Pursuing Substantial Female representation in the Engineering Field

Mildred Nechesa Mkabwa

Graduate Engineer and Masters Student at the University of Nairobi.

milinechesa@gmail.com

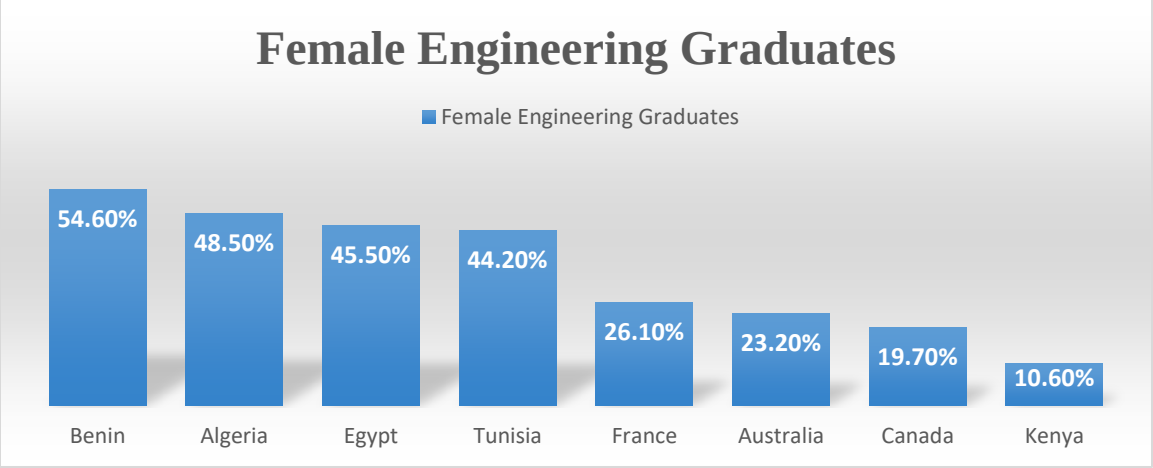
Abstract

It is no secret that there has been a high level of concern over the low representation of female engineers in the engineering field, not just in some parts of the world but more so in our case, Kenya. As much as the number of women taking on engineering related careers has increased over the recent years, there is still a big gender gap when it comes to female representation in this field. Statistics from the Society of Women Engineers' Research Update as of 2019 show that only 30% of women who earn a bachelor's degree in engineering stay and pursue the same career path. This means that there is a discrepancy between recruitment and retention. For instance, as per a news article published in 2017 based on data from the Engineer's Board of Kenya, women account for 8.8% of the total number of graduate engineers, 5.4% of professional engineers and only 2.3% of consulting engineers. With these kind of statistics, it can be intimidating for women to pursue substantial representation in the field but there is hope. This paper aims to look at the major reasons why the number of women in Kenya who account for consulting and professional engineers is less as compared to that of graduate engineers.

Keywords: Gender Gap, Female Representation, Pursue, Discrepancy, Recruitment, Retention.

1. Introduction

The breaking of the barrier of stereotypes concerning engineering being a male kind of profession, has seen an increased number of women who have chosen to enroll and pursue it as a career. According to the UNESCO report, The Race against Time for Smarter Development as of February 2020, Benin has the biggest share of women graduates in the field of engineering in the world with a representation of 54.6% of all the engineering graduates. On the other hand, in relation to the Arab countries, the report further states that the Algerian women have broken men's monopoly in engineering studies, challenging the male domination in the sector given that the proportion of female engineers jumped from 35% in 2005 to 47.1% in 2017. According to the report, Algeria tops the list of female engineering graduates in the Arab countries with 48.5%. However, this according to the report is in contrast to many OECD (Organization for Economic Co-operation and Development) countries like Australia (23.2%), which have low percentages of female engineering graduates. In the case of Kenya, statistics from the Engineers Board of Kenya show that females account for only 10.6% of engineering graduates as indicated by a survey released by WIRE (Women in Real Estate).



