

Girls fare just as well as boys in science and maths but later feel less confident in their abilities: NTU study



The study indicated that women are less likely to work in the science, technology, engineering and mathematics fields. PHOTO: ST FILE



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UPDATED 1 HOUR AGO ▾

SINGAPORE - Girls do just as well as boys in science and mathematics in school, but feel less confident about their abilities later on in life, a study by Nanyang Technological University (NTU) has found.

The study also indicated that women are significantly less likely to work in the science, technology, engineering and mathematics (Stem) fields, despite a sizeable proportion of them being keen on jobs that require such skills.

The study of 738 Singaporeans showed that just 58 per cent of women who graduate with Stem degrees or diplomas here go on to have related careers, compared with 70 per cent for men.

The social perception that they do not belong in science also contributes to the lower representation of women in Stem jobs, it found.

The study's findings were published earlier this month in a report titled Closing the Stem Gender Gap In Singapore.

It is the work of three academics - Dr Chua Sook Ning, NTU clinical psychologist and senior research fellow; Associate Professor Sierin Lim from NTU's School of Chemical and Biomedical Engineering; and Associate Professor Kimberly Kline from NTU's School of Biological Sciences.

The report underscores the need to dismantle barriers to women's participation in Stem, delving into several aspects such as the career pathway of Stem graduates in Singapore and beliefs about whether women belong in Stem.

It also looked at the gender differences in preferred career activities, and their confidence levels in science and mathematics abilities.

At a forum on Wednesday (March 30), NTU president Subra Suresh highlighted several key points of the study - fewer than half of all female degree students pursue Stem-related courses, and even fewer go on to join the Stem workforce.

Women make up a third of engineering and information technology degree graduates and a third of local researchers and engineers, he said, speaking at the Nanyang Business School International Women's Day Forum 2022.

Prof Suresh said NTU has, over the last few years, recruited and appointed accomplished women to senior leadership roles, including vice-presidents, deans, chairs and division heads.

Its Promotion of Women in Engineering, Research, and Science initiative, which was launched last year, has also been actively highlighting inspiring women engineers, scientists and innovators.

Prof Lim told The Straits Times that a key finding of the study was that women were just as inclined to job tasks that are typically found in Stem careers.

Some 29 per cent of them reported that they preferred "realistic" career activities, comparable to 26 per cent for men. Such work involves orderly or systematic use of objects and tools.

Fourteen per cent of women also said they preferred "investigative" work, referring to activities involving observational, systematic and creative investigation of phenomena. The figure for men was 12 per cent.

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Prof Lim said these results were surprising, given the existing notions in Western culture that women were not as interested in such fields of work.

Another finding from the study was that women do not feel as confident about their science and maths abilities as men. This is despite Singaporean girls faring as well as boys in Programme for International Student Assessment maths and science assessments.

The study had asked participants to report how confident they were in solving science and maths tasks such as explaining science concepts and understanding graphs, or solving equations.

"Our hypothesis is that it is a combination of these three factors - gender stereotypes, self-perception - that involves cultural aspects of how we bring up our girls - and motivation, that contribute to the gap between their school performance and confidence," said Prof Lim.

Women's perceptions of whether they fit into the sector also made a difference in whether they would stay on in a Stem job, the report said.

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Those who joined a Stem career from a non-Stem diploma or degree, or who left a Stem career after attaining a related qualification, were more likely to perceive that their male counterparts have an easier time obtaining a Stem job and progressing in the field than them.

On the flip side, women are more interested in Stem when they believe they belong in and can succeed in the field.

The report recommends that society, including employers, needs to examine practices and policies which hinder women from participating in Stem.

Said Prof Lim: "We have some work to do to create an environment that allows women to feel that they belong in Stem and can pursue their passions."

She added that the team is conducting more research on how women fare in the Stem industry to understand the possible barriers that hinder them from progressing. Those interested in taking part in the study can visit [this link](#).

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