Example of essay on women in science, mathematics and engineering careers in the ...

Business, Career

Careers that involve the application of mathematics, science and engineering skills contribute majorly to the economy. Despite the fact that women have made progress in their education in the past 50 years, the disciplines that involve mathematics, science and engineering courses are still dominated by men. This has been attributed to several factors, like the social and environmental barriers. The negative attitude that women have towards these subjects is the primary reason they chose to study other disciplines. The attitudes are mainly shaped by the societal norms, the legal system, and the professional practice that the women get.

The approach begins from a tender age since the aspirations of boys and girls in terms of career goals, is very different. While the boys aspire to be engineers and scientists, the girls want to pursue managerial or business professions. Consequently, the number of women who pursue engineering, mathematics and other science courses is few. The few women in the engineering and science fields affect their participation and productivity in these fields (Hill et al. 159). It affects both the women and the society at large since it represents missed opportunities. This is because women are known to influence the science, mathematics and engineering fields since they bring in different perspectives.

The social norms in the society contribute to the decisions made by women in their career choice. The way girls and boys are socialized very different, and this impacts on the effort they put into their studies so as to achieve their various career aspirations. Gender socialization of men leads to the development of personality characteristics associated with achievement, competence, and instrumentality (Eagly and Valerie 19). While the place of

women is mostly at home, young boys are oriented towards a career-oriented future thus are taught the need for technical skills in different fields like mathematics and sciences. The children and girls learn early to associate careers with genders thus developing attitudes about individual subjects early in their school life. The girls in today's society see an employment future but still they are expected by the society to maintain the primary family roles. While the boys are encouraged to work towards their careers, the girls are invited to maintain physical attractiveness, sensitivity, and emotional expressiveness (Cater-Steel 11).

Workers in the science and engineering workforce enjoy relatively high job security and are paid better than those in other fields. Even though the majority of women in the science and engineering fields are paid less than their male counterparts, they earn higher salaries than women in other professionals. The science and engineering fields are very crucial to the development of the economy. By 2018, many of the careers that require a bachelor's degree will require training in mathematics and science fields (Eagly and Valerie 120). This is because many science and engineering occupations are estimated to increase at a faster rate than all other professions. Some of the fields that are projected to grow tremendously are those involving computer science and engineering, where women hold less than a quarter of the available positions (Glass and Lynn 25). With more women in the science and engineering fields, innovation will be maximized; creativity enhanced and competitiveness will be promoted.

Women prefer areas that deal with people and not objects. The engineering field deals majorly with machines thus being very unattractive to women.

Academically-oriented women respond more to art and literature, unlike their male counterparts. The technical work in engineering makes it a male dominated field (Cater-Steel 12). Among the many issues that scientists and engineers seek to include global warming, development of sustainable energy sources, control of environmental pollution and understanding the origin of the universe. The engineers in particular are keen to design various machines used in day –to –day running of the economy such as construction of bridges, manufacturing of computers and cars. The absence of women in the fields leads to overlooking of their unique needs (Glass and Lynn 124). There is a popular belief that men are better in mathematics and science subjects than women thus are better suited to pursue careers in these fields. The girls lose interest in science and math subjects from a tender age. Although spatial skills can be improved through training, women shy away from learning the skills by choosing to pursue other careers. The gender roles defined by culture influence the occupational interests of women (Glass and Lynn 22). Children especially girls, develop beliefs that they can only pursue particular occupations that they perceive as appropriate for their gender.

According to the United States statistics by the census bureau, women in the field of science and engineering were about 7% of the workforce in 1970s (Eagly and Valerie 136). By 1990, the figure had increased to 23%, but the rise did not continue until in 2011 when it rose by 3% only. In 1988, the number of women in the computer and mathematic sciences in the United States were 33% while that of chemists and natural scientist was 24%. Engineering had the least number of the women accounting for about 7. 3%

(McIlwee and Robinson 96). In the 1970s and 1980s the engineering field was growing leading to a dramatic increase in the number of women from less than 1% to nearly 10% (Cater-Steel 125).

Women do not get enough role models in the engineering and science fields thus lack the motivation to pursue the same from a tender age (Hill et al. 234). There are some social stereotypes in the society that discourage women from getting into an engineering career path. For example, the women who pursue these subjects are regarded as unattractive. This is a social stereotype that discourages many from pursuing careers in these fields for fear of ridicule by the society. The work life balance and bias is also attributed to the few number of women in the areas of science, engineering, and mathematics (Glass and Lynn 56).

