

Special topic

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Progression towards a challenging, but worthwhile career

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Abstract: The main purpose of academic studies is to be beneficial to humanity. Women in science are active contributors to academic research. Talented young women should be encouraged to pursue careers in academic science, in spite of long hours and low pay, because their contributions are valuable. This paper has been designed to explain the position of women in an academic organization and some situations faced by female academics as well as some of my academic experience.

Keywords: academic; career; chemistry; Distinguished Women in Chemistry and Chemical Engineering; glass ceiling; research; woman scientist.

Introduction

An academic is generally defined as a person who teaches at universities and higher education institutions, performs research and contributes to his/her field through original studies. Being in academia has two faces, teaching and research. For this reason, academics continuously monitor the developments in their field, research and publish their scientific results and also share their results with other scientists. Most of the time, they focus on their goals to achieve these duties. Successful academics are very productive that is the best part of being an academic. During the academic life there are many exciting moments before and after each academic promotion.

Of course, being an academic is not limited to producing scientific studies. Besides the scientific work, it also includes much lecturing and training. Teaching in class and training in the laboratory (especially in chemistry) are very important. These are among the other duties of an academic in chemistry. Academic duties include writing books at a professional level, preparing papers and presentations with students, and guiding experimental work and also sharing one's scientific results with other scientists. Communications are thus vitally important!

Remuneration for the academic tends to be lower than that obtainable for comparable work in industries or government service in most countries. For this reason being an academic is usually a career choice less preferred by men [1]. Women in academics state that they spend a large parts of their time both at home and at school with scientific activities. Thus their work is also carried out at home beyond normal working hours. It is well known that women usually undertake multiple roles at home and in academia. The number of women decreases as they progress on the managerial ladder. However, there is still a certain female profile of those who prefers to be in academics. Some women have indeed put their career at the center of their lives and they marry and have children in the later stages of their career or sometimes not even then!

The term “glass ceiling” has often been used to describe the invisible obstacles which prevent women from entering upper management and leadership positions [2, 3]. This “glass ceiling” regrettably prevents women from employing their abilities and achievements independently [4]. Korkmaz has written that the

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desire of men to maintain power in their own hands is yet another obstacle facing women moving upwards to higher positions [5].

Another area of concern for academics is the issue of Nobel prizes (introduced in 1901) which aim to reward those who served humanity in several fields. Between 1901 and 2017, the Nobel Prizes and the Prize in Economic Sciences were awarded 585 times to 923 people and organizations. The number of women awarded Nobel Prize is 48, which is only 5 % of the total. Only one woman, Marie Curie, has been honored twice, with the 1903 Nobel Prize in Physics and the 1911 Nobel Prize in Chemistry [6].

Women in academics in Turkey

The Turkish Republic in 1923 was founded on the premiss that “A nation consists of women and men: they could not be divided and selected. It is not possible to distinguish them from each other and they have to work together for our revolution” [7]. The Republic aimed to give women equal status with men. Reforms have certainly made a positive contribution to women starting academic careers in Turkish universities. It was emphasized that it was important for all citizens, women and men, to join equally in contributing to the economic, social and cultural life of Turkey. After 1923, women’s social and political rights gradually improved as Turkish Civil Law provided many rights for women.

Academic careers in Turkey are seen as a convenient and secure profession for women. Women in academic life present the image of “the respectable Turkish woman”. However, despite the overall high percentage of women academics, women in executive and administrative positions are still far fewer than men in Turkey [8–10]. The salaries in academy in Turkey are usually low compared to the private companies as seen in some other countries. But there is no difference between women’s and men’s salaries at the same level in academia in Turkey.

According to the Turkish Council of Higher Education’s (YOK, 2017–2018) statistics regarding higher education, in the 2017–2018 academic year, the number of academics at the universities is more than 158 000 [11]. The percentage of female academics is 44.3 %, (more than 70 000). Almost 25 000 of these are professors while the percentage of female professors is 31.2 %. I note that the number of female rectors in the 2017–2018 academic year is only 15. This is about 8 % of the total.

My academic career

An academic career was one of my goals that I had dreamed of since secondary school. After finishing high school with better than satisfactory grades, I wanted to continue my education in chemical engineering at a university in Istanbul. I chose Istanbul Technical University, one of the finest universities in Turkey. I was fortunate enough to be admitted to Istanbul Technical University. To enter one must take a general exam and obtain a good grade. Frankly, I had to study very hard for this competitive exam. Luckily in the end, I was admitted to this great institution.

