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Empowering women in STEM

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Regardless of gender, everyone has the same potential to learn

Live&Learn

IF men and women participated equally in the economy, this could lead to an annual contribution of some US\$28tril, or 26 per cent, to the world's annual gross domestic product (GDP) in 2025, a research piece by the McKinsey Global Institute (MGI) revealed.

Yet despite the clear benefits, women participation in science, technology, engineering and mathematics (STEM) is still lacking, and this must change.

In education, Unesco estimates that only about 35 per cent of all students majoring in STEM globally are female. Other estimates place it between 20 and 40 per cent.

In the global workforce, only 28 per cent of STEM jobs are held by women, meaning that those who studied STEM did not end up in jobs related to their tertiary education.

According to the International Labour Organization, the country with the highest number of women in STEM jobs last year was Georgia, at 56 per cent.

The gender gap is particularly big in some of the fastest-growing and highest-paid jobs of the future, like computer science and engineering.

According to McKinsey, there are less than 20 per cent of women in the technology sector and they earn about half of what their male counterparts earn.

The underrepresentation of women is not surprising as STEM has been dominated by men for decades.

STEM in Malaysia

Malaysia is unique in that the STEM participation rate here tends to be higher when compared to our global counterparts.

According to Academy of Sciences Malaysia (ASM) senior fellow Prof Datuk Dr Halimaton Hamdan, Malaysia has achieved gender parity in STEM with women accounting for 57 per



Exemplary: Malaysia-born Nasa scientist Florence Tan proves that women can be successful in STEM. – 123rf.com

cent of science degree holders nationwide.

In recent years, we have noticed an increase in women enrolling in STEM, specifically in tech programmes such as data science.

That said, the uptake of STEM among females is still lower compared to men due to gender stereotyping, the lack of role models, and the nature of STEM-related work.

The government has placed STEM education as its core in becoming a developed nation, acknowledging the role of women in nation-building with policies such as The National Women Policy and the National Policy on Science, Technology and Innovation (NPSTI) which empower researchers, research and development (R&D), and commercialisation of innovation (C&I). This has resulted in an increase in the number of researchers nationwide.

Against all odds

Malaysia-born National Aeronautics and Space Administration (Nasa) scientist Florence Tan, who has been involved in launching multiple

missions to Mars, Saturn, Titan and the Moon, proves that women can be successful in STEM fields.

According to World Bank data, girls' enrolment in secondary schools rose from 33 per cent in 1957 to 75 per cent in 2018. The increase was propelled by the change of perception in society and in education institutions. The same can happen for STEM.

According to the Coursera Women and Skills Report 2021, STEM course enrolments among women learners in Malaysia increased from 29 per cent in 2019 to a significant 36 per cent last year.

Interestingly, the demand for STEM courses among women learners soared especially during the Covid-19 pandemic as more women had the flexibility to reskill in this tech-driven era, said the American open online course provider's Asia-Pacific managing director Raghav Gupta.

Inspiring women

Work has been done to promote STEM among women. Organisations like Girls Who



Code, Women in Engineering and Women in Technology provide mentoring and role models for women and girls to succeed in the field.

According to a research by Wang Ming-Te and Jessica Degol, which was published in their paper "Gender Gap in STEM: Current Knowledge, Implications for Practice, Policy, and Future Directions", women are more attracted to socially oriented occupations such as biomedical and environmental engineering within STEM fields compared to pure STEM fields like mechanical and electrical engineering.

In our commitment to "leave no one behind" and to fulfil the United Nations' 2030 Agenda for Sustainable Development, closing the gender gap in science is essential.

This is being done through the provision of equal opportunities for male and female learners, and implementing specific policy measures on STEM education such as teacher capacity building, motivating girls to select STEM, developing gender-sensitive guidelines on curricula, and promoting gender equality.

One should never determine the ability of a person to study STEM based on gender as everyone has the same potential to learn.

Although improvements have been done in the past to narrow the gender gap, especially in STEM fields, the endeavour to make Malaysia a zero gender discrimination country still requires a concerted effort from all levels of society.

It might be easier to promote and inspire women in STEM nowadays compared to the past but we still have a long way to go before we can claim success.

Role models

Besides Nasa's Tan, Malaysians can also be proud of Dr Chai Lay Ching and Prof Datuk Dr Asma Ismail. Dr Chai is attached to the Institute of Biological Sciences, Universiti Malaya, and she is the chairperson of the Young Scientists Network-ASM.

She is known as a key opinion leader in the field of food safety and microbiology and was awarded the L'Oréal-Unesco Women in Science Award in 2018. She also made the 25 Marie Claire Amazing Women in Malaysia and Prestige 40-under-40 lists in 2019 for her achievements in the field of science.

The first woman appointed vice-chancellor at Universiti Sains Malaysia and Universiti Sains Islam Malaysia, Prof Dr Asma is also the first female higher education director-general and the first female president of the ASM.

She is passionate about championing policy reforms which impact the science community, as well as changing perceptions of research where she encourages effective use of government and publicly funded grants for academic research to find solutions to real-world issues.

While we do have female role models in STEM, we clearly need more – not only in STEM, but in the C-suites too. Malaysia is currently on the right track towards achieving gender parity but support from all stakeholders are needed to encourage more participation of women in STEM.

Role models might be effective in inspiring women but support from family members such as their husbands, fathers and siblings are important confidence boosters.

Prof Dr Elizabeth Lee is the chief executive officer of Sunway Education Group. A veteran in the field of private higher education, Prof Lee is also an advocate for women in leadership. She has been recognised both locally and internationally for her contributions to the field of education. The views expressed here are the writer's own.



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SUMMARIES

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