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Haileybury gets learning into context with Makerspaces

ET staff

“Maths,” you hear them say, “How is that going to be of any use to me?” In quite a few ways as it turns out, but rather than tell students as much, Haileybury in Melbourne has put the contextualising of maths and indeed all subject material into the hands of its students through access to the school’s Makerspaces.

Self-direction has been placed front and centre at Makerspaces now up and running in each of Haileybury’s four campuses. Students have been encouraged to use the fabrication areas as freely and innovatively as they feel and that’s led into some very creative explorations of what they have been taught within the curriculum and areas of personal interest to the school’s students as well.

Head of Middle School Science and Makerspace project coordinator David Simpson says that a standing committee was formed 18 months ago to research the viability and

“The direction that activity takes in the Makerspace is pretty much entirely student driven, we have the areas of curriculum that we’re looking at and within that framework we’re saying ‘it’s now over to you, how and what parts of this would you like to take a look at?’”

direction that Makerspaces might take.

“There is a perception that maths and science aren’t creative, that they’re a case of burn and churn, learn what I say and repeat it back to me. We as educators know that isn’t true so it’s a matter of contextualising the material. Take a recent project about water transportation in ancient Egypt. An idea introduced in humanities

led into an investigation of forces, levers and the process of building scale models through the Makerspace.

“The direction that activity takes in the Makerspace is pretty much entirely student driven, we have the areas of curriculum that we’re looking at and within that framework we’re saying ‘it’s now over to you, how and what parts of this would you like to take a look at?’ Going back to ancient Egypt, some boys came back to us with an idea about exploring ramps and how they were used in construction, they’re making suggestions about the direction of what they’re learning,” he says.

Having the facility also provides scope for students to explore areas which are outside of the curriculum but might interest them personally.

“One kid came to us and said that he’d like to pull apart a microwave and use the 3D printer to make a few components to research the possibility of recycling glass using a microwave, it was slightly offbeat but having the Makerspace



available meant he was able to come up with an answer to a question that he had. In his investigation he was able to explore the process and discovered that it wasn't viable as it required too much energy. The idea wasn't a success but he was able to investigate the concepts involved and deepen his own understanding which was very powerful," Simpson says.

Haileybury has intentionally located the Makerspaces within its libraries to effectively rebrand them as sources of knowledge rather than places where you just go to read books. Students have access to the Makerspaces before and after school and during recess and while there's usually a staff member on hand who's trained in the use of the equipment it isn't a prerequisite which once again encourages student self-direction.

"There's an element of trust there, students don't need to have a staff member present to access the area, the kids are encouraged to go into the Makerspace and tinker away. It's an opportunity for them to be creative, our prep kids have had a lot of fun using oxygen tubing, stretching it to make walkie talkies and communicate halfway across the school, it's fun and its real world which makes it more fun.

"Teaching and education can often fall into following what's in the textbook, we can pretend that it's engaging but the Makerspace gives kids the opportunity to do fun stuff. It's not all cutting edge technology, a lot of it is sticky tape, glue and cardboard but its strength is in getting the students to use their hands and create iteration prototypes," Simpson says.

The students aren't assessed on what they produce in the Makerspace, it's more about demonstrating a thought process. Haileybury is very keen to instil processes that can be carried into the real world; have they gone through a proper prototyping? Have they listened to the



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customer and built that empathy with what is being sought in terms of a solution?

Prep students record their activity through answering a series of prompts; What's your question? Who are you trying to solve this

problem for? or who is this going to impact? As students progress to middle school they are required to keep a design thinking journal which is an open document shared between the student and their science, maths and technology teachers or their mentor.

"We found that to be very rewarding for the students but it also gives us a very good insight into the students' thinking, it's very hard to assess thinking in a normal curriculum," Simpson says.

