenges are climate change, globally health epidemics, demographic changes, pressures from rapid technological advances, and unprecedented inequalities which consistently grow every day. To overcome with these concerns, more skilled employees are needed in STEM sector – acronym for Science, Technology, Engineering and Mathematics – that stands for research

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and industry which are important for technological development (UNESCO, 2015).

Beyond the globally advancements in the STEM fields, which have strong impact in the poverty reduction issues and achieving of sustainable development, as well as continually expanding of the information and communication technologies (ICT) create a growing number of the STEM-related jobs. It has crucial importance for women and girls to have equal approach to education at all its level and to get appropriate skills, especially in STEM-related fields to have advantages of the increasing opportunities in those fields (Commission on the status of women, 2014).

Even though the representation of women grow in higher education they face obstacles in accessing the equal job opportunities in STEM fields as men, and end off these jobs since they cannot to introduce their full ability and skills. They are underrepresented not only in STEM employment but, more significant, in STEM sectors where the job opportunities are rather expanded. For example, it is estimated that sub-Saharan Africa needs near 2.5 million of engineers and technicians in other to get better access to clean water and sanitation which have significant impact on women's lives. In 25 countries, in order to gather clean water, women waste 16 million hours a day. However, they have no idea how to develop and manage the water resources and sanitation needs, and how to improve infrastructure and get solutions by using science and technology. Energy sector expands its projections that employment will grow to 8.4 million occupations in wind and solar energy alone by 2030. But here also women represent only near to 20% of the energy sector occupations today and most of them work in administration and public relations (Commission on the status of women, 2014).

In some researches it has found that there is an important relation between the STEM occupations, gender and wages. In the one hands, STEM employees earn much more, in contrast with their non-STEM peers. In the other hands, there are differences in the wages among gender, i.e. women earn significantly less compare with men. These relations present in the figure 1.4, where there is the average of the full-time hourly wages for a year in the private STEM and non-STEM sectors. Thus, it shows that in the STEM occupations men earn \$36.34 and women \$31.11 per hour, which is higher than of the non-STEM jobs where wages is \$24.47 for men and \$19.26 for women per hour. Furthermore, if women earn \$0.86 (14%) where men earn \$1 in the STEM occupations, then in the non-STEM jobs women earn even less which is \$0.79 (21%) for a \$1 of the men's income in non-STEM jobs. In addition, it has been found that workers in the STEM jobs get considerably higher wages than the non-STEM workers in the private sector, too (Beede and others, 2011).

2. Women in engineering in Turkey

Even the number of women in the engineering has increased over last years it still has represented lower proportion in contrast with men. As it was showed the chapters above fewer women enter and stay in the engineering field in the world. The same situation is in Turkey, too. However, by comparing Turkey with the other countries the women engineers represent more than half larger in numbers than in the USA and outperform the EU countries. Even the number of women engineers is greater in Turkey, they are still underrepresented in the engineering fields compare to men at every stage that started from education and continued until employment in these fields.

The first enter in engineering is begun with enter in the colleges and universities. The table 2.1 presents the proportion of student graduated from of the engineering and non-engineering faculties in Turkey, in the period of the selected years 1996-2013. Although the number of the girls graduated is slightly increased and the number of the boys graduated is slightly decreased during these years, these numbers quite close between girls and boys graduated.

The number of the girls graduated in the engineering fields is continuously increased in the period of 1995-2013. There is exception only of some faculties such as Naval Architecture and Marine Science; Engineering and Computer Science; and Engineering and Design where the number of the girls graduated is decreased in the same period. Also there are faculties where the proportion of the girls under 20%. The lowest rate of the girl's graduates is

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