Unwrapping the potential of purposeful context

Rosemary Hipkins writes about the elements in play when contexts such as road safety are used effectively to enrich student learning

Rosemary Hipkins is a chief researcher at NZCER. With three colleagues, she has recently written a book called ***Key Competencies for the Future*** *that expands on the ideas outlined here.*

Just lately I've found myself revisiting the idea that rich contexts really help students to learn. For me – like lots of other science teachers at the time– this idea first cropped up in the early 1990s. *Science in the New Zealand Curriculum* provided suggested contexts for the sets of concepts on every page. While many of us liked this idea, I can see now that we didn't always make the best use of the contexts we chose.

One problem – which I still see happening a lot – is what I now think of as 'candy wrapping'. This is when a teacher uses a context to 'wrap around' learning that basically doesn't change. The learning would have unfolded much the same way even if a context was not used. When this happens, I've seen students get confused about what they are supposed to be learning – the context or the concepts?

The road safety resources produced over the last few years model a much more effective way to use contexts for learning. Instead of 'candy wrapping' a concept or skill, the context is used to enlarge the learning in a way that *deepens its purpose*, making strong links to students' interests and concerns in the process. The learning is 'for' so much more than learning a specific type of skill or concept (although that also happens and is typically memorable and effective).

Learning in contexts of strong relevance and importance to students has the future-focused potential to have an ongoing impact on their lives, and the lives of others through how they contribute on many levels to societal problem-solving.

There's something else that I'm beginning to see as an explanation for why skilled use of context can be so effective. That something is the emotional punch that road safety contexts (and other similarly rich contexts) pack. Neuroscience now tells us that emotions are at least as important as the cognitive components of learning, if not more so. Yet traditionally, most of our attention has been on cognitive issues and challenges.

If we want to educate good citizens we need them to care about their learning and to see ways they can be proactive in contributing to a better society for everyone. This is one of the key messages of the curriculum's key competencies of course. It's wonderful to see that potential brought vividly to life in the road safety resources.

CROSS-CURRICULAR POSSIBILITIES

Alex Le Long believes that with extra planning, it should be possible for teachers to help students extend their understanding through more opportunities for active learning.

"For example, if they did their analysis of a road safety video in English, then they went to their photography class to develop their ideas there in a more solid way and then came back and used the images in their English presentation.

"Thinking outside the box is possible with NCEA assessment – by still sticking to the criteria for assessment but collaborating more with other colleagues and other departments."

ANALYSING WHAT'S ACCEPTABLE

YEAR 12 ENGLISH CLASSES ARE ANALYSING ROAD SAFETY AD CAMPAIGNS FOR NCEA, DRAWING ON THEIR PRIOR KNOWLEDGE OF HOW YOUNG PEOPLE BEHAVE ON OR NEAR OUR ROADS.

A year 12 English class were asked by teacher Alex Le Long to discuss normalised behaviour among young road users.

The class at Western Heights High School made a continuum – after all, they figured, typical behaviours range from acceptable to unacceptable. By the end of the exercise, 100 post-it notes were stuck to a wall.

Alex was impressed by the level of awareness they displayed on issues including distractions and seat belts. Finding ways to draw on prior knowledge has helped her classes during the past two years to assess texts with a road safety theme.

Alex and colleagues use the NCEA Level 2 assessment resource Party in the Car. This supports achievement standard 91107: *Analyse aspects of visual and/or oral text(s) through close viewing and/or listening, supported by evidence*.

Last year, texts selected by her students included the TV ads "Ghost Chips" (from the Legend ad campaign) and Blazed, directed by Taiki Waititi. Both use humour to engage their target audience.

"For the students and for me in this area, those two ads are really well understood," says Alex.

Students had studied Waititi as a film-maker and could identify his style, while the school has a special connection to "Ghost Chips".

"The 'Ghost Chips' actor (Darcey-Ray Flavell-Hudson) went to our school and there's still a billboard of him on the science block. It's still really funny for the students – they still quote the ad at school, especially at the canteen line," says Alex.

Alex says selecting texts with strong relevance helps students develop deeper understanding in assessed work.

"They not only have their prior knowledge of ad campaigns and from local road safety expos but for many of them, they're doing their driver licence.

