

Malaysia's gender gap in STEM education and employment

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Introduction

Despite outnumbering men in tertiary education globally, women are still underrepresented in science, technology, engineering and mathematics (STEM) education and employment.

According to a 2022 United Nations report, women comprised approximately 35% of STEM students around the world¹.

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¹ UN Women (2022)

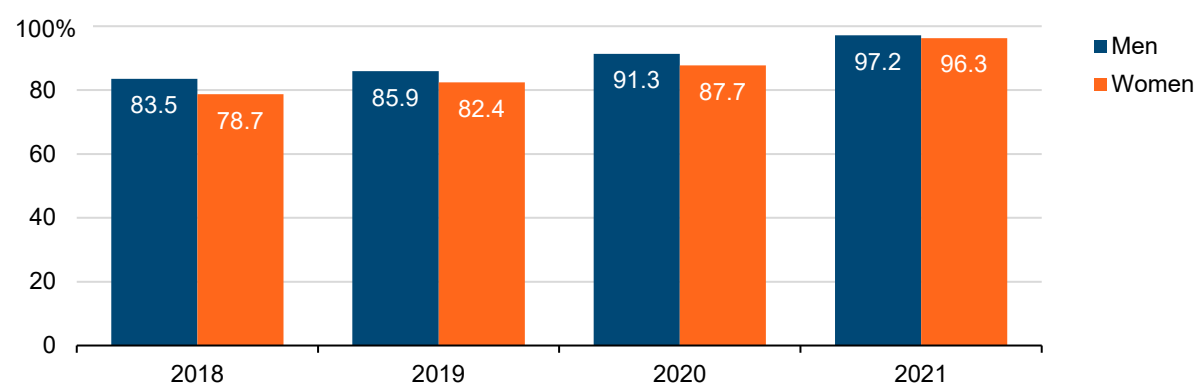
In Malaysia, the Ministry of Higher Education (MOHE) conducts an annual Graduate Tracer Study (GTS) with local graduates regarding their post-graduation status. In contrast to global trends, the study finds that women made up a larger proportion of STEM graduates² from local tertiary education institutions (53.2% in 2021). Nonetheless, men STEM graduates are being hired at higher rates than women.

This article presents an analysis of the gender digital divide and the gender gap in STEM education and employment in Malaysia, and recognises the role of employers in bridging the gap.

The Gender Digital Divide in Malaysia

In Malaysia, the gender digital divide is less a question of internet access, and more of digital competencies. On the whole, internet use by both men and women has been increasing over the years, with the gender gap narrowing in the past four years (Figure 1). The internet use gender gap in 2018 was 4.8 percentage points, which decreased to 0.9 percentage points in 2021.

Figure 1: Internet use rates by gender, 2018–2021

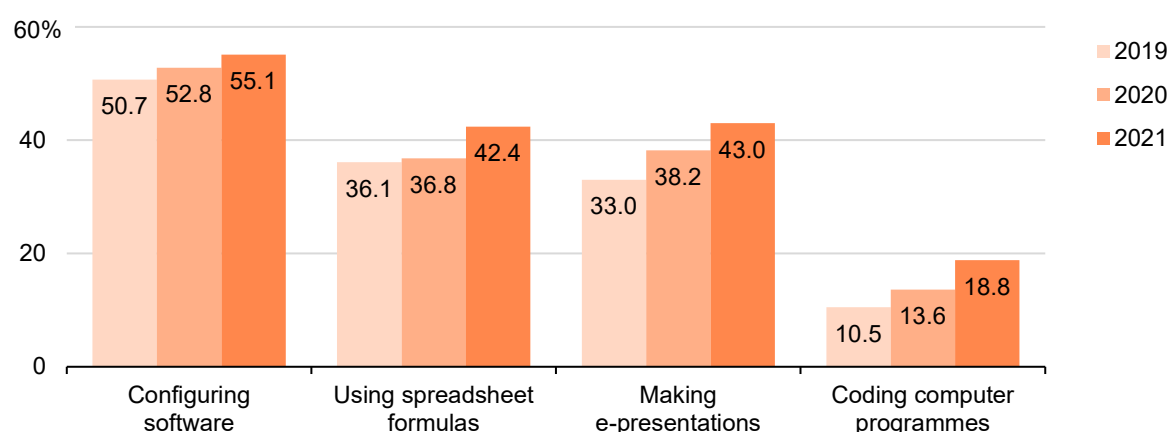


Source: DOSM ICT Use and Access by Individuals and Households Survey Report, 2018–2021

Looking at specific digital competencies, as shown in Figure 2, it is clear that women's digital competencies are improving. Women are becoming more adept at advanced information and communications technology (ICT) tasks, such as downloading, installing and configuring software, using basic arithmetic formulas in a spreadsheet, creating electronic presentations using computer software, and writing a computer programme using a specialised programming language.

² Graduates is used in this article to refer to holders of bachelor's degrees, postgraduate diplomas, Masters degrees, and PhDs.

