Some of the brightest prospects for the careers of tomorrow are in STEM. Therefore, it is concerning that significant numbers of Hong Kong girls are closing themselves off to STEM careers, as evidenced by the marked gender skew in STEM-related DSE subject choices and university degree enrollments.

To gain a greater understanding of the attitudes of girls and in particular junior secondary school girls towards STEM, TWG - with support from Goldman Sachs Gives - commissioned Dr Dannii Yeung and Dr Mario Liong to produce a report examining Hong Kong female students’ inclination not to select STEM subjects. Nearly 1,000 female secondary school students and teachers from five girls-only and eight co-ed schools in Hong Kong participated in the study. Findings from the research point to a broad set of barriers to girls pursuing STEM subjects.

**BARRIERS TO GIRLS PURSUING STEM SUBJECTS**

- Girls’ self-perceived strengths and their career decisions are shaped by society and their environment, which influences their “choices” to pursue STEM subjects and careers.

- The lack of core sciences in the mandatory DSE subjects and girls’ decision not to pursue physics and ICT at DSE negatively impacts girls’ opportunities to pursue STEM-related university choices and careers.

- Many girls say they find STEM subjects boring because they associate them with dry concepts, mechanical exercises and an emphasis on individual performance.
These findings suggest that in order to increase the number of girls choosing STEM subjects, the following considerations are relevant and important:

**RECOMMENDATIONS**

1. **Emphasise Creativity & Collaborative Project-Based Learning Opportunities**
   - Girls at girls-only schools see more value in, and have more confidence to pursue, STEM subjects.
   - Teachers at girls-only schools are more committed to increasing girls' confidence and abilities in STEM.
   - Positive early physical or emotional experiences with STEM make a huge difference.
   - Negative stereotypes continue to persist that STEM subjects are more suitable for boys.
   - Parents lack information on STEM career options.
   - Media and popular culture promotes stereotypes about STEM fields being a male domain.

2. **Re-create the same supportive culture for girls at girls-only school across the education system**

3. **Provide more support and training for teachers**
WHAT CAN PARENTS AND FAMILIES DO?

• Help your daughter know that effort and appropriate experiences, rather than natural ability, are mainly responsible for STEM success.
• Provide girls with early technology and STEM experiences and familial encouragement to pursue these interests.
• Talk about how STEM subjects are important and relevant to school, work and everyday life.
• Discuss media representation and unconscious biases with your girls. Debunk narrow and limiting stereotypes by discussing how women in STEM are just like other women in other professions and sectors.
• Educate yourselves on new and emerging career pathways in STEM.

WHAT CAN SCHOOLS AND TEACHERS DO?

• Offer Kindergarten through Secondary STEM programmes (whether as core or extra-curricular programmes) and encourage girls to apply.
• If you are a teacher or educator, avoid perpetuating biases such as confusing prior experience with innate ability, treating STEM as a masculine field or equating students’ confidence with future success.
• Adopt more of a problem-based teaching and learning approach and include more collaborative team projects related to STEM.
• Leverage industry support to stay abreast of new and emerging career pathways in STEM and the preparation required to enter those careers.
• Leverage industry support to find mentors for girls interested in STEM.

WHAT CAN THE GOVERNMENT, LEGISLATORS AND POLICYMAKERS DO?

• Press for the continuous review of, and improvements to, STEM education in Hong Kong and investment in teacher training and related resources.
• Ensure government departments apply a gender lens to new policies and programmes to promote STEM education and career pathways, recognising that girls don’t start from the same level of the playing field as boys.
• Provide resources and training - including gender-sensitivity training - to schools and teachers so that they can implement initiatives to address the current gender imbalance in STEM.
• Encourage initiatives to inspire and develop girls’ interest to select STEM-related subjects especially physics and ICT as DSE subjects. Publicise girls’ academic accomplishments in physics and ICT.
• Ensure STEM learning materials include female role models and avoid gender stereotypes.

WHAT CAN BUSINESSES DO?

• Promote the importance of, and excitement around, careers in STEM for women and girls. Through careers fairs and career talks at schools, help families and girls understand the ways that STEM can be used in a variety of fields to solve important problems and highlight that STEM jobs are well-paying and likely to be plentiful.
• Promote female role models within the business and make them available as inspirational speakers for girls and their parents.
• Partner with NGOs and education providers to fund/enhance their STEM programmes to ensure they also reach girls from under-privileged families.

WHAT CAN THE MEDIA DO?

• Spotlight more female STEM role models and promote the exciting careers and lifestyles offered by the STEM sectors.