

STUDENT GAME DESIGNERS ENGAGED IN DEEP LEARNING

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The Game Design Competition challenged year 7-13 students to design digital or non-digital games about safe road use. This newsletter celebrates the learning shown by the winning and highly commended entries.

Three students from Columba College, Dunedin created the overall winning game, featuring a humble creature given a new chance to learn. Their game is called Prickle in a Pickle.

This is a board game about hedgehogs that need to get home safely before a blizzard arrives. Players earn acorns as they answer questions that cover road safety topics... and hedgehog trivia. The three year 10 students are Sophie O, Zola and Sophie S.

Competition judges said the game was polished and had a good hook for younger players. But why hedgehogs?

Sophie O: 'Hedgehogs are seen as unsafe around roads because you often find them dead. If you show children an animal that was often portrayed as unsafe, then they'd find learning how to be safe that more relatable.'

Sophie S: 'When we researched road safety information to put in our game we also learned lots of things we didn't know ourselves.'

Sophie O: 'We felt our strength lay more in design than in coding so we thought a board game was something we could do and produce a better quality product in the end.'

Read more inside.



PLAY THE GAMES

Links to some of the playable games created by students are on the NZ Transport Agency's Education Portal. There are also game design documents by students and some videos about their creations. It's all here: education.nzta.govt.nz/student-work/games

Year 10 students grow design skills in collaboration

Game Design Competition judges said two games from Pakuranga College were highly commended – JARS Road Safety and Dumb Ways to Drive.

It's lunchtime as Head of Digital Technologies Charlie Smith leads the way into a classroom where students are busily programming and sharing ideas. Charlie and fellow teacher Tyne Crow explain there's an unofficial code club in action.

The two teachers are just as keen, demonstrating a newly-purchased virtual reality set, while they explain where game design fits into their work.

'At year 10 we have a course where students do game development and we are always looking for really good projects that keep them engaged and have a good context,' says Charlie. The Game Design Competition was a good fit.

'It was good for the students to see that just making a fun game wasn't going to be enough. They needed to read the brief and that is why we liked having that really clear set of instructions.'

The need for collaboration fits well with the department's teaching direction.

'We had tried working in groups in previous terms. It's a real world skill they should be able to develop. We got them to think about different roles they'd take on within the group, whether that was a programmer or art person working on level design. We got them working in industry-standard ways.'

Deputy Principal Billy Merchant says the coding involved in game design and app development are becoming essential skills for digital careers.

'It wasn't that long ago that these skills were taught only in tertiary institutions to a small niche of students – now we have year 9 and 10 students producing commercial grade digital solutions at school.'



STUDENT REFLECTIONS

Abby: 'I definitely found working in a team was easier and it produced a better game.'

Sharif: 'I enjoyed the team work in making the game and researching the facts.'

Jessi: 'I enjoyed seeing the end result and getting other people to try it out.'

Max: 'There's actually a lot of different factors that can affect your safety, not just the driver but passengers as well.'

Renzo: 'It made us aware of the consequences that teenagers are going through daily.'

Eric: 'I walked into computer technology without any experience before and definitely learned a lot. It was an interesting topic.'



Some of the highly commended game designers at Pakuranga: Max, Eric, Sharif, Abby, Jessi and Renzo.

VIDEO ABOUT PAKURANGA COLLEGE

Watch Charlie Smith and the students talk further about their game design experiences: education.nzta.govt.nz/student-work/games



Digital Technologies teachers Tyne Crow and Charlie Smith look for ways to help students collaborate and push their game design skills.

LEARNING BUILT AROUND KEY COMPETENCIES

Columba College teacher Justin Scott says the competition was ideal for his year 10 digital technologies class.

'It gave the students an authentic outcome or problem that had to be solved. It made them look at how they could get their message across while still making it engaging for the stakeholder group they had identified.'

He says young people all have a personal knowledge of road safety to start from.