Women leave the engineering field careers due to the challenges they encounter at the workplace mostly at their midcareer (Hill et al. 234). Some of the challenges cited include isolation where the women feel lonely in the male dominated career since they do not have many female colleagues. Any decisions that have to be passed are influenced by men who are the majority. Further, women in engineering complain of extreme work schedules such that they are not able to strike a balance between their family responsibilities and work expectations. Due to this reason many women who pursue the engineering courses end up giving up on their career. The work environment is not very conducive for the women since it is influenced by male interest thus disregarding the women’s unique interests. Most of the women in engineering fields hold junior positions thus they have inadequate career advancement chances.

Women perform the same as men in the engineering field, but they do not get access to higher positions even with all the necessary qualifications. The junior positions they get do not fully satisfy their career goals and often discourage other women from getting into the engineering field. Women have lower tenure and promotion rates. Further, the time taken before they get a promotion is longer as compared to the male colleagues. They have lower retention rates and less job satisfaction. These challenges make the productivity of women less and lower the efficiency of the women faculty. In addition, it leads to a less satisfying academic career.

Boys perform better in subjects that use visualization and spatial orientation and quantitative tasks that utilize those skills. The girls, on the other hand, perform better on topics related to verbal skills and tests involving perceptual speed and memory. Spatial skills are considered to be important in engineering, which explains why girls may not have interest in the engineering field (McIlwee and Robinson 20). Despite the narrow margin between the performance of boys and girls in science, engineering and mathematics subjects in school, majority of the girls pursue other careers like management and business (Hill et al. 26).

It is important to encourage students to adopt a malleable mindset on intelligence thus reducing their vulnerability to the stereotypes that threaten positive academic performance in the engineering, mathematics, and science fields. The influence of women role models would greatly impact on the career choice of girls as they look forward to having a successful career like other women engineers. However, these role models are not many as compared to other successful women in other disciplines such as

management. The Girls' lack successful role models in the engineering careers thus do not get the motivation to pursue the fields (Layne 65).

The stereotypes associated with women who pursue engineering are the reason majority of women perceive engineering as a male career. This could be solved by educating the teachers and school's faculty on the stereotypes so that they work their way out to see that they do not affect the girls negatively (Keller 133). People respond more to the stereotypes that are held in their immediate environment. Therefore, learning institutions can be used to help cultivate a positive culture towards the subjects in women (Keller 52). The students need to learn that spatial skills can be developed and that the boys are not the only ones who can perform better in subjects that require the use of these skills (Keller 56). There is a need to make the scope of the engineering, mathematics and science subjects broader by offering introductory courses that show the wide variety of application of the disciplines (Keller 63)

Women in engineering and science careers face many opportunities and challenges. Due to the stereotypes associated with women in the engineering and science careers, the women do not get equal chances of being hired in the workforce like their male counterparts. Although women receive an increased number of degree graduates in the engineering and science fields, the same is not reflected in the proportion of women hired in the workforce (Koch et al. 45). Some do not get the jobs easily while others quit the jobs due to other pressures such as family roles. The women who get to the top of these careers face a challenge of being ignored or undermined by male subordinates who doubt their capability. The role of

family, community and household concerns are more played by women than men. This poses a challenge for women who wish to pursue science, mathematics, and engineering careers since the job demand dedication of time, which may affect the other roles that women have. The inexistence of family- friendly policies in the higher learning institutions discourage women from joining the engineering and science career for fear that the careers may destroy their family life.

The groups should provide explicit compliance policies and hold all their members accountable for change. In addition, there should be clear legislations that define the procedure of hiring in these fields (Hill et al. 239). There should be further research on the reasons why the number of women in these careers remains small even with the growth in the engineering and science careers. The government should allocate enough funds to carry out a comprehensive research and act on the proposed recommendations. The legal system should also be active in ensuring implementation of laws that regulate the engineering and sciences fields, especially in relation to hiring and promotion of women.

In conclusion, even with the development of occupations that apply principles of engineering, science, and mathematics, there are still few women in theses careers in the United States. The societal norms are partly to blame for the few number of women in these jobs, since boys and girls are socialized differently (Koch et al. 45). The stereotypes associated with women who pursue these careers further discourage other women from taking the career paths. The women do not get enough chances at the high ranks in these careers thus they are not able to influence decisions that are

mostly made by the majority men. Balancing family roles and jobs have been a challenge for women for a long time thus they choose careers that are less involving. The few number of women in these fields demoralizes the ones who are in the careers since they do not have female colleagues. The workplace can be changed to attract more women in engineering and science fields by providing equal career advancement opportunities for both men and women. Including women in these careers is of economic importance since they help in improving creativity and innovation.