After completing my undergraduate education I obtained my master’s degree at Bosporus University, also a prestigious university in Turkey. I graduated with honors. After graduating from Bosporus University, I gained professional experience by working with water treatment systems for 2 years, which actually is the only industrial experience I have had.

What happened next?

By taking another oral and written examination I was successful in becoming a Ph.D student in Istanbul University (I.U.). At the same time I was accepted as a research assistant at I.U. (the oldest and largest university in Turkey). Now, as a research assistant, I had started on the first step in my academic life. Lucky me!

I didn't have any problems during my student life but this certainly changed as my carrier developed. I was soon aware that being an academic was not limited to traditional office hours. Progress at the academic level depends on academic performance as measured by the production of novel materials and ideas and also of course by publishing many papers in one's chosen field. Therefore during my carrier advancement, it was necessary to continuously read, research, discuss, publish and so forth. Such studies especially are perhaps a little more difficult in chemistry. For example, experimental studies in this field are very important and sometimes this experimental work could continue for days or weeks, without in the end producing satisfactory results.

Returning to my own situation I must note that I have received various forms of recognition and various awards in my academic life as a woman scientist. One of the prizes that made me most proud was to receive the "IUPAC Distinguished Women in Chemistry and Chemical Engineering Award" given by IUPAC at an international meeting in Puerto Rico in 2011. I note incidentally that 2011 was the International Year of Chemistry (IYC) dedicated to the 100th anniversary of Marie Curie's Nobel Prize in Chemistry. Also my election as the first female Council Member in the Federation of Asian Polymer Societies (IUPAC-FAPS) in 2017, made me proud to be recognized as a female scientist.

In addition, I have enjoyed various roles in professional chemical societies. During my academic life in Turkey for example I have been the Deputy Chairperson of the Turkish Chemical Society, and I was the Founding Chairperson and Board Member of the Marmara region branch of the Turkish Chemists Society. I have been the organizer of chemistry and chemical education congresses and acted as the chairperson at these meetings.

On the other hand, I have also faced some of the injustices that are all too common in the academic world. For example, I worked very hard as a female academic in preparation for the International Chemical Congress that is held every 2 years by spending extraordinary efforts. In the end my contribution was neglected and I was not take part in the organizing committee. This experience of unfair behavior did not discourage me, in fact, it pushed me to work even harder against this unfair environment. Therefore, today I have become an inspired woman as an academic and a professor.

Conclusion

In conclusion, may I offer some advices to young female scientists?

- They should recognize their potential.
- They should recognize the importance of academic work as a contribution to society. Rigorous and clear communication training in critical thinking are important.
- They should build their own confidence by good preparation and planning. Deal with the job demands.
- The idealism of youth should be retained but it is necessary to gain a lot of experience and pragmatism as to how things are done in the academic world.
- They should undertake some very tough assignments along the way to achieve their big goal of being an academic.
- The idea of becoming an academic is very easy to define but how to get there is much more difficult.
- They should keep their success in their hands.
- They should not let others make use of your efforts and achieve success.
- As a woman, you have the capacity to perform different types of work and can do a lot at the same time.
- We as women can overcome many challenges

I have always been proud of my work.

- Having this career has been very rewarding to me. I have met well known scientists all over the world and I have had the chance to collaborate with some of these scientists. For example; In 2001, I met and started to work with Prof. Frank Karasz who is a famous polymer scientist. I spent a year at the University

of Massachusetts; and here continued my work with Professor Karasz to this day. I also brought some of my female students to work with me at University of Massachusetts to further encourage them. I was very motivated and encouraged to be an inspiration to them.

- I believe that I was a good example to my fellow students. Especially to my female fellow students who have followed my footsteps.
- I have encouraged my students to be independent and to be critical thinkers and to develop their self-confidence.
- One must keep in mind that academic life style needs some sacrificing in life and requires continuous improvement

Here is final conclusion. You open up your horizon by yourself, encourage young people and let the young scientists follow you. Because it could be a wonderful life for them and they can make such terrific contribution to the field of chemistry. As a result, I have to admit that I am very satisfied with my job and scientific field of polymers and chemical engineering. I am very happy to have advanced in my academic life. I believe in the power of women and what we are capable of, so I suggest to those women out there that they should be aware of their potential and follow their dreams.

Article note: A special collection of invited papers by recipients of the IUPAC Distinguished Women in Chemistry and Chemical Engineering Awards.

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