

2017 WILL be better than 2016

Damian Perry

2016 has been the year of total insanity. We lost Muhammad Ali, David Bowie, Prince, Harper Lee and Alan Rickman amongst many others.

We might have a lunatic in the White House by the end of the year and the lunatics voted Great Britain out of the EU in the same year. Australia still has refugee children in camps offshore and people who love each other but can't get married. And seriously, who keeps letting Zack Snyder make movies??

On the education front, it's just as mad. You might have already read about my efforts to

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make sense of the new National Curriculum (and associated Victorian Curriculum because, well, we're special apparently). It's taken a lot

out of me. But it's been worth it. 2016 has been insane, but 2017 is going to be the best year for DigiTech ever. I have enlisted my guinea pigs (otherwise known as Year 7 and 8 students) and have tested out dozens of different ideas to improve the Digital Technologies curriculum at St James College. I've played with AR and VR and Minecraft and drones and Lego and Game Maker. I've finished courses in Python and Swift and content design and Spanish (but that was just for me). I've been to PD and run PD and fallen asleep through PD (and man, does that make for weird dreams).



And I think I'm ready for 2017. I have a plan. I've got the Curriculum Coordinator onside. I'm buttering up the Business Manager. I'm giving up my Media classes to oversee all of the new subjects and all of my subject meetings will be used to upskill the teachers I hope will be teaching these subjects with me next year.

I've crossed my fingers. I have a necklace made of lucky rabbits' feet and four leaf clovers.

And I'm ready to present to you:

My plan for 2017

A bit of background

St James College, East Bentleigh, is a Year 7–10 Catholic secondary college. We have around 450 students, four computer labs and an iPad program. Since I took over as Technology Learning Area Coordinator, I've focused on help making St James College an innovator across all areas of technology. Information Technology subjects run on a semester basis (except for

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VET in Year 10) with three periods a week. IT is compulsory in Years 7 and 8 and runs as an elective in Years 9 and 10.

I've been incredibly lucky in my school's validation and support of Information Technology. And I *still* had to make some major changes to allow the new Digital Technologies program to work for next year. I feel for anyone trying to do the same without the support of their leadership team or teaching staff. Hopefully an outline of what I have planned might help.

Year 7

Luckily, I have a couple of years before the DigiTech-trained Grade 3s hit high school. I'll be running a sequence in Year 7 that assesses

them on skills required from Grade 3 onwards, whipping them through the basics so that I can extend them through to Level 8.

Our Year 7 course has been very successful, both for marketing the school and for engagements with the students. Every Year 7 student takes this subject for three periods a week over a semester. We will continue turning Lego robots into beasts of battle, racing cars and washing machines. The focus in Year 7 is building and programming Lego EV3 and NXT robots. The course clearly addresses Digital Technologies by:

- Creating algorithms using visual programming (OK for Year 7 but less so for Year 8)
- Collaborating in an online forum (Stile work, wiki pages and online folios)
- Acquiring, processing and using data.

It is also a great way to incorporate elements of the Technologies design process and Systems Technologies.



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We use Stile (stileapp.com) throughout Year 7 and Year 8. It is a fantastic learning management system with a dedicated support and training team and a strong community of schools who share lessons and ideas across all year levels and curriculum areas.

I have also incorporated a research component into the Year 7 course, to ensure that the students know how to effectively use search engines and validate information. I'll also do some explicit teaching of using word processing and presentation software properly, and filtering and storing emails. I know that this is technically now part of the regular curriculum, but until it becomes something done across all learning areas, I'll keep teaching it in DigiTech.

Year 8

Year 8 is that subject that will change the most. By Year 8 the students really need to be introduced to text programming. They need to start looking at flowcharts and making choices within their algorithms. They need to be explaining how data is represented and stored digitally and they will design user interfaces for a program or application. All of that took some unpacking!

My Year 8s in 2017 will be doing what my Year 10s were doing up until last year. Using Game Maker, Scratch, Code Combat and Hour of Code, the students will learn the basics of text programming, design and create a computer game.



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Game Maker Studio is an incredibly powerful application-creation platform. There are plenty of other options out there (Corona labs, Apple Swift, Unreal Engine), all with advantages and disadvantages, but we are pretty au fait with Game Maker, so we'll stick with what we know.

I explore algorithms in much more depth, having the students program each other using voice commands, written commands and even subroutines to introduce them to some of the vocabulary and structures.

Low tech DigiTech is highly useful in Year 8. I teach at an all boys' school, so having them learn concepts kinaesthetically (never ask me to spell that again) is very effective.

Have you ever read a Choose Your Own Adventure book? Apparently there are Goosebumps versions now. I have my Year 8s explore flowcharts and algorithms by creating Choose Your Own Fairytale Adventures in PowerPoint. They could just as easily use Game Making software or Scratch for this but the idea is to identify choices made in famous fairy tales and then offer alternatives to the reader. My own Princess and the Frog at one point has the frog suing the princess for Breach of Contract.