Figure 2: Share of women's ICT skills, 2019 - 2021

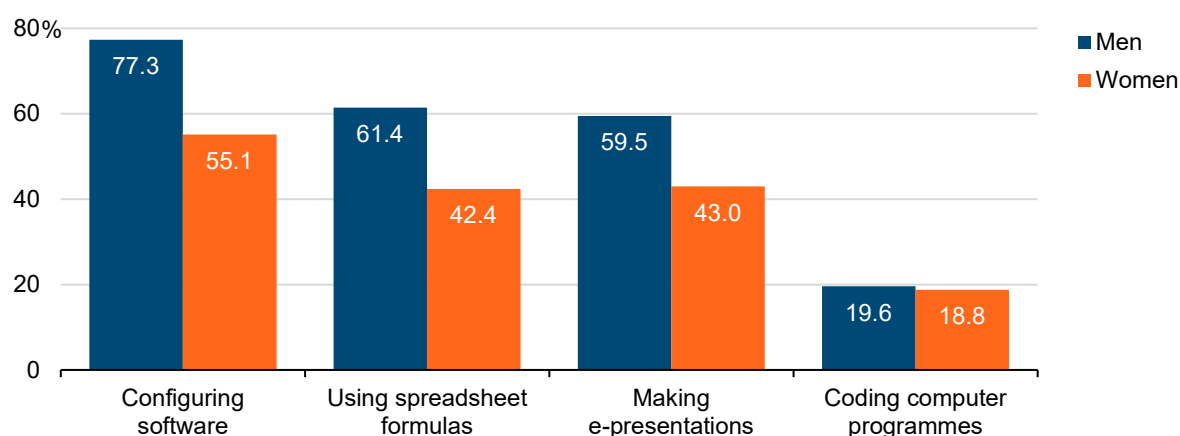


Source: DOSM ICT Use and Access by Individuals and Households Survey Report, 2019–2021

Despite these improvements, Figure 3 shows that there are much larger gender gaps in these advanced skills compared to internet use. In 2021, 42.4% of women computer users reported using formulas in a spreadsheet and 43% reported creating electronic presentations. In the same year, 61.4% of men reported using spreadsheet formulas and 59.5% reported creating electronic presentations³. Both of these skills are increasingly in demand in professional jobs.

When it comes to technical skills, 55.1% of women computer users reported being able to download, install and configure software while 18.8% of women computer users reported being able to code a computer programme. In comparison, similar skills were reported by 77.3% and 19.6% of men⁴, respectively. Although there appears to be a large gap in terms of systems administrative tasks such as setting up software (22.2 percentage points), the coding gap is much smaller (0.8 percentage points).

Figure 3: ICT skills by gender, 2021



Source: DOSM ICT Use and Access by Individuals and Households Survey Report, 2021

³ DOSM (2022)

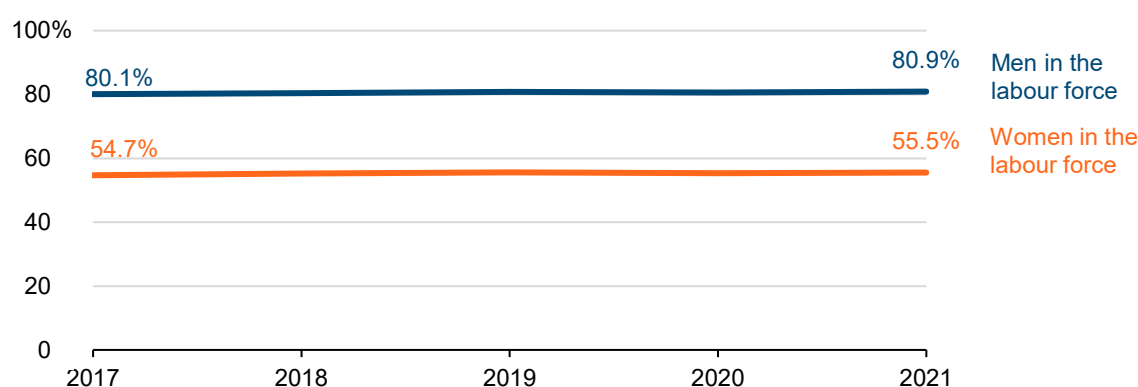
⁴ DOSM (2022)

The variation in these skills gaps is possibly due to experience versus education. Men are perhaps more likely to perform systems administrative tasks, for example installing a wireless router in the home or adding a computer to the home network. Coding, on the other hand, may be a skill more likely to be learned in a class, where there may be more gender parity in opportunity.

Gender Gaps in STEM Education and Employment

Moving from gender gaps in ICT use to the workforce, we see that the gender gap in Malaysia's labour force participation has been fairly consistent over the past five years, with about 80% of men working or looking for work, and about 55% of women (Figure 4).

