The importance of engaging girls in the study of STEM (Science, Technology, Engineering, Maths) has once again come to the fore after a report by Graduate Careers Australia (2014) showed female university graduates are earning, on average, 9.4 per cent lower starting salaries than men.

The report found that if women were encouraged to study STEM subjects in school they may consider the more male-dominated fields, such as engineering, which may lead to higher paid professions.

The impact of these findings on students' future financial wellbeing can be great and while not every student will choose to pursue subjects in the STEM field, schools play a very important role in giving students every opportunity to explore the many options available to them and not limit their experiences with stereotypical expectations.

Challenging gender stereotypes is made possible in an all-girls environment, as all students are free to try something that might be perceived as a 'male subject'. There is no competition from boys or fear of being the odd one out. However, the environment is just one part of the equation; piquing students' curiosity is essential for engagement.

At Loreto College Marryatville, middle years students recently programmed microchips as part of an initiative led by local company, eLabronics. Students worked with Science, ICT and Maths staff and university mentors associated with eLabronics to design, build and program relevant micro-controller projects that help solve real-life problems in a sustainability context. The topics covered aspects of Science, Technology, Engineering, Maths and Social and Enterprise Learning (STEMSEL), while also enabling students to develop skills in team work, problem solving, critical thinking, responsibility, respect, leadership and self-confidence.

The workshops fit comfortably with the philosophy and methodology of the IB Middle Years Programme, where the inquiry approach is used to develop a real world context for learning. The broad subject matter met the IB's goal to develop interdisciplinary thinkers who analytically and creatively embrace new ideas to solve some of today's most challenging problems.

Patty Warrender, Loreto College Marryatville's Middle Years Science Coordinator, who helped organise the STEMSEL initiative with eLabronics, said providing opportunities for 'out-of-the-box' teaching and learning is important.

'At a time where women are still under-represented in many of the STEM fields, Loreto is bucking this trend by enabling students to embrace these subjects with many additional opportunities for challenge and extension. In particular, the middle years are crucial in consolidating student interest and faith in the study of Science, Technology and Mathematics,' Warrender said.
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be a valuable learning opportunity. Student reflections ranged from, ‘I never knew how fun technology and using a screwdriver can be! I also found out how people solve problems and the problems they face when trying to solve them’ through to ‘I am now wondering about Technology, Science, microchips, global warming, electricity and the world’s scientific future’ and even, ‘I am wondering if later in my life I will be an engineer for my career’.

The opportunity to challenge girls through exposing them to what may be seen as ‘non-traditional’ disciplines is an ingrained part of a Loreto education. Beyond special initiatives, such as the eLabtronics workshops, exploring subjects without bounds is part of every day learning. Loreto College Marryatville’s Head of Learning Technologies, Ann-Maree Tippins, said learning is not framed by gender in an all-girls environment but instead focuses on empowering students through diverse learning opportunities.

‘The robotics units taught in a couple of year levels are a source of great challenge. Boys could easily dominate girls who have had little exposure to Lego and programming, as such activities are standard fare for the male gender. Girls process, collaborate and create differently; at Loreto they are empowered to do so.’

‘There is an egalitarian expectation that you can ‘have a go’ at anything; if success eludes you, resiliently try again or reconsider other options. Limitations are self-imposed, rather than at the whim of others.’

Schools can play a powerful role in shaping the future generations of women and set them on a path that can lead to greater long-term security and wellbeing. An environment that allows for exploration in all areas ultimately leads to informed students who can pick subjects and eventually career paths that are based on their interests and experiences, rather than stereotypical expectations.

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**REFERENCES**