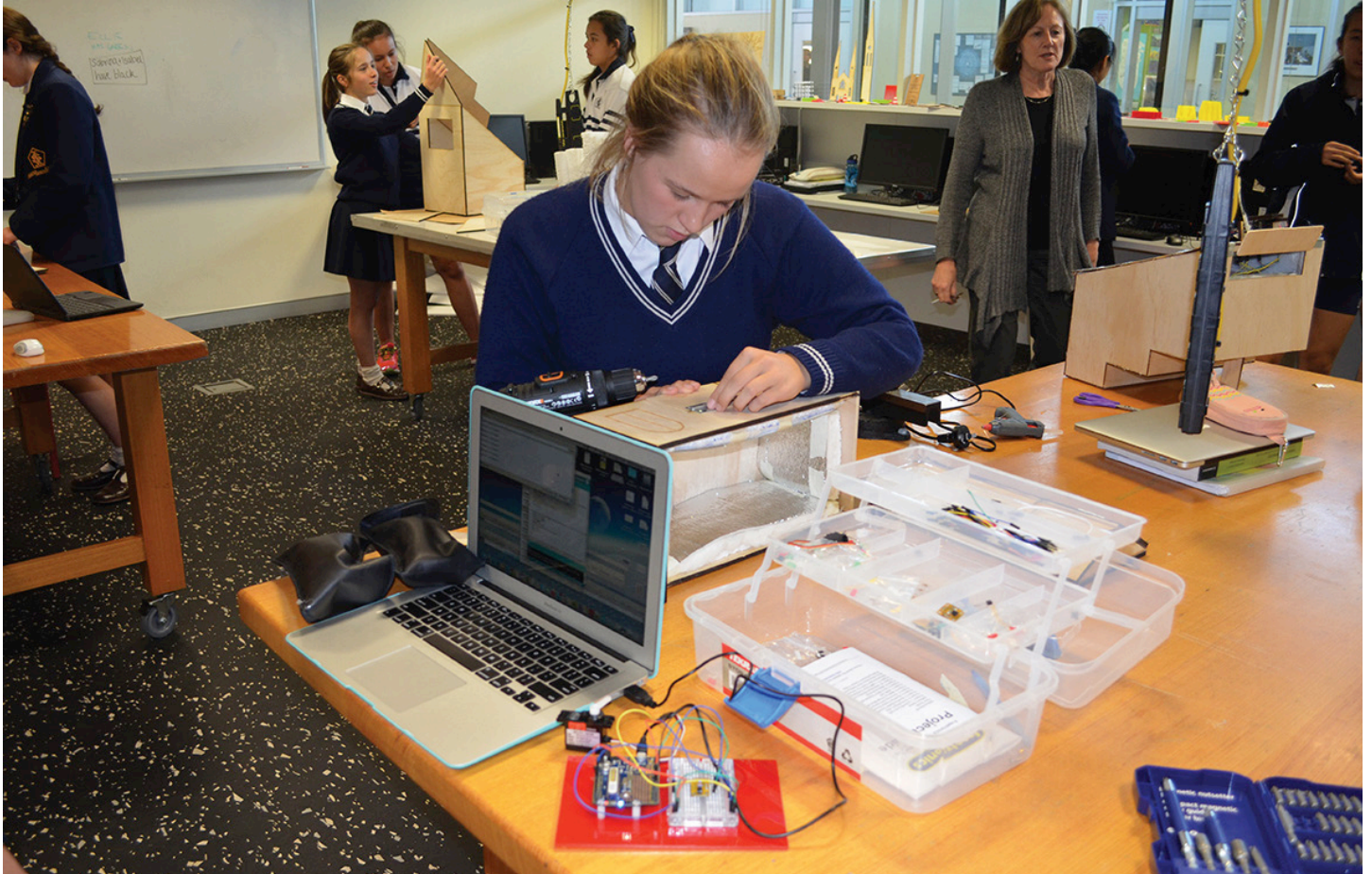


# Lauriston FabLab is transformative

*ET Staff*



**A**fter establishing one of the first FabLabs in an Australian school a year ago, and the very first in a girls' school, staff at Lauriston in Melbourne were expecting the unexpected to a degree. But what has been most unexpected is the speed with which the program has taken off, both within the school and the international FabLab@schools community.

The FabLab@Schools program out of Stanford University in the States has a focus on transformative learning and that has held true at Lauriston with the activity at the FabLab influencing and pushing the way the school's students learn in new directions, promoting a more student-focussed, inclusive style of education through building and fabrication.

Michael Street who heads the FabLab says that a huge endorsement of its viability has been its rapid spread through the curriculum and enthusiastic responses from staff and students.