Some students have taken it upon themselves to work on extra-curricular projects and the school encourages them to make contact with business leaders and entrepreneurs in the real

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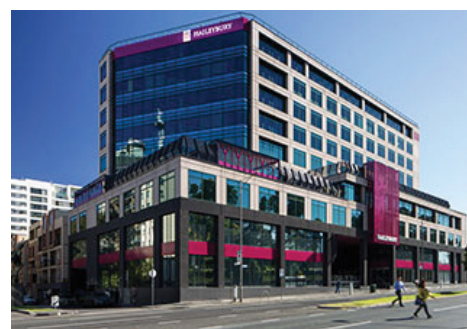
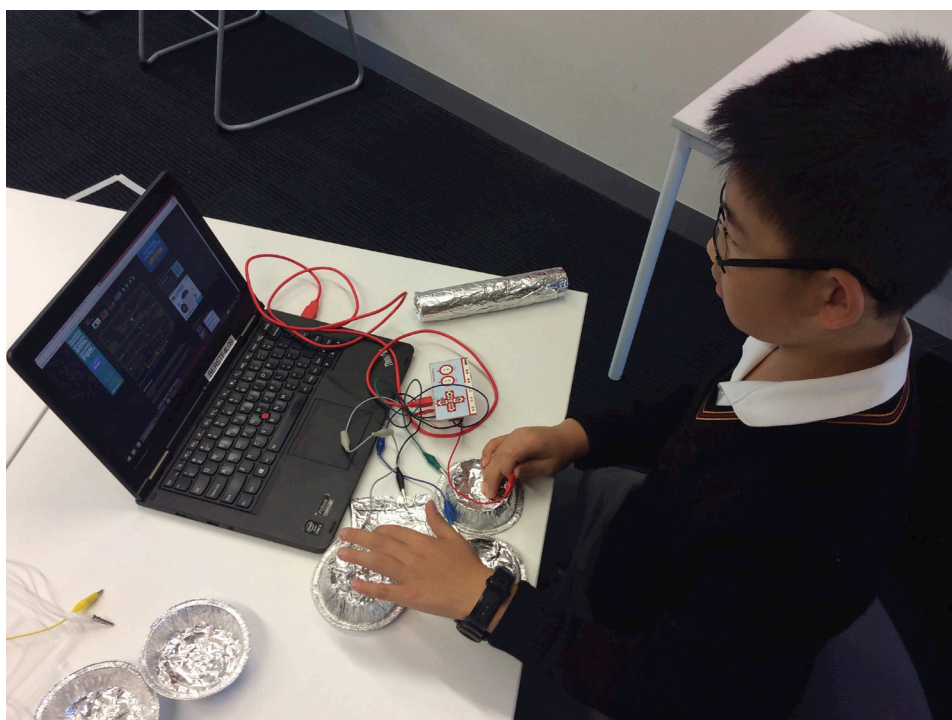
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Clockwise: The school's Berwick, City and Keysborough campuses and a keen Maker



world to really explore the scope and validity of their ideas.

"Melbourne has a very hot biotech start-up industry and we've put a lot of hours and legwork into building relationships with those people, a lot of it has been enabled by our alumni network but the majority is through interested stakeholders who are interested in speaking to kids who have great ideas.

"Older people have been really welcoming and enthusiastic about talking to some kids with bright ideas and giving them their feedback, often the conversations they have go off in the most bizarre tangents to what they were originally meeting to talk about," Simpson says.

As the project lead David Simpson works with teams from each of Haileybury's campuses and he's noticed that what each Makspace does varies a lot between the students and the environment in each of the campuses.

"At our Berwick campus, being away from

It's been fascinating for us to watch each Makspace going off in a different tangent

the city, the students have a lot of scope to get outside and run around and they tend to have ideas which are more physical, interactive and larger while at the Brighton campus the kids have access to the beach and have been more focused on building robotics and environmental sensors, ways of monitoring the environment and perhaps improving it. It's been fascinating for us to watch each Makspace going off in a different tangent. We have to support that, it's important that the students realise the Makerpace is facilitating their engagement with their lived experience.

"We often have groups from each campus meeting with each other and the relationships we've formed with Melbourne University means

we've been able to take groups to the engineering department at the university, it's really central to how we do things here, while the students are at different campuses it's important that they're part of the Haileybury community," Simpson says.

The school's coed approach where core subjects are taught by gender while boys and girls are free to mix at other times has given Simpson a unique perspective of the difference in interest in STEAM subjects between the genders.

"There's been a real muddying of the waters in terms of the stereotypes about the difference between boys' and girls' interest in technology, there might be a slight variation in the types of projects that boys and girls choose but there seems to be no difference in the level of intensity in their interest in Makerspaces," Simpson says.

ET