Graph 1: Female Engineering Graduates Statistics in different countries

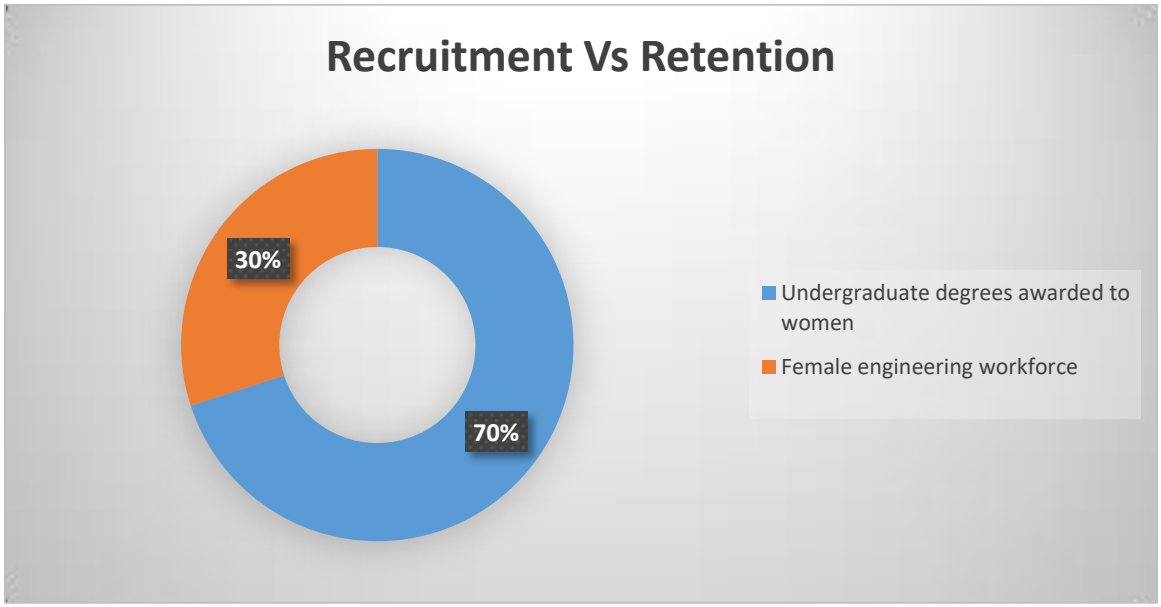
2. Methods

Sourcing of the research data was from various publications found on the internet with information on Women in Engineering.

3. Results

3.1. Discrepancy between Recruitment and Retention

One of the major challenges that women in engineering are currently facing is the discrepancy between recruitment and retention. This is evident in the fact that, the percentage of the female engineering workforce compared to the percentage of the undergraduate degrees awarded to women is less.



Pie Chart 1: Recruitment Vs Retention of Women in Engineering

The metaphor 'leaky pipeline', which has become popular when referring to the underrepresentation of women in the STEM (Science, Technology, Engineering, and Mathematics) fields, can further illustrate this

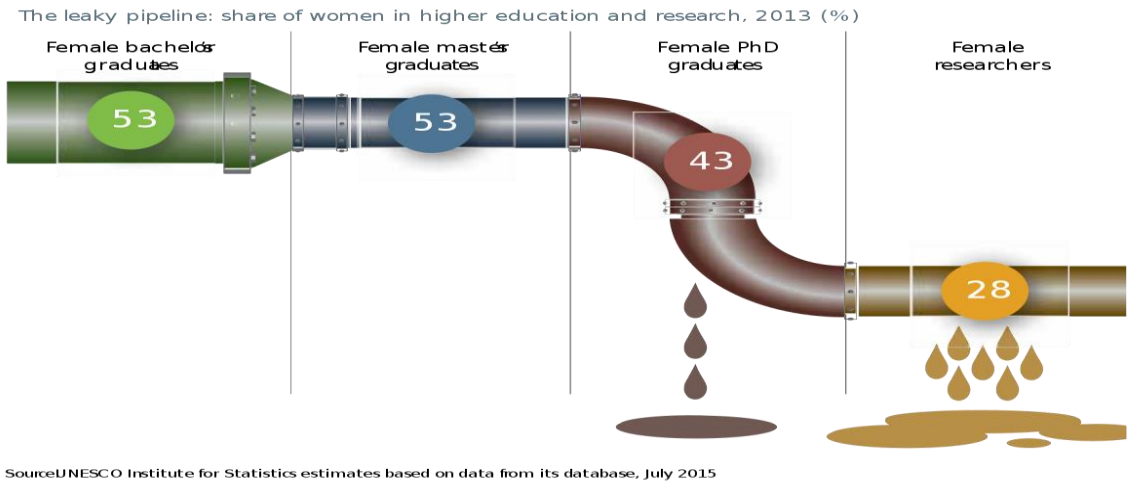


Figure 1: Share of women in higher education and research

Data from the Engineer's Board of Kenya on women representation as per a news article published in 2017 further illustrates the \leaky pipeline' situation.

