

Women much less likely to pursue careers in Stem fields: NTU study

Results also show they are less confident than men about their abilities in science, maths

Amelia Teng
Education Correspondent

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 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 of NTU's School of Chemical and Biomedical Engineering; and Associate Professor Kimberly Kline of NTU's School of Biological Sciences.

The report underscores the need to dismantle barriers to women's participation in Stem, delving into aspects such as beliefs about whether women belong in Stem fields.

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

At a forum yesterday, 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.

Professor Suresh said NTU has, over the last few years, recruited and appointed accomplished women to senior leadership roles. Its Promotion of Women in Engineering, Research, and Science initiative 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 doing 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 the orderly or systematic use of objects and tools.

Fourteen per cent of women also said they preferred "investigative"

work, or activities involving observational, systematic and creative investigation of phenomena. The figure for men was 12 per cent.

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 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 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.

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 in the Stem 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.

Prof Lim said: "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 will conduct more studies on how women fare in the Stem industry to understand the possible barriers that hinder them from progressing.

ateng@sph.com.sg