



WORKING AGAINST A STACKED DECK

The struggles of female STEM majors

THE DEFINITIVE **YOUTH** MAGAZINE
SHOUT

RABITA SALEH

Employment in Science, Technology, Engineering and Mathematics — or STEM — fields has been dominated by the male population since their origin. Some of the lowest numbers of females working in STEM fields can be found in south Asia and the Indian subcontinent, with a fact sheet¹ published by the UNESCO in March 2015 placing their number at roughly 20 percent.

EXPLAINING THE DISPARITY IN NUMBERS

Research² conducted upon gender differences in spatial ability and its implication regarding STEM education has shown that due to males generally being brought up playing outdoors, they develop better spatial visualisation from an early age. This in turn enables them to become better at STEM subjects in school. The paper also shows that given the same kind of upbringing girls achieve the same level of success in mathematics and science. Typically in Bangladesh, girls

are not encouraged to engage in activities that would improve their spatial abilities, leading to a competitive disadvantage in these subjects. Hence a lack of confidence and interest in the technical fields of STEM is cultivated from childhood. This is one of the reasons which explain the fewer number of females in STEM fields compared to men.

Despite their upbringings, an extensive research³ that goes into multitudes of reasons for the differences in the innate ability of both sexes in grasping scientific and mathematical concepts, provides conclusive data illustrating that “there is no single factor by itself that has been shown to determine sex differences in science and math”. It states that no simple generalisation can be made regarding which one gender is better than the other in these subjects.

In recent times, especially in the last couple of decades, women have finally broken numerous barriers and managed to carve out their own niche in these fields. However, regardless of the

increased number of females in STEM majors in Bangladesh and around the world, most women face gender-based discrimination of varied proportions at every step of the way.

While majoring in STEM fields, some unexpected hurdles lie in store for the females in the crowd. **DISCOURAGEMENT TOWARDS CERTAIN TYPES OF JOBS** “Most people think girls are naturally adept at working in research fields rather than in the industrial arena,” says Samira Mahmood, fourth-year Computer Science and Engineering (CSE) major from North South University.

These perspectives are not isolated, as is corroborated by Tajbia Hossain, third-year CSE major at Ahsanullah University of Science and Technology, who says, “Teachers always want our lab groups to have at least one boy. They think that an all-girls group won’t be able to handle all the equipment.”

Farah Neha, third-year Civil and Environmental Engineering major at



another male PhD student told him the exact same thing, he went along with it.” With the same level of experience, and sometimes while voicing identical ideas, women find it much harder to have their voices heard.

A DIFFERENT SITUATION IN LIFE SCIENCES

The only STEM field in which gender-based discrimination at undergraduate levels does not appear to be a major concern are life sciences. This is perhaps the case because, of all STEM subjects, biological fields are thought to not require extensive visual-spatial ability or mathematical skill. Regardless of the accuracy of this notion, its outcome has been a more equitable educational system.

Fariha Akhter Chowdhury, currently studying International Master in Innovative Medicine at Uppsala University in Sweden, who completed her graduation in Pharmacy from Bangladesh, states that she did not face any gender-based discrimination in the academic level, and everyone was judged according to their intellect.

First-phase medical student at Popular Medical College, Fahemun Karim Mehika,

NSU, elaborates, “If some data needs to be recorded from a site, it’s common for teachers to say, ‘You can’t do it, let him handle that.’” If females are missing out on these crucial learning experiences while studying the same major, it can only lead to further struggles in the future and propagate the already existent conception that, regarding their field of study, females have less knowledge than males.

SUBTLE DISCRIMINATION

Perhaps the most common form of gender-based discrimination faced is of a subtle nature, taking root in slight comments and insinuations.

Hossain discloses the story of a male teacher from a Safety Management and Industrial Law course who proclaimed that “boys are better than girls at maths”, when approached by a student who went to clear some confusion she had with a mathematical problem. Such comments, which are unfortunately familiar to all women, have the power to break one’s self-confidence and needlessly make one doubt whether they have chosen the wrong path for themselves.

The problem isn’t necessarily limited to being a local one either. Fariha Samira Rahman, undergraduate research assistant at the University of Texas in Dallas reveals, “I’ve seen male master’s students questioning my female PhD students on issues where she was telling him what he was doing wrong. He was arguing instead of following her instructions, but once

asked whether she believed male and female students were treated equally in medicine.

