

# Young Engineers' Role in Cultivating STEM



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**S**TEM (Science, Technology, Engineering & Mathematics) is becoming increasingly important and today, the application of science and technology is the norm in our daily lives.

Technology continuously invades every aspect of our lives, from smartphones to the development of electric cars and finding solutions to global warming. Indeed, STEM plays a major role in the world, with the result that most careers now require a background in STEM education.

Indirectly, STEM influences the economic growth of a country and today, it has become one of the competitive areas that determines a nation's future.

Because of this, the Malaysian government has taken great effort to promote STEM. In 1970, it was our national policy to achieve a 60:40 ratio of Science stream to the Technical Arts stream but we have fallen well short of the target since its implementation.

Recent data showed that only 45% of students in secondary schools chose Science subjects over Technical Arts and that 15% who met the requirements to pursue Science, did not do so. Some of the factors leading to the decline in interest in STEM are limited awareness about STEM, perceived difficulty of STEM subjects and content-heavy curriculum.

Young engineers play a very important role in promoting STEM. As a new task force in the industry, they can contribute to the betterment of society. Through experience sharing sessions, they can offer school students a first taste of the industry and so motivate them to take up STEM-related studies. Young engineers should also be able to communicate with and understand school students better as they themselves have left



STEM Model Building Competition 2017

school not too long ago. As a result, school students will look to them as role models when they pursue a career in the STEM field.

Hands-on activities will allow school students to have STEM experiences that are more fun and engaging. These activities also facilitate the development of necessary skills for younger school students. For Engineering Week, the Young Engineers Section (YES) has organised the annual model building competition as one of its initiatives to increase the interest in STEM among school students. For the competition, the students need to be able to think critically and creatively when tasked with building a specific model from a set of materials.

YES has also helped to set up engineering clubs in schools to inspire students who, at the same time, will be able to see the importance and excitement of engineering as a career. Through extra-curriculum activities, students will be able to learn design, technology and engineering more effectively than through textbooks. Allowing students to get a feel of engineering at such a young age will definitely mould their minds and hearts as well as ignite their passion for engineering.

Then there is the perception that STEM is difficult to study. To change this perception, events such as the Kuala Lumpur Engineering & Science Fair (KLESF) can help create greater awareness and knowledge of STEM.

KLESF, a STEM event co-organised by IEM, attracts tens of thousands of visitors annually. YES supports the event as KLESF is a great platform to raise the awareness of STEM among primary and secondary school students. To encourage students to explore STEM, members of YES organised a hands-on learning game



YES volunteers in KLESF 2017

at the recent KLESF. This provided a platform and an opportunity for the young engineers to engage, educate and communicate with school students as well as instill in them an interest in STEM.

As for young women engineers, they are key to knocking down gender barriers.

In our realistic society, there are more environmental and social barriers for female students when they get involved in STEM sectors. Women are expected to marry and then become housewives. Academy of Sciences Malaysia (ASM) fellow Prof. Datuk Dr Halimaton Hamdan said that because of this long-time stereotyping, women tend to have self-doubts about whether they are suited for STEM careers; this has also caused them to feel they're not as valued as their male counterparts.

Of the total 7.6 billion world population recorded in 2018, 49.6% are women. Thus, women should play an important role in STEM too. When more women take part in STEM industries, it indirectly increases the number of people involved in STEM but due to significant gender disparity, men greatly outnumber women in STEM industries.

The Star newspaper reported that when women take part in the management of technology companies, these companies achieve a 34% higher return on investment. This strongly proves that women play an equally important role as men in STEM industries. There is no gender bias in the supply of STEM talent. To encourage the public to break away from gender stereotyping, young women engineers should stand up and be role models for female students.

One of the best female role models in STEM is Y.B. Yeo Bee Yin, Minister of Energy, Technology, Science, Climate Change & Environment and an engineer by training. At 35, she is also the youngest woman to be a full Cabinet minister. She is also a female leader in STEM and serves as a role model for future generations of women to participate in STEM industries.



Y.B. Yeo Bee Yin

Women engineers in STEM leadership roles should share their passion for the wonders of science, working experiences in STEM industries and lessons they have learnt along the way so that the younger generation can understand real world challenges. This way, girls will be able to eliminate their doubts and gain confidence in their scientific abilities so that in the future, they too can be successful in STEM fields.

Young women engineers can also take the initiative to create a STEM mentorship programme to help promote interest and capacity-building in science and mathematics among female school students.

## CONCLUSION

In short, STEM is critical to the growth of our country's economy and it already impacts all parts of our daily lives. Young engineers play an important role in encouraging school students to participate in STEM activities.

Young women engineers should promote STEM to young girls to help overcome the gender bias and cultivate STEM interest among them as well.

To quote Shameema Parveen, CEO of Edutech, "All great inventors in the world have succeeded from never giving up - the ability to keep trying is what makes a good inventor". ■

1. Images source:
2. <http://eduplaying.com/stem/>
3. <http://www.humanresourcesonline.net/malaysia-faces-low-female-participation-in-stem-sectors/>
4. [http://3.bp.blogspot.com/-QPGhoKJoVT0/UM9NcE1sS6I/AAAAAAAAABbA/DY-H6SOIXU/s1600/DSC\\_7066.jpg](http://3.bp.blogspot.com/-QPGhoKJoVT0/UM9NcE1sS6I/AAAAAAAAABbA/DY-H6SOIXU/s1600/DSC_7066.jpg)

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