Figure 4: Labour force participation by gender, 2017 - 2021



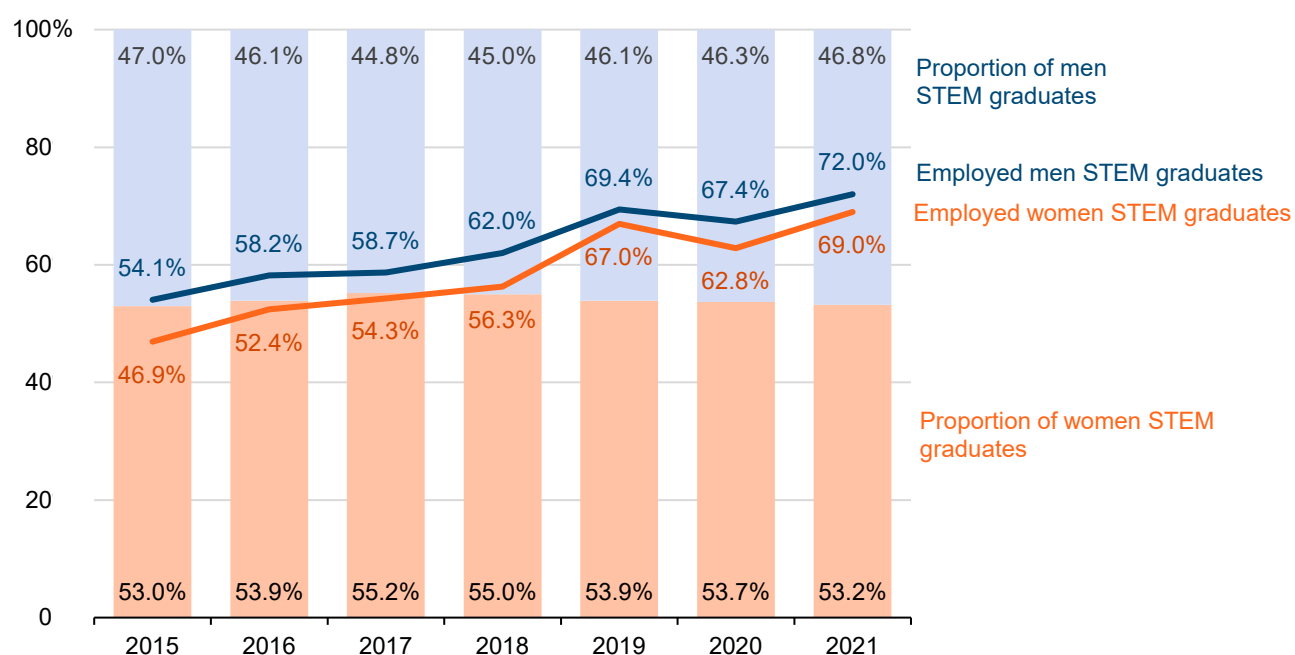
Source: DOSM Labour Force Survey Report 2022

In terms of STEM education and employment, data from MOHE's GTS suggest that Malaysia bucks global trends when it comes to women in STEM education but not when it comes to employment.

The bars in Figure 5 show the proportion of men and women STEM graduates (bachelor's degree and above) from 2015–2021 while the lines show the rates at which men and women STEM graduates are working at the time the GTS survey was administered⁵. We see that women consistently make up the greater proportion of STEM graduates than men, but are hired at lower rates than men.

⁵ The GTS survey is typically administered six months to a year after the completion of studies.

Figure 5: Proportion of STEM graduates and employment rate, by gender, 2015–2021



Source: MOHE Graduate Tracer Study, 2015–2021

This analysis does not delve into the gender gap in salaries and wages, career progression or specific employment industries (whether STEM or non-STEM). Nonetheless, the findings suggest that despite the narrowing gender gap in STEM graduate employment, one of the factors affecting Malaysia's women's labour force participation rate may be employers preferring to hire men over women.

A recent survey by the Associated Chinese Chambers of Commerce of Malaysia (ACCCIM) found that 41.3% of 761 respondents expect expanded maternity leave provisions to reduce women's employability⁶. Employers indicated they would hire more men than women to mitigate the extra costs of an amendment to the Employment Act that increased maternity leave from 60 to 98 days. This reaction to maternity leave could be harmful to society in at least two ways.

First, employers not wanting to hire women could reduce women's labour force participation. Research has found that more women participating in the labour force is associated with increased gross domestic product (GDP), labour productivity and socio-economic development⁷. Pushing women out of the workforce could have the opposite effect, slowing or hindering national growth.

⁶ ACCCIM (2023)

⁷ Ma (2017)

Second, employers thinking that maternity leave is simply a cost burden devalues care work. KRI's earlier research on the care economy makes a case for the economic and social value of care work to the country⁸. Care work is necessary work to ensure the well-being of society and often goes unpaid or underpaid compared to similar functions in the service economy. Rather than being penalised by discriminatory hiring practices, women should be commended and compensated for carrying the lion's share of the care workload.

Conclusion

Given the rapid infusion of technology into the economy, STEM skills, including digital skills, are likely to be in higher demand in the workforce. More women are graduating with degrees in these fields and demonstrating growing technical abilities but are being hired at lower rates than men. Employers could and should do more to promote gender parity in hiring practices.

⁸ KRI (2019)

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