The Choose Your Own Adventure concept can be taken into the programming area in other ways as well. Instead of choosing their own adventure, the Year 8s have the opportunity to choose their own programming language. I'll introduce them to Scratch and Game Maker. But I also have set up a Minecraft Server with mods to allow students to create programming blocks. With a bit of dedication, the boys in my class could create a real life tennis game. Or Minecraft Pacman.

By the end of the semester (again, every student, three periods a week) the boys have to present to the class a working game. They play and evaluate each other's games and vote on the best (for prizes, fame and fortune). They also create their own evaluation criteria based on class discussion. This is far more valuable and almost always lines up with what I'd want to mark them on anyway.

The issues here are having teachers competent and confident in presenting and teaching the basics of algorithms and programming to the students. This year it has been relatively easy to have them up to scratch (and Scratch) but next year will require a little more specialist skillset.

I'm not worried. It will all be fine. I'm not worried. It will all be fine. I'm not worried...

Year 9

This is the new arrow to my DigiTech bow. For years I did an animation subject in Year 9. Then I gave it to another teacher who turned it into Digital Drawing and Design, which was more Visual Art than Information Technology. In 2017 I'm taking it back!

The boys have always wanted a hard-core Information Technology subject in Year 9. To this end, I have created a web design course that allows for back end programming, security design and databases, interface design and a focus on content separated from presentation.

I've called it DigiTech – Web Design, which is most likely the worst name for a subject since someone decided to teach a course called *Boring McBoringpants presents an in-depth study of boring*.

The unit revolves around the students taking on a client who wants a new website. For the first year at least I will probably make up the client, but a more authentic approach will involve the students interacting with local businesses to create sites for them.

The students will investigate the company, interview the clients, create page templates that work across a number of platforms and then populate the templates with information provided by the client. I'll teach them the basics of web-based security, simple database design and SQL queries. They'll create user logins for the pages and present the lot to the client at the end of the semester.

From a digital technologies standpoint, we're immediately addressing:

- Security of information between user, device and network
- Validating data
- Decomposing problems and proposing solutions and dealing with functional and non-functional requirements.
- Design and evaluate user experiences

- Use object oriented or modular programming
- Address sustainability of the solution (works with new technologies or larger dataset).

The downside for any school wanting to take on a subject like this is teacher expertise. It's not possible to teach the subject without a good working knowledge of half a dozen different software and networking protocols. Luckily for St James College, I can do that. I will find my Padawan Jedi apprentice and skill them up for future years. Now I just have to sell it.

"So you want to be a web designer?"

"A fistful of databases"?

Let me know.

Year 10

The Year 10 offerings are legion. Well, two.

I have a Certificate II in Creative Industries, run in partnership with the Academy of Interactive Entertainment. It is a VET subject. It gives the students a Unit 1 and 2 of VCE in Year 10, which is always a drawcard. They gain some valuable skills in computer animation which is a pathway to game design and movie animation in their post-compulsory schooling years. But it really doesn't address much of the Digital Technologies curriculum. Creative Arts, absolutely!

I'm running it anyway because: 1) I love it, and 2) it's a pathway subject – officially VET/VCE – and therefore doesn't come under the auspices of Digital Technologies.

My second subject is Game Design. This has always been a popular subject. It caters for students across a range of skill levels. It allows for drag and drop game design as well as hard coding. We're always allowed the students to participate in what they want to focus on. This won't change in 2017.

But. We can make it better. We have the technology.

So, next year, the subject will be run on swanky new computers. We have Unreal Engine installed on all of the computers. I've bought Spheros and Parrot Drones to allow for real world programming. I'll have a HTC Vive machine so that we can dip into VR. We'll look at game theory outside of the computer. In a world of Pokemon Go and Google Cardboard, surely

Game Design truly showcases the idea that content is truly different from delivery. We want the students to explore the concepts of how a game works, how to decompose a problem and establish algorithms for a variety of different cases.

the sky's the limit (as long as you get flight clearance from the local airport).

Game Design truly showcases the idea that content is truly different from delivery. We want the students to explore the concepts of how a game works, how to decompose a problem and establish algorithms for a variety of different cases. We want them to create user interfaces and use object oriented programming. We want them to work in collaborative units and online. None of these things require a specific software program. A lot of them can be done without a computer at all!

Thank the Flying Spaghetti Monster – 2016 is almost over!

This has been a hard year. Every IT teacher I know has been scratching their heads or going into a panic spiral over the requirements of Digital Technologies. Most of the PD I've been on this year has had the word 'Unpacking' in it. But after you've separated the socks from the t-shirts and laid everything neatly out on the bed, Digital Technologies isn't as daunting as it was at the start of the year.

It absolutely requires some teacher training. However, that should have been a requirement for teachers at the turn of the millennium. It may require a reshuffling of timetables to ensure that units can be undertaken properly. It won't happen without school leadership acknowledging that it has to be a focus in the modern school.

But I think I've got it. I have the technology. I have a very supportive leadership team. I have the time. I have the talented and trained teachers. I have subject outlines for four year levels.

Stuff you 2016. You took Bowie. I'm waiting for 2017 and I'll educate the kids who will end up bringing him back as a hologram.

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