'Having their own experience meant they had something tangible to springboard from, as they developed their project. It was much easier to get them started and to keep them going,' says Justin.

'Looking at the whole class, there was real engagement in the project. We talk about the key competencies and what we want for students coming out of high school and these include relating to others, managing self, and using language, symbols and text. There was plenty of evidence of that occurring. They were having to organise their time and resources and the tasks to be carried out.'



Sustained effort to get it right

The Columba College trio tested their prototype board game with primary students.

SOPHIE S: 'It was good seeing them playing it, because it took a lot of effort to get there.'

ZOLA: 'I enjoyed designing the game and coming up with the concept. I enjoy art and designing things to share with people.'

SOPHIE S: 'I enjoyed the planning and using different tools to keep us on track like GANTT charts and the reflective project diary that we wrote at the end of each class.'

SOPHIE O: 'I enjoyed all the design and seeing it come together at the end as a physical copy, and seeing the children play it. We could see all the effort we had put into it paying off.'

 Watch their video about the game: education.nzta.govt.nz/student-work/games



Another board game was highly commended

Lights - Bikes - Crossings was designed by Alexandra, Emma, Samara, Emma-Jane and Brianna from Oxford Area School, Canterbury.

In the game, in order to win things, players answer questions about road safety like lights and cycleways that make their street safer.

'We all like playing board games, and liked the way they are played with other people and are social which is good for an educational game because it gets people talking and interacting together,' wrote the students in their game design document.



'We used other members of our year 11 classes to test our game on. We had to teach them how to play and this helped work out what was confusing or not clear enough. Their feedback showed us when we needed to change the rules, make things clearer and add new parts to the game.'

The result was what the competition judges describe as a well-executed board game with clear use of concept design, player testing and refinement.

Inside a robot's special journey

Winner of the best game design document went to an entry called *The Roadbot's Journey*.

This game design was made by Sophie, Marshall, Autahi and Xander. They are in a year 7-8 coding group at Rāwhiti School, Christchurch.

WHAT THE TEAM DID:

Sophie: 'The idea for our game was to tell children how to keep safe out on the streets and on the roads, based on a child having to help a robot find a spaceship.'

Xander: 'We asked heaps of little kids if they wanted to see a robot or a princess or something like that. Most people said a robot.'

Autahi: 'We went to year 1-3 children. We took their ideas and we made those ideas into more ideas and we kept going and going until we had that perfect idea for a game.'

Sophie: 'We had different levels and we had to do lots of research into the rules you need to learn. I learned a lot myself about scootering.'

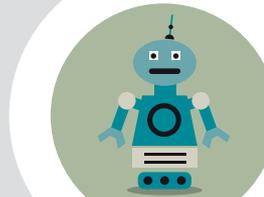
WHAT THEY ENJOYED:

Xander: 'My favourite part of it was making the robots, doing drawings, printing them off and cutting pieces to layer up our designs.'

Marshall: 'I really liked designing the map because I thought it was fun putting all the ideas into a small space.'

Autahi: 'My favourite part was using cooperation skills and learning so much about road safety.'

Sophie: 'My favourite part was actually the research before we started designing the game properly. I found out a lot of new interesting stuff.'



STUDENTS AS CREATORS

This team were members of a coding group and decided to really stick with the project of designing a game, says teacher Elizabeth Kazmierczak, who leads e-learning at Rāwhiti School.

'I saw it as an opportunity for collaboration where children could work together and have shared responsibilities,' she says.

'Some of it had to be scaffolded for them, but they saw that one person couldn't do this on their own. They all had to contribute to get there in the end. For some of them, it was a new process to go through, taking feedback and modifying a design.'

'Some of them are thinking that they could code a little part of it or design some other games. It has given them ideas. There's real potential to make a social good game on something else in the school.'

She says game design sits well within the curriculum.

'We know we are in a culture of gamers and children are often consumers of games, so there's real potential to flip it and get children actually creating socially good games, games that teach skills or have an authentic context. It can be weaved into the curriculum quite easily.'