The struggles don’t stop with the completion of one’s bachelor’s degree however. On the contrary, most women would describe attaining and then working in a desired position in a STEM field as a much more challenging task, with gender-based discrimination growing in transparency.

STRUGGLES POST GRADUATION

Aparajita Goswami, Head of Voice & Data Service Operations at Grameenphone Ltd., who completed her BSc in Electrical and Electronics Engineering from BUET, identifies the major concerns females have upon entering the employment sector.

She mentions that employers during her initial years were not as attentive towards building up the careers of the females in the company as they did for the males. They may have thought that they wouldn’t be able to be as demanding with females as they are with males about extra hours.

Something she stresses is that she does not want prioritisation. She does not want to be allowed to leave meetings early. “Even though a lot of managers think that they are helping us, that is not a favour; it’s just another form of discrimination.”

“When I talk to male employees abroad, sometimes they cut our meetings short because the day-care closing hours are upon them. But here, it’s unimaginable that a male would do that,” says Goswami. She expresses that if our familial responsibilities were divided even partially between the males and females, then work-life balance could be dealt with much better.

She is the first female to be handed the position she currently holds, because it is a role where she is on-call 24/7. “I took on this challenge and it is in fact difficult to maintain work-life balance, but I have a supportive family and that helps immensely.” She reveals that recently Grameenphone has taken initiatives to mitigate challenges faced by female employees, and claims that if these initiatives were taken when she first joined, she could have reached her current position years earlier.

To female STEM hopefuls, she advises that they should be very clear about their



aspirations from the beginning of their undergraduate level, and build themselves up accordingly. She further states that no one will solve your problems if you do not vocalise them, so “You should speak your heart.”

Earlier, Goswami was also one of the initial female engineering recruits at a large multinational firm. She elaborated her struggle to convince less educated fifty-year-old male employees there to accept a younger female engineer as their supervisor. In the struggle to prove one’s qualifications in STEM, she’s definitely not alone.

Afnan Rudabe Rahman reveals that on the first solo meeting she conducted for her company, the initial thirty minutes were spent explaining her credentials. The client inquired after her major, the institution from which she graduated and her CGPA as well. “The way he asked me those questions in the beginning, I’m sure he thought I wasn’t qualified enough for my job,” she says.

Furthermore, in the life sciences where previously discrimination had not been a concern, Fariha Chowdhury rightfully states

that, “It’s a different picture when you start looking for a job in this field.”

Sadia Afrin Shorma, Sr. Executive, International Marketing, Beximco Pharma Ltd., mentions that her job had been at risk of being handed to a male applicant, regardless of her outperforming them in the written exam, because it required travelling abroad. She had to convince her employers that she could perform all the travel required for the position, before they decided to hire her.

Pauline Francisca Gomes, Intern Doctor at Bangladesh Medical College and Hospital, imparts that when it comes to internal medicine, patients tend to prefer male doctors. She says, “Perhaps the patients get psychological peace thinking they are in safe hands.” She admits that females are more susceptible to negative bias from patients, but also says that male doctors sometimes have to struggle as well.

Having to prove one’s abilities repeatedly despite possessing a degree that certifies said abilities is a physically and mentally exhausting ordeal. It is one that females who have chosen traditionally male-dominated fields have to face regularly. We may have come leaps and bounds from the times when engineering, medicine, or scientific research were solely male careers, but regardless of the increasing number of women in these fields, there are still miles to be covered and mountains to be conquered before gender parity is achieved in STEM.

Bibliography:

1. *Women in science: quarterly thematic publication, issue 1, March 2015, UNESCO Office Bangkok and Regional Bureau for Education in Asia and the Pacific*
2. Reilly, David & Neumann, David & Andrews, Glenda. (2016). *Gender Differences in Spatial Ability: Implications for STEM Education and Approaches to Reducing the Gender Gap for Parents and Educators*. 10.1007/978-3-319-44385-0_10
3. Halpern, D. F., Benbow, C. P., Geary, D. C., Gur, R. C., Hyde, J. S., & Gernsbacher, M. A. (2007). *The Science of Sex Differences in Science and Mathematics. Psychological science in the public interest: a journal of the American Psychological Society*

Rabita Saleh is a perfectionist/workaholic. Email feedback to this generally boring person at rabitasaleh13@gmail.com



The addition of equal opportunities to the status quo may just be enough to drive women to a position of relative parity in STEM fields.