"Lauriston is already a highly successful school, it follows that the FabLab is a success because it has fit into that kind of environment very quickly", he says.

The kind of learning that takes place in the facility has an accent on cross-curricular activity and that has manifested in creative and exciting ways.

"We provide the students with a structure but encourage them to explore and experiment within that framework. I dislike the word 'failure', we're looking for a scientific process of trial and error and finding new

approaches to get around obstacles," Street says

Students are encouraged to ask questions and work together with the teacher acting more as a moderator and facilitator than an instructor.

Street has been busy instating a professional learning program for other staff members in the use of the equipment in the FabLab. It covers running the 3D printer, laser cutter, programming etc. and has given rise to some very exciting approaches to learning.

And as teachers in other subjects have gained confidence in using the FabLab the cross-curricular education opportunities have abounded, even within the humanities.

Through the FabLab, students are gaining deeper insight into their subjects. Recently a STEM class was given the task of designing an environmentally friendly model house.

It's sophisticated stuff; the students had to program a sensor to open windows in the structure once a certain temperature had been reached, bringing together disciplines like programming, design and STEM into a rich learning experience.

"One of the students decided that she would incorporate a doorbell into her design and worked out the programming and electronics behind that. It's the kind of result that we're looking for; free thought within a structure, deeper exploration of the task at hand," Mr Street says.

"A Psychology class used the facility to build models of the eye. It's amazing what can be done with Christmas balls, perspex and sponges.

"By building the model eyes they were able to discuss the how they



work which lead back into differences between eyes and that effect on perception, for instance how a very artistic person can perceive variations within colour. It all leads to a better understanding of what is being taught.

“We keep the instruction to a minimum, the students undertake a personal exploration of the set project, they’re learning without feeling as though they are learning.”

Lauriston has now found itself as something of a test case for the FaLab@schools movement in Australia. The school hosted an international conference focussed on FabLab@schools in July, which has attracted some very heavy hitting keynote speakers including the Australian Chief Scientist Prof Ian Chubb.

Lauriston’s Principal Susan Just who was responsible for initiating the program has now found her school to be within a dynamic international community. Her travels to Silicon Valley initially sparked the idea and further visits to tech-focussed countries like Singapore have created links with the technology community there as well. One of the workshop presenters at the July conference was Kenneth Lim of the National Institute of Education in Singapore, a widely published technologist with a strong interest in robotics.

The lines of communication have also been opened between Lauriston and tertiary institutions, as part of the conference, participants visited Swinburne University’s high tech manufacturing facility.

“We’re beginning to field calls from schools that are interested in the FabLab@schools movement from interstate and overseas. They’re interested in the constructivist nature of the learning that we’re experiencing through our facility”, Ms Just says.

Much as the FabLab has driven a different kind of learning, assessing what takes place at the FabLab has required some innovative thinking.

“Society is focussed on a summative type of assessment, people like to be provided with a mark. But I would argue that the type of



## Lauriston’s tips for running a FabLab

### 1 Develop a place for making or digital fabrication

This can be a dedicated FabLab like Lauriston that has computers linked to specific tools such as a 3D printers and laser cutters. We also have a range of traditional hand tools.

If this is not possible, schools can transform a classroom or spare room temporarily.

### 2 Create a fabrication model that works for your school

Lauriston has a cross-disciplinary approach which means we are encouraging all teachers to have input from English teachers to the Prep teachers. However, at this stage, the program has been used predominately across the STEM program.

### 3 The FabLab reinforces that everyone can learn and students learn differently

By looking at problems from different perspectives helps people understand new ways of doing things.

### 4 Keep it novel

Don’t keep repeating the same tasks like a production line. We want to encourage multiple problem solving. However, we do acknowledge that some basic skills are required for the girls to start making their own designs such as safe operation of equipment, software familiarisation and coding.

### 5 Develop a culture of fabrication among staff

Provide professional development about how it works. Inspire them to get involved.

### 6 Allow student to make mistakes

Every mistake is an opportunity. Nothing has to be perfect. This is how students learn. It is often when a young person persists at a task is when they achieve the most satisfaction.

### 7 Shake off the stereotypes

Society doesn’t always put girls and Science, Technology, Engineering and Maths together. Encourage girls to use the space and watch them flourish.

problem solving and self direction that working in the FabLab requires are highly relevant to skills that are needed in the workplace,” Michael Street says.

Susan Just agrees that assessing what students are learning at the facility is still a work in progress but feels that it will eventually take the form of a portfolio or

video presentation of a student’s activity.

“What we’re likely to focus on is whether a process of problem solving has been demonstrated, whether a student has shown a willingness to make a start and overcome challenges toward achieving an end result,” she says.

ET