"It's relevant; it's something they're interested in. They've got the basic skills in English for analysing the video and because they can relate to the target audience and the purpose of the text, they can relate to the assessment and the result is they show more understanding."

She says last year's class mostly submitted written reports, but one student presented her analysis as a Tumblr blog. Another group of students wanted to create their own road safety video but they did not have time before exams.

"It would be a really cool thing for students to make their own ad using the knowledge they have about road safety and then analyse the effectiveness of that ad in terms of purpose and audience," she says. *Read Cross-curricular possibilities, page 3.*

Download *Party in the Car* and other resources:
education.nzta.govt.nz/resources/secondary

ARE YOU SAFE TO DRIVE?

A new learning unit has been developed – *Health, Driving and Substance Impairment* – to raise awareness of how medication can impair driving.

This is a sizeable and serious problem in New Zealand, affecting drivers of all ages.

UNIT DETAILS

Five credit NCEA Level 3 resource.

Students examine the relevant determinants of health, and the implications for the wellbeing of people and society. From this analysis, they recommend health-enhancing strategies.

High quality data is provided along with resources designed using SOLO Taxonomy.

Unit supports assessment for Achievement Standard 91461: Analyse a New Zealand health issue.

ACCESSING THE RESOURCE

The curriculum resource is freely available at **education.nzta.govt.nz/health-ncea-l3/**

Background information available at **www.nzta.govt.nz/are-you-safe-to-drive/**

Thank you Haley Charles, Upper Hutt College, for developing this resource.

NZ TRANSPORT AGENCY WAKA KOTAHI

New Zealand Government

NCEA Level 3 Health curriculum resource for 2019

12 Feb 2019 09:00 am | NZ Transport Agency

Teachers can freely download the resource, which lets students analyse substance impaired driving as a New Zealand health issue.

A surprising health issue affects many New Zealanders every time they get behind the wheel, and it relates is the prescription medicines they take.

Now NCEA Level 3 students can analyse what is known as substance impaired driving (SID). SID refers to how some prescription medications have side effects which can affect the ability of people to drive safely.

The curriculum resource is published by the NZ Transport Agency on its Education Portal. It is free for teachers to download.

Included are in-depth data sources and a progression of learning activities. The resource supports assessment of *Achievement Standard 91461: Analyse a New Zealand health issue*.

The unit was written and trialled by Health teacher Haley Charles from Upper Hutt College.

“At that level, Health is a lot about societal health issues, supporting students to think about the main causes and come up with strategies for harm minimisation,” says Haley.

Students’ proactive response

Teacher Haley Charles and Upper Hutt College students who trialled the resource.

Last year, Haley trialled the unit with her own students and the published version is based on what worked best for them, while providing teachers with options to choose from.

For Haley's students, investigating substance impaired driving was an eye opener.

> "Prior to starting this unit, they had no idea this issue even existed. They were shocked. I've got a couple of students who work in pharmacies, so they became much more aware."

Haley says those students were asking their employers questions and making sure they had the relevant pamphlets.

"My students are talking to their family and talking to their friends about the issue too; they are getting that word of mouth out there."

Haley's guide to the SID resource

The Substance Impaired Driving curriculum resource is designed to cover 20-24 hours of lesson time over 5 to 6 weeks. It is divided into sections:

- Introduction
- SID is a health issue
- Implications for well-being
- Determinants of health
- Strategies to reduce the risk of SID
- Internal assessment resource.

“Have a good look through and pick and choose which parts are going to meet the needs of your learners. You certainly don’t need to do the whole thing. It’s not prescriptive – everyone’s teaching style is different and every student learns differently.”

Each section has a lesson plan and a set of resources. These include data sheets, online videos and PowerPoint presentations about the issue.

“The data and videos are really useful to back up what you’re trying to teach. A lot of students need to see information presented that way to make it real for them. So here’s what the experts are saying – it’s not just ideas coming from me, the teacher.”

Some student activities are based on SOLO Taxonomy to promote deeper thinking.

“We are trying to get them to do more critical thinking rather than surface thinking, so using SOLO Taxonomy was brilliant for my students. I’d recommend taking a little time getting your head around the basics of SOLO Taxonomy before diving in.”