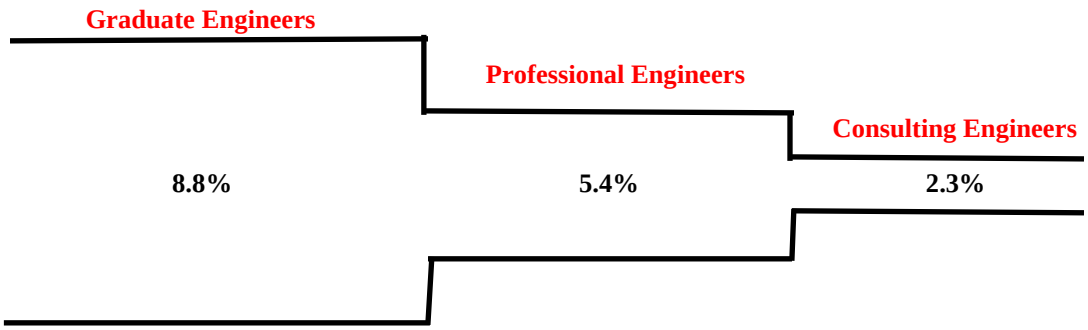


Figure 2: Women in engineering Statistics based on data from EBK

4. Discussion

4.1. Factors that have contributed to Increased Recruitment of women to the STEM fields.

The Stem fields have gotten to enjoy an increase in the number of women pursuing careers in them because of a number of reasons:

4.1.1. Awareness of careers in the STEM (Science, Technology, Engineering, Mathematics) fields

There has been a lot of information from the career fairs offered in learning institutions from the primary, secondary to tertiary levels to universities concerning careers in the STEM fields. This has ensured that girls are empowered from a young age to combat any stereotypes of these careers being masculine. WIRE (Women in Real Estate) is a good example of an organization that conducts such career fairs.

4.1.2. Provision of programs

The development of these programs such as mentorships, internships and seminars have been helpful to provide guidance on careers in the STEM fields. UNESCO (United Nations Educational, Scientific and Cultural Organization) in collaboration with the Government of Kenya and other institutions like the University of Nairobi organize annual Scientific Camps of Excellence specifically for mentoring girls in STEM.

4.1.3. Gender Policies

The development of such policies has ensured that there is adequate access and equal opportunities for women. According to a news article published in the Business Daily, Safaricom is not only the most profitable company in Kenya but it is trailblazing when it comes to the way firms treat women and mothers in the workplace. The friendly maternity policy of retaining women on full pay while being allowed to work fewer and more flexible hours when they return from maternity leave and equal employment opportunities are just but a few examples.

