

Creating an Inclusive Makerspace Culture: Bulleen Heights School

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There has been a global wave of enthusiasm for 'makerspaces'. These spaces are popping up in primary and secondary education settings, but also in places that serve as community hubs, such as public libraries, museums and art galleries. Makerspaces are intended to provide a safe space for budding engineers, creatives and software developers to hone their skills through hands-on experimentation and collaborative learning. One place where this trend has yet to really catch on is in special education settings. Mel Greaves at Bulleen Heights School is looking to change that by founding one of the first makerspaces designed specifically for students with Autism Spectrum Condition (ASC). I sat down to talk her and find how she has adapted this concept for her students.

Matt: Can you tell me a little bit about your school and your students?

Mel: We're an autism-specific school, and we have two campuses. A primary and a secondary campus. We cater for approximately 140 students on each campus.

Matt: What made you become interested in makerspaces?

Mel: I have always been interested in innovative teaching and learning practises. As part of my role as leading teacher at the school, I'm highly focused around building teacher capacity in the areas of Digital Technologies and the STEAM-based areas of the curriculum (note: STEAM stands for Science, Technology, Engineering, Arts and Maths).

Matt: Have you seen any really good examples of makerspaces in either mainstream or special schools?

Mel: I haven't seen any makerspaces in any other special schools. I'm sure they exist, I just haven't seen them. I guess I have been doing a lot of reading about makerspaces. To me they are a way of incorporating STE(A)M subjects alongside those 21st-century skills, such as collaboration and creativity. It is really important for students to apply those skills in meaningful projects.

Matt: What are the challenges of introducing a makerspace in a special school setting?

Mel: I guess for all schools, the primary challenge is money. There's no getting around that. It does require some investment to get a new program up and going. To get students together with resources such as staffing, equipment and PD. It also, requires space. Whether for storage of equipment to be borrowed from, or as in my case, where I've chosen to have a specific designated leaning space. A supportive and forward thinking Principal Class team is essential. I've had to persuade leadership that giving up a space for this project is worthwhile pursuit and investment. Having this dedicated space, and supporting the philosophy behind, requires a bit of a leap of faith on their behalf.

For children with autism, the challenges to the makerspace are more about supporting skills development required for the projects themselves. The challenge is not so much getting students involved. A student who wants to create a video game needs to be encouraged to explore how that can be achieved and scaffolded or work towards achieving that. Students with autism require a lot of structure, and traditionally people tend to think of people with autism as not being very creative, or not able to think laterally. This is not always the case. I think for me, the challenge has been 'how to get the kids started in something that's meant to be really student-directed, creative, and collaborative?' Keeping in mind, these students may not have been widely exposed to these types of activities in the past.

Matt: How do you support these students who we think of as needing routine?

Mel: The way I approach it is, I start off being quite structured. For instance; I have a lunchtime club to get a mixed group of students involved. I've gone around and given them ideas of things that you could do in the makerspace. "In the makerspace, we could do this." and "This is the equipment in the makerspace. How could you use it?" "What might you like to work on?" I'd say, often, to start with, most of them just want to use the amazing Lego. I'm like, "Okay. What would that look like? What would you like to work on? Would you like to make something with Lego and create a stop-animation? Are you going to use the robotics?" etcetera.



Getting them to try and brainstorm what they're wanting to do in the space, is probably the hardest part. What works the best is giving them set challenges as class groups. "Okay. I want you to design the longest marble run." My advice is to begin by giving them really specific set projects or challenges, to get them having a go at working through a design brief. To get them exploring. To get them creating. To get them collaborating.

Matt: What's been the most popular project at your school?

Mel: A combination of movie making, with stop-motion animation and making props for movies. Last year we had a life-size Tardis built. These projects definitely fit into our STEM work. I worked with the teacher of that class to get her students using STEM principles a lot more, starting with the Lego. The students just love doing any challenge with the Lego. They love it.

Matt: That's really awesome.

Mel: Having said that, a lot of them really love just using low-tech items, such as creating with; cardboard, masking tape. Getting them started with set specific challenges. "I want you to see if you can build me a bridge that holds up a 5 kg weight."

Matt: What's been the biggest surprise from starting a makerspace at your school?

Mel: I guess my biggest surprise is how excited people outside of the school are as well, when I talk about my makerspace and when they visit and see it. It's always nice to know that other people outside of the school are really excited about this stuff, as well.

Matt: What is your top tip for teachers starting a makerspace in a special setting?

Mel: There's a lot of cheap, low-tech equipment that you can get. It doesn't need to be all about expensive robotics or expensive kit and Makey Makeys. You don't need all of that to get started. You don't need a 3D printer. You can start off with some donated Lego and cardboard and sticky tape. There's a lot of free online coding software to get kids engaged in making digital content.

Matt: Thanks Mel for sharing your insights with the DLTV community, and I look forward to coming to visit your Tardis soon!

Melanie Greaves is a leading teacher and Digital Technologies specialist at Bulleen Heights School in Melbourne Victoria. Melanie is helping to lead the design of the ABLES assessment tools for the Victorian Digital Technologies curriculum for students with disabilities. Matthew Harrison is a lecturer and researcher at the University of Melbourne, and a Digital Technologies leader at Waratah Special Development School.