Finally, Haley says the curriculum resource itself is part of an strategy by the Transport Agency to work with health professionals to reduce the risks around substance impaired driving. She says connecting with this real-world context was an exciting opportunity and she hopes the same is true for more teachers in 2019 as they make use of her resource.

STUDENTS APPLY DATA VISUALISATION TO ROAD SAFETY

Digital technologies students have mined New Zealand crash data to map out factors behind safe road use.

Computers were crunching big data sets of up to 30,000 records as year 13 students ran investigations into road crashes.

They were using real data from a publically available source, the NZ Transport Agency's Crash Analysis System (CAS).

Students saw the opportunity and the challenge that using this data was giving them.
Gerard MacManus, digital technology teacher

Teacher Gerard MacManus says CAS provided his students with accessible data with enough depth to develop their own lines of inquiry. He showed them how to access and interpret the data, and gave them a brief to create a story that would inform a website user about relationships found within the information.

Gerard says the technology curriculum is about letting students explore user stories and solutions inside a guided process.

"I tried to keep it as open as possible. I don't like restricting the students about what they might find interesting. When you open it up and get them thinking about some of the aspects you get a whole different array of answers and a whole array of experiences for the students."

One student looked at the relationship between weather conditions and crashes, another looked at the influence of drugs and alcohol, while a third investigated the extent of crashes involving animals and made recommendations about the setting of rural speed limits.

"Everyone hears about crashes but until you start seeing where the crashes are and whether there's been alcohol or inexperienced drivers involved you may not understand what the causes are. You need to drill down into the data," says Gerard.

What students did

- Downloaded the data: **www.nzta.govt.nz/resources/crash-analysis-system-data/index.html**
- Used Excel to examine the data, choose a line of inquiry and clean up incomplete records.
- Put the data into MySQL open source database and ran queries.
- Used the Linz coordinate converter to reformat location data.
- Created data visualisations in CartoDB web-based mapping application.
- Wrote a summary of what they found out.

Download technology curriculum resources

Gerard's unit was of his own devising. However, technology teachers can freely download, use and modify other technology curriculum resources.

These resources give students scope to create digital artifacts which communicate road safety messages to a target audience.

Road safety isn't magic

It isn't magic.

Bev Sue-Tang, Head of Mathematics of Kaiapoi High School, says integrating community mindedness with everyday math problems is simply a no-brainer. Students are picking up concepts that marry mathematics with road safety awareness, without much extra effort.

'I think it's very important and like to include useful information like road safety data when I am teaching the maths curriculum to give relevance to a maths concept,' says Sue-Tang. 'I came away with some resources that I can use immediately in the classroom and share with my staff which allow students to investigate data to discover some key truths about road safety.'

Maths teachers at Kaiapoi High School have already used road safety scenarios in problem solving assignments for their students. One that she pointed out was using mathematics to determine how far away from an object you need to be at a particular speed to slow your car down before hitting an obstacle.

'The road code is one thing all New Zealander can agree on as vital to everyone's safety,' she says. 'It's important that students have an opportunity to see why the rules exist by investigating data themselves.'

In one Kaiapoi High School year 9-10, maths class, students are estimating safe following distances. Drivers make use of this all the time. Once a car in front of a driver passes a landmark, such as a mile marker or an exit sign, the driver counts the number of seconds it takes for him or her to pass that same marker. It's the old two-second/four-second rule, which can tell you if you have enough time to stop your car if something happened to the car ahead.

'So doing that, we can estimate safe following distances and check that we know we are within the two-second and four-second rule,' she says.

Teachers are also making use of traffic webcams in Christchurch, which can help students determine, in real time, different measurable problems that can be illustrated without leaving the classroom.

'We will look at traffic movements and density using the traffic webcams,' says Sue-Tang. 'These are great as it allows us to take a virtual field trip and we don't have to sit on the side of the road breathing petrol fumes while counting cars.'

'The road code is one thing all New Zealander can agree on as vital to everyone's safety,' she says. 'It's important that students have an opportunity to see why the rules exist by investigating data themselves.'

Deeper look at advertising

Braden Faavae, a secondary English teacher, adapted NZTA curriculum resources to add depth to study of advertising.