THE EMERGENCE OF YOUNG GAME DESIGNERS

Students displayed hard work and creativity in designing games, writes NZCER senior researcher Rachel Bolstad, a competition judge.

The number and quality of entries in the 2016 Game Design Competition was impressive. For the last few years I've been researching the potential of games for learning and social impact. I've even made a couple of games, so I know first-hand that game design is a lot more challenging than many people think!

It's hard to understand how much work goes into a game until you have tried to design one yourself. Getting your game from concept to playable product involves lots of creativity, experimentation, and troubleshooting. This applies to any game, but even more so to games designed for a serious social purpose, like a game about road safety.

Students entering this competition had to think carefully about how to blend the engagement and fun of a game, with important ideas and messages about being safe on the road. I commend all the students who made it over the 'finish line' and got their game entries in, and the teachers who supported their efforts.

It was great to see students explore a wide range of game formats. This included non-digital games, such as card games, board games, role-play games and digital games ranging from quick-to-play level games to longer story-based games.



Rachel Bolstad

Many game entries included background documentation that showed how well students had engaged with the intention of the competition. Many had done substantial research about road safety as part of their game development. It was also great to see how students approached play-testing their games, getting feedback and thinking about how to use that feedback to improve their games.

The NZ Transport Agency's Game Design Competition, and my own research, tells me that a lot of learning can happen through game design. It's exciting to think about all these emerging young game designers in schools across New Zealand and where they might go with the design skills they are beginning to develop.

It's also exciting to think that there are so many teachers out there who are ready, willing and able to support their students to engage with game design.

Follow Rachel's research into games for learning here: www.nzcer.org.nz/blogs/games-for-learning





STUDENTS ALERT TO DESIGN CHALLENGE

Judges highly commended a physical activity game made by students from Rangiora New Life School.

The game *Alert* is designed to raise awareness of the dangers of driving drunk – and the students behind it learned lots themselves.

Chelsea: 'It made us realise that it goes on more than we thought. I learned this because we researched the problem so that we could make an effective game.'

Taylah: 'Creating a game to raise awareness of an issue helped me to understand the problem better myself.'

Amelia: 'I was concerned that people are dying through careless actions on our roads.'

The students found game design engaging and challenging.

Milly: 'We got to research something that interested us. It was a practical and hands-on task.'

Chelsea: 'There were more steps to complete the project than we initially anticipated. I learnt that it was important to plan the process that we would take, but that we also need to be flexible in adapting it.'

Teacher Amanda Beukes says the game design took place in a year 10 class: Design for Visual Communications.

'I gave the students choice over what type of game to make and what road safety issues to investigate. It is something that is observable and road safety is of particular concern around schools. Some of my other teams looked at promoting safe road crossing to our junior school.'

She says the competition gave students a genuine need and stakeholders to investigate – both important parts of the design process.

A game for learning about risks

A proposal for a smart phone app was praised by judges for how it could help players change their perceptions of road use.

'This game would get players thinking about the road as shared commons, and needing to be aware of other driver's mistakes and bad decisions,' wrote judges about the game *Dangerous Drivers*, designed by students from Shirley Boys' High School, Christchurch.

Niko, one of the team members behind the game, says testing it with guests at a school open night was part of an engaging process.

'Most children our age are interested in games. Taking something that young people enjoy and putting it into education is a good thing. Everyone could follow their interests.'

Head of Geography and Tourism Mike Skinner says the design process was a great way for students to develop how they relate to others – a key competency.

'The great thing was the competition gave my students a meaningful and purposeful reason to work collaboratively in a competitive learning environment,' he says.

'The requirement for the groups to actively seek and act on feedback was important to the group work process as it meant the boys had to listen to others' ideas and refine their finished game to a higher standard than otherwise would have been the case.'



Team members include Joel, Zak, Niko and Ewan. Also pictured is teacher Mike Skinner.