4.1.4. Women in Engineering Organizations

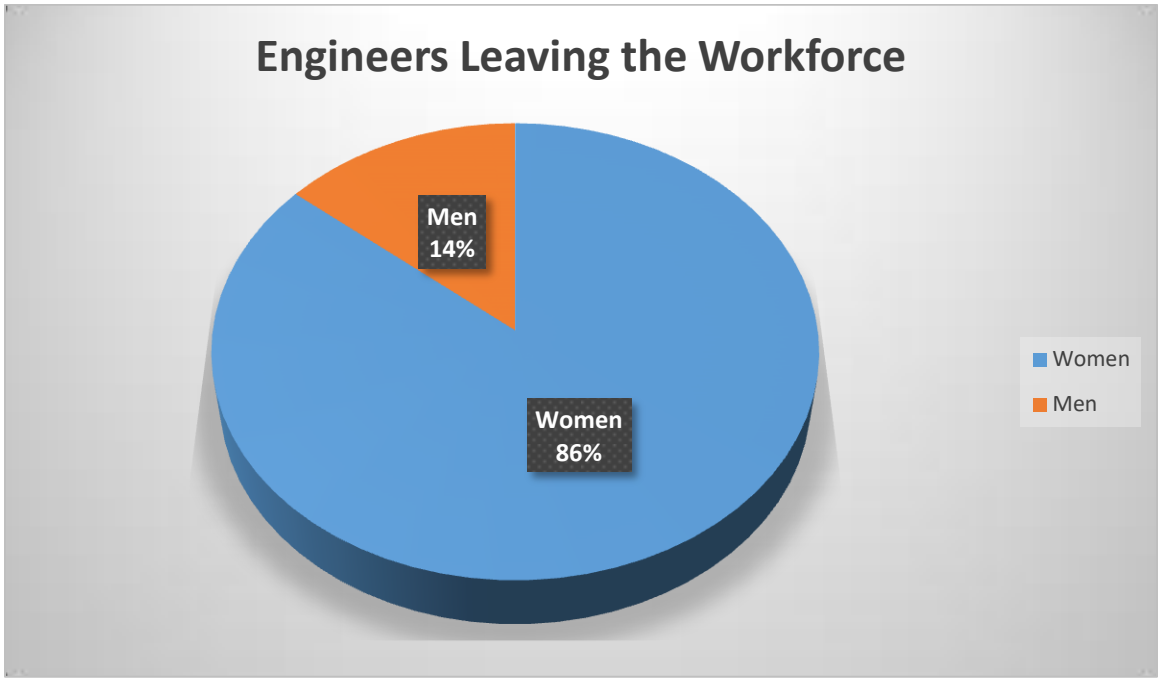
Institution of Engineers in Kenya is leading by example in encouraging women to pursue a career in engineering with the help of the Women Engineers Chapter that was launched in 2014 and the incorporation of the Women Engineers Summit at the IEK Annual International Conference. The creation of such spaces is to train and advance women in the engineering profession.

4.1.5. International Women in Engineering Day

This takes place annually on June 23 and it provides a great opportunity to celebrate and acknowledge the work and achievements of women engineers all over the world.

4.2. Factors that have contributed to a discrepancy between Recruitment and Retention

The only area in which women engineers are surprisingly outnumbering the male ones is in leaving the workforce. Statistics show that out of the engineers who are leaving the workforce, 86% are women.



Pie Chart 2: Engineers leaving the Workforce

The recruitment of women to pursue careers in the STEM fields has been tremendous and yet the number of those retained in comparison to those recruited is lower. The following are some of the major reasons from the study:

4.2.1. Transitioning from the learning institutions to the work place

This particularly becomes a challenge when it comes to converting the knowledge attained in school to the skills that are required especially for the job market.

4.2.2. Transitioning back to the profession after a break

Maternity breaks are the most common when it comes to women in general and in some instances; it becomes quite a challenge to regain professional momentum.

4.2.3. The work life balance

Handling work expectations together with those of the family can sometimes cause women to make a decision to focus on just one and in most cases many of them end up pausing on pursuing their careers to build their families first. This leads to career gaps, which can be quite a challenge to navigate.

5. Conclusion

The research has shown that there is need for intentionality in bridging the gap between recruitment and retention

Recommendations

Professional Organizations to continue fostering collaborations with learning institutions such as schools and universities to ensure that girls are sensitized concerning STEM careers with emphasis on not just getting a STEM degree but making sure that is fully utilized and operational.

There is need for development of systems that will ensure the replenishing of the skills that are required in the ever-developing construction industry. This is helpful so that women who are transitioning back after a break do not feel as though their skills are outdated or irrelevant.

The implementation of policies that will allow for the balance of work and family responsibilities at the same time such as paid maternity leaves so that women do not feel the need to forgo one for the other.

The necessity of having more networking events that provide a good opportunity to share information across the board and be up to speed with different techniques and technological advancements in the industry. This is very helpful for women who are transitioning back after a break as it helps in rebuilding their confidence necessary in the industry.

The need for women role models in the engineering field who have gone against all odds to pursue a career in the engineering field despite the challenges they have come across and some who have even risen up in leadership positions in the industry. This can be a good source of motivation for others to pursue retention.

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