A memorable ad on TV or in print might rouse your emotions, stick in your mind and become a topic of conversation. It's another matter whether the ad achieves its purpose.

With road safety campaigns, the ultimate outcome is safer behaviour by road users.

'Getting it right may save lives,' says Braden, who is a learning advisor for English at Christchurch secondary school Unlimited Paenga Tawhiti.

In Term 1, Braden helped his year 11 and year 13 classes analyse road safety advertising as examples of visual texts. He used the NZ Transport Agency NCEA resource Party in the Car as a starting point for planning his unit.

Braden says he experienced rich, invigorating conversations with both classes, due in part to the significance of road safety as a social issue. Many students are or soon will be novice drivers and they could see the relevance of road safety to their own lives.

'It's given a greater sense of purpose about what we're doing. We're looking at current and historical issues in New Zealand about how we relate to each other as a society. Having that behind us enables us to have much deeper conversations about the advertising.'

Braden showed students examples from leading road safety campaigns here and overseas, to demonstrate textual elements which are designed to generate change.

Analysing these examples helped students think critically about advertising in general because the same techniques are used to promote sales of everyday products like soft drink.

The classes went on to create their own concepts for road safety campaigns. Their brief was to focus on risk factors that young drivers are less aware of, such as night driving and getting distracted by passengers.

> "It's given a greater sense of purpose about what we're doing."
>
> **Braden Faavae, Unlimited Paenga Tawhiti**

FIND PARTY IN THE CAR AND OTHER CURRICULUM RESOURCES ONLINE:
education.nzta.govt.nz/resources

BACKGROUND TO NZ ROAD SAFETY CAMPAIGNS:
www.nzta.govt.nz/about/advertising

Forces lessons ramped up

Lincoln High School teachers trialled the NZTA's science unit with year 9 classes. Written by Pam Hook, the unit is a flexible plan about forces in the context of vehicle safety.

After teachers checked students' prior knowledge, they moved on to challenges like the ramp. In this activity, classes experimented with materials to slow down model cars on a long steep ramp, simulating real-life engineering solutions like road bumps.

'The link to road safety made learning about forces real,' said the teachers. Here's what else the Lincoln team said:

- 'We were surprised by the intensity of interest and how much the students got into this unit.'
- 'The unit worked because it allowed us to pick and choose objectives and activities to meet the needs of our students.'
- 'Our philosophy in teaching science is to help students make sense of the world around them and this topic helped. Science gives students the knowledge to make their own choices. We want our students to make decisions based on science and logic, rather than just remember rules.'
- 'Definitely, more students understand force and motion because we taught it this way. They understand it much better than if we had just put equations about forces on the board.'

Lincoln teachers said the trial of the NZTA resource has encouraged them to use more real-life contexts in science. Relevant contexts get students interested, help them understand key concepts, and lead into deeper learning.

