GAME CHANGERS

by Clare Bardsley

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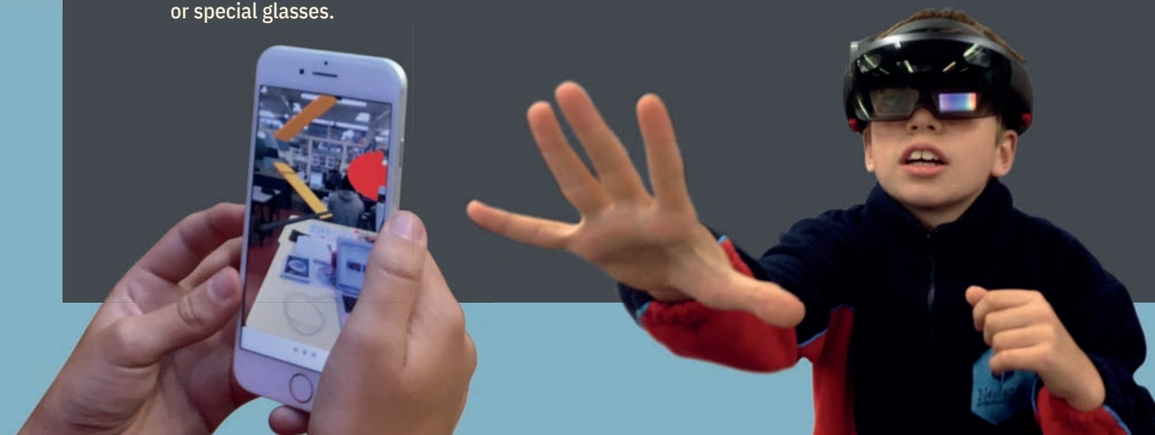
Jim works at a digital technology company called Theta. He figures out how a piece of software will need to operate and then makes it happen. A lot of his projects use augmented and virtual reality, and he was keen to explore ideas with the next generation of users. Like the students, Jim thinks outside the box. He enjoys working with kids, he says, "because they're good at challenging ideas and asking questions, which really helps the creative process. You're more likely to innovate."

AR AND VR: WHAT'S THE DIFFERENCE?

The terms "augmented reality" (AR) and "virtual reality" (VR) often come up in the same conversation, but what's the difference? Augmented reality starts with a live view of something, such as a street scene, then adds digital special effects. AR is most commonly associated with a tablet or smartphone. The game Pokémon GO uses AR. So do the lenses on Snapchat, which let users add 3-D features as they take a photo.

Virtual reality doesn't add to the physical world: it shuts the physical world out and creates an entirely new digital environment. Users might find themselves in the middle of a snowstorm or wrestling an alien on the back of a flying banana. The experience is shared through a headset or special glasses.



THINKING BIG

The MiniDevs had never used AR or VR, so Jim's first step was to introduce them to AR glasses. The students were quick to understand AR's potential and to share thoughts about what they could use it for. A game was the obvious choice – but what kind of game? After much discussion, then a vote, the MiniDevs decided they wanted to create something that was almost, but not quite, a story – a pick-a-path adventure. The player would need to figure out a series of riddles and clues.

"We were thinking big," says Heena, one of the original members of the MiniDevs, "and big means lots of work!" The group had to consider everything, from the way they'd share ideas, to **storyboarding**, to the game's **mechanics**. One of the first things they needed to decide was who would do what.

storyboarding: a visual plan for how a piece of software might work

mechanics: the way something works

THE REAL WORLD

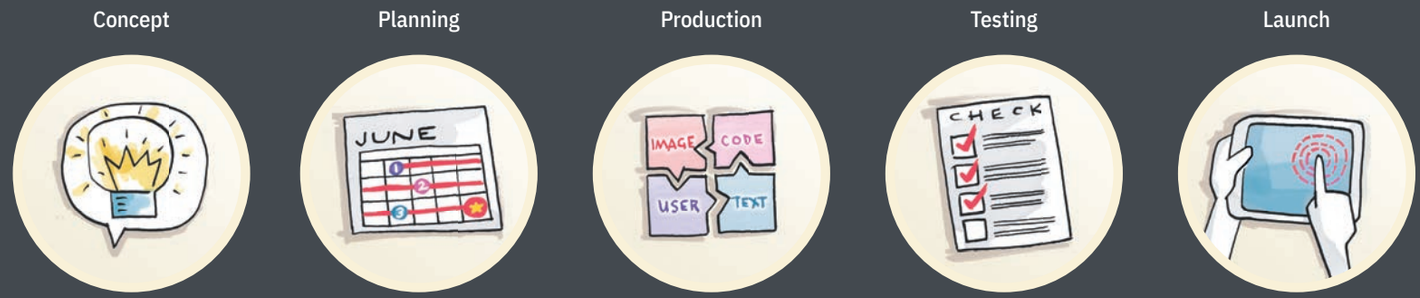
A key part of creating a game involves writing software, and writing software means coding. But the project needed more than just coders, and some students were keen to try other tasks, such as 3-D modelling. To keep everyone happy, the MiniDevs decided to replicate Theta's structure: they would have a studio team. There would be artists, developers, musicians, designers, and a communications group – as well as coders. Each student would choose a role that suited their skills, then write a job application.

Having a studio team copied what happens in the real world. The students wanted to work in a real way, too. This meant each idea would be pitched to the group, and everyone would have the chance to ask questions. Is the idea original? Will the technology let us do it?

Do we have the skills? The students learnt to negotiate as ideas were refined. There was a lot of compromise. "We went in thinking 'this is what we're going to make'," Heena remembers, "but we ran into problems. This meant we needed to make changes." In the business world, this is called pivoting.

IS THE IDEA ORIGINAL? WILL THE TECHNOLOGY LET US DO IT? DO WE HAVE THE SKILLS?

THE GAME DEVELOPMENT PROCESS



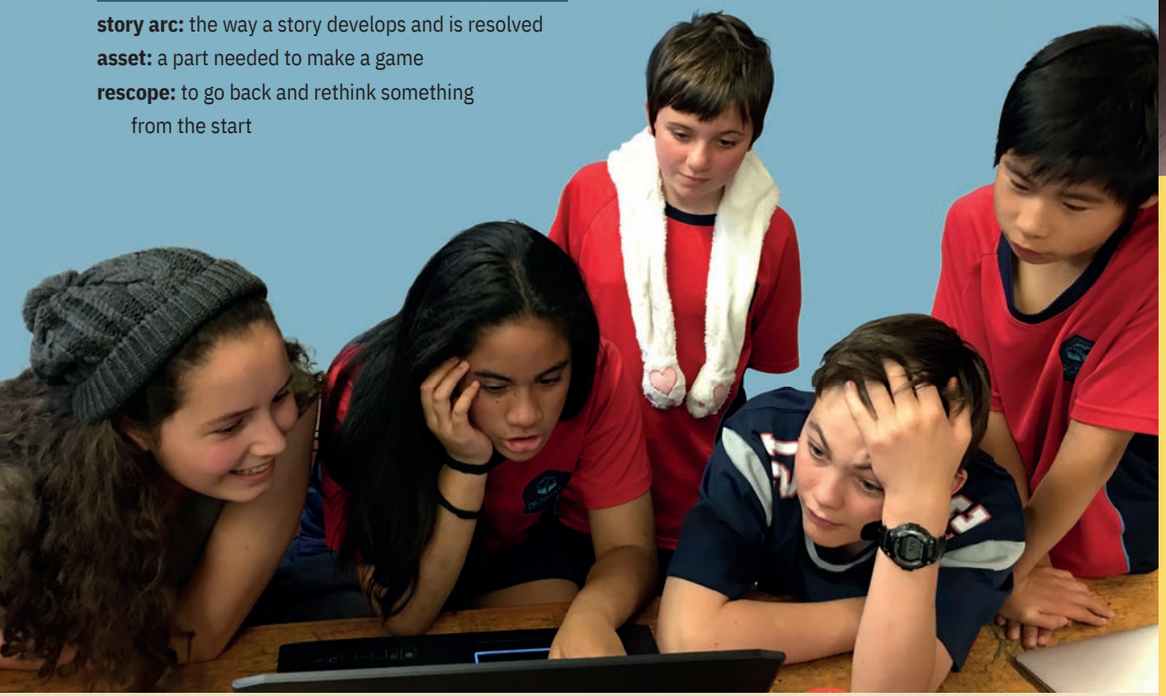
TRICKY TERRITORY

It's easy to come up with an awesome idea for a game. It's more difficult to plan that game's **story arc** and mechanics, but these things can be done on paper. Once the students moved to the production phase, life got trickier. Finding and building the game's **assets** was time-consuming, especially the coding. "Basically, everything took much longer and was much harder than we'd planned," Samual says, "and we started to miss deadlines." As the team fell further and further behind, it became difficult to juggle the production schedule.

The students lost momentum, and this meant they also lost focus.

"We learnt from the experience," Samual says. "It's great to be ambitious, but in the long run, it's better to be realistic. If things aren't working out, you need to **rescope** – and don't leave it too long!" The current team of MiniDevs has taken these lessons on board. They're now working on a series of mini-game design challenges. In other words, they're starting small. They have a simple idea, a small group of people, and a short time frame.

story arc: the way a story develops and is resolved
asset: a part needed to make a game
rescope: to go back and rethink something from the start



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MIXIPLY

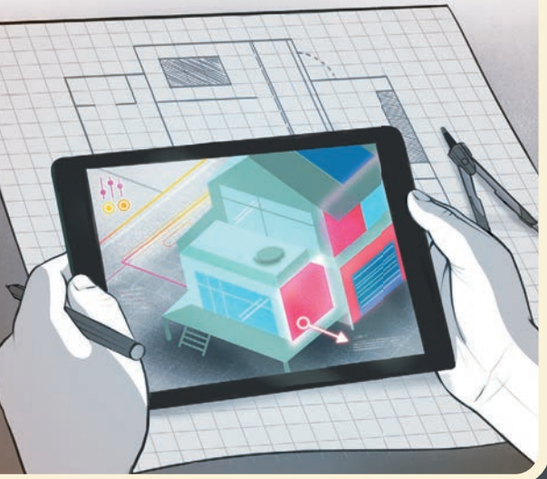
As well as working on their own project, the MiniDevs helped Theta to develop Mixiply. This is a free piece of AR/VR software aimed at kids. Because they were part of the target audience, the students were in a good position to comment on what was working well and what wasn't. It was crucial feedback for Jim, who doesn't believe in developing new technologies in isolation. "You need first-hand input from users, especially if you want a platform to evolve and improve as much as possible."

With this in mind, Jim encouraged the students to be creative. "I really wanted them to push the platform to its limits." He didn't need to ask twice. Heena says they had lots of fun trying to crash each new version. "We wanted to explore what would happen to the program when we made a change." The students could experiment in any way they wanted, which meant lots of funny moments. "Like the time we created hordes of zombies to crash the game," Heena says.

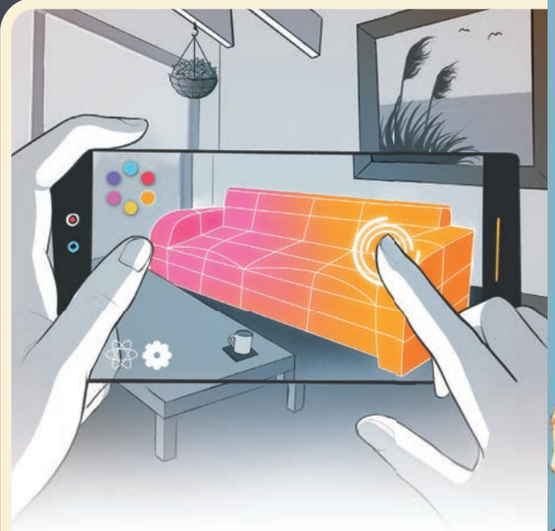
HELPFUL REALITY

How are augmented reality headsets and glasses being used in the real world? Here are a few examples ...

Architects can manipulate 3-D blueprints to better visualise what they are building and what might need to change.



Medical students can practise tricky procedures before meeting the real patient.



Shoppers can see what a new couch might look like in their living room.

Factory workers can access checklists and instructions, hands-free and in real time, so they can work more efficiently.

The students also reported on **bugs**. Preventing, finding, and eliminating these is an important part of the development process. "It's very hard to know how software will behave until it's in the hands of real people," says Jim. "Every programmer will tell you that lots of their time can be spent troubleshooting." The Mixiply platform is now in the "beta" phase; it's usable but still likely to have problems. Feedback from users is still needed.

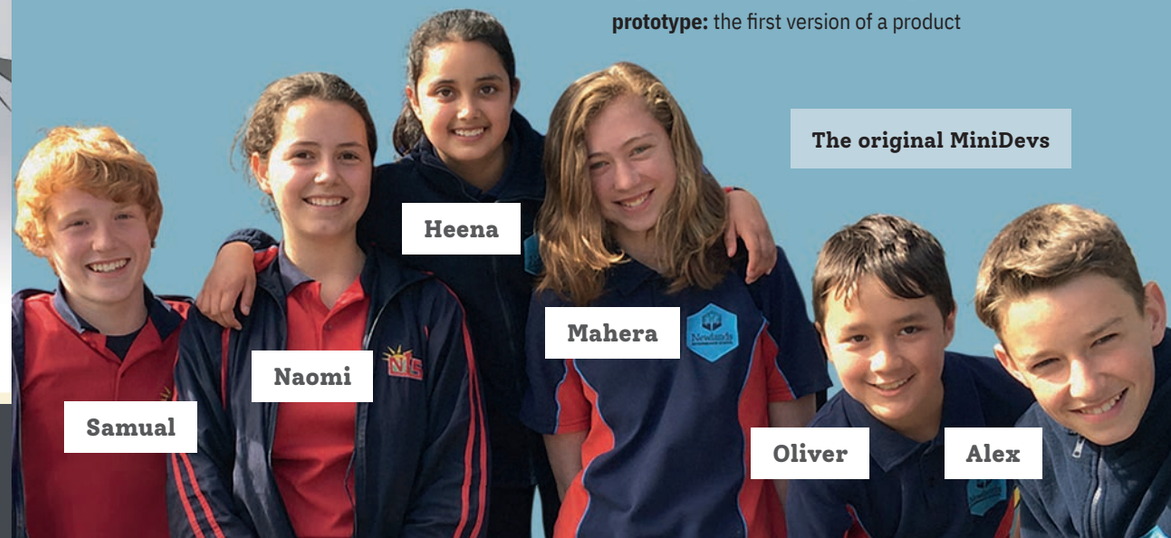
Because Mixiply was a real-world project, Heena says they all learnt a huge amount. "We got to see a **prototype** turn into the working product and all the stages in between, like responding to feedback." Some of this feedback came from the students themselves. "It makes sense to involve the target audience in the process," Heena says. "That way you get to know what they want, not what you *think* they want."

READY FOR THE FUTURE

Naomi, now a student at Newlands College, is still involved with the MiniDevs. She says that the best part is having the freedom to experiment. "Often, kids are just told how to do something or what the outcome will be. But it's much better to work things out on your own, especially if you're not afraid to make mistakes." Naomi says they've even learnt to celebrate some mistakes.

Augmented and virtual reality have more to offer than just fun and games. AR products are used for education and training, and in the workplace, AR helps people to be faster and safer and to make fewer mistakes. New Zealand has a strong technology sector. It's predicted to grow fast. With their real-life experience, maybe some of the MiniDevs will work in this exciting industry one day.

bug: a problem in a computer program
prototype: the first version of a product



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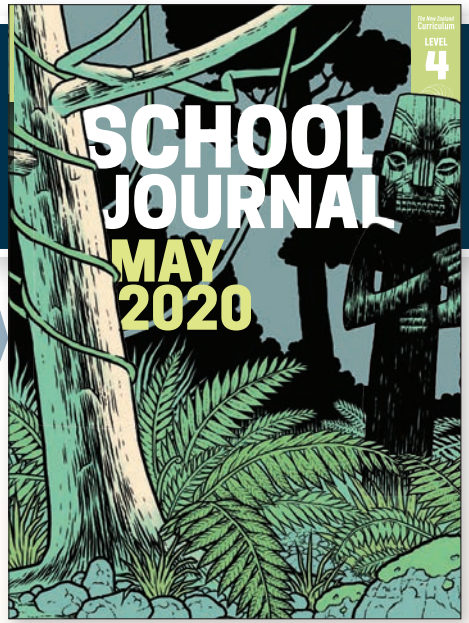

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