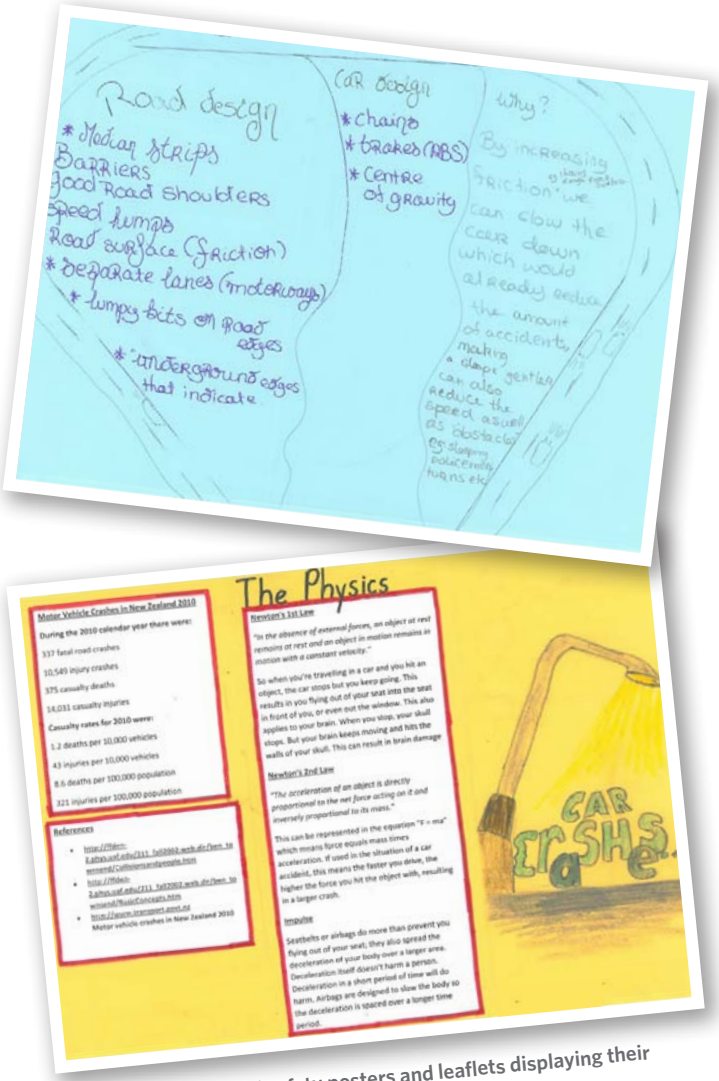
Who? Lincoln High School

What? Road Safety – Science resource

Download education.nzta.govt.nz/resources

> "All four trials exemplify the New Zealand Curriculum in action beautifully."

Education consultant Mary Chamberlain is evaluating trials of NZTA secondary curriculum resources in four schools. She says she was impressed during her visits.



Students created road safety posters and leaflets displaying their knowledge of forces.

Secondary teachers and students put NZTA curriculum resources through their paces during trials earlier this year.

Positive pictures

SECONDARY ART STUDENTS CREATE THEIR OWN PICTURE OF STAYING SAFE ON CITY STREETS

Pictured are signs and posters created by students who responded with energy and enthusiasm to a lesson putting art to a road safety purpose.

The unit was written for the NZTA by Wellington East Girls' College teacher Hayley Carleton and trialled by head of art Ros Cameron.

The two teachers said the aim was to deepen student understanding of pedestrian safety issues, such as the distraction of mobile phones and iPods.

'At the same time we wanted students to learn about the design process and the relationship of text and images in creating an idea. We wanted them to produce artwork that would engage other teenagers because it was positive, light-hearted, humorous and educational.'

Students looked at how safety advertisements can balance fun and serious elements. They then researched hazards they noticed when coming to school.

'Taking time to investigate thoroughly meant that what students came up with in terms of their artwork was solid. It means they are doing the learning and embedding it in their own practice.'

Student self-evaluations indicated some behaviour change. For example, a student said she now unplugs her iPod and stops texting when crossing the road.

> "It's about them and their lives. Each student had a unique personal idea and that's something we always aim to achieve in our art units."
>
> WEGC art teachers

Who? **Wellington East Girls' College**

What? **NZTA Art and Design Year 9 & 10 units**

Download
education.nzta.govt.nz/resources

SHARE YOUR STORIES The NZTA education website helps teachers share what works in road safety education. Read about other schools and send in your own articles, using an easy online submission form. Potential topics: road and rail safety in the curriculum, school ethos and organisation, partnerships in the community, and how you use NZTA resources.
Visit: education.nzta.govt.nz/stories

Stats classes put the brakes on

STUDENTS INVESTIGATE VEHICLE STOPPING DISTANCES DURING STATISTICS LESSONS.

Sparking a chain of thinking and action was the aim when teachers created and trialled a statistics unit for year 9 and 10 students.

Sarah Howell and Martin Vaughan wrote the resource for the NZ Transport Agency. It is a comparative investigation of stopping distances under different conditions.

The teachers wanted to create a practical example of the Problem, Plan, Data, Analysis and Conclusion (PPDAC) enquiry cycle that is emphasised in the New Zealand Curriculum.

In this case, the raw material was a random sample of stopping distances at different speeds and in wet and dry conditions. Students asked questions, investigated the data for themselves and shared their own conclusions about the impact of speed and conditions on safe driving.

Here's what teachers involved in the trial with year 10 classes said about the resource:

- 'Worthwhile, useful and particularly well-prepared. Teacher-friendly and adaptable with a relevant context and an authentic data set.'
- 'We were impressed by how much the students really thought about the context, and we were impressed at the depth of some of their insights. They came up with things you might not expect – they were aware of potential differences in stopping abilities of older and newer model cars or of modified cars with lowered suspension, for example.'
- 'Students can rail at being told something – like lower your speed – but they can't rail at asking questions and investigating data themselves, or at sharing conclusions and being asked to think about how we can improve on these statistics.'

Visit: education.nzta.govt.nz/

What? Statistics level 4–5 enquiry cycle

Download education.nzta.govt.nz/resources

GETTING A DRIVER LICENCE

There is a wide range of helpful resources available to you if you're learning to drive, or you want to help someone learn.

LEARNING TO DRIVE

The graduated driver licensing system is designed to provide you with the skills and experience to become a safer driver on New Zealand roads. Achieving your full licence can also open up many employment and training opportunities where driving is essential or helpful.

Below is a list of resources that are available online to help you through each stage of the graduated driving licence system, and gain confidence behind the wheel.

You can find this information on our website at **www.nzta.govt.nz/driver-licensing-resources**, including the links to each resource, frequently asked questions and the fees you need to pay.

THE ROADMAP TO YOUR CAR LICENCE

BEFORE YOU START

- Identification required
- Eyesight requirements
- Medical requirements
- Organ donation
- NZ Road code
- Where to go to get your licence

pathwaysawarua.com

LEARNER LICENCE

- About the learner licence
- The theory test
- Practice your theory test
- NZ road code

drive.govt.nz

pathwaysawarua.com

nzqa.govt.nz/class-1-driver-licence

RESTRICTED LICENCE

- About the restricted licence
- Restricted test guide
- NZ road code
- Test day checklist
- Community Driver Mentor Programme

drive.govt.nz

pathwaysawarua.com

nzqa.govt.nz/class-1-driver-licence

FULL LICENCE

- About the full licence
- Full test guide
- NZ road code
- Test day checklist
- Advanced driving courses

drive.govt.nz

nzqa.govt.nz/class-1-driver-licence

NZ TRANSPORT AGENCY WAKA KOTAHI

New Zealand Government

PROGRAMMES THAT SUPPORT PEOPLE LEARNING TO DRIVE

NZ Transport Agency has initiated or supported a number of programmes that are specifically set up to help drivers through the driver licensing process. You may be interested in using this information in your own community.

Below is a short description of each programme – more details are available on our website **nzta.govt.nz/driver-licensing-resources**

COMMUNITY DRIVER MENTOR PROGRAMME

(RESTRICTED LICENCE)

The Community Mentor Driver Programme (CDMP) is designed to help young people overcome barriers to achieve their restricted licence. The programme model relies on community collaboration between local organisations, volunteer mentors and young drivers.

The NZ Transport Agency, with partner and sponsor support, helped to initially develop and support six CDMPs around New Zealand. More information on how to set up and run a CDMP for your local community is available online.

DRIVER LICENSING CREDITS (NCEA) – NZQA.GOVT.NZ/ CLASS-1-DRIVER-LICENCE

(LEARNER, RESTRICTED, FULL LICENCE)

Students can earn credits that can be applied to the qualifications framework by passing tests for the Class 1 driver licence. If a student is currently enrolled in a school or tertiary education organisation, they can show their licence (learner, restricted or full) to have it authenticated. The school or tertiary organisation then reports the credits on behalf of the NZ Transport Agency to NZQA.

DRIVE – DRIVE.GOVT.NZ

(LEARNER, RESTRICTED, FULL LICENCE, TEACH SOMEONE TO DRIVE)

Drive is a free website and learning tool designed to help young people become safe, capable drivers. There are games and quizzes in an interactive road code, free video lessons and driving tips, and video guides to the practical tests. Plus you can read coaching guides to help you teach someone to drive. Drive was created by the NZ Transport Agency and ACC.

PATHWAYS AWARUA – PATHWAYSAWARUA.COM

(LEARNER, RESTRICTED LICENCE)

Pathways Awarua is a tool developed by New Zealand's Tertiary Education Commission to support adult learners in strengthening numeracy and reading and writing competencies. From 2016, the Ministry of Education has supported its use in state and integrated schools with year 9-13 students.

NZ Transport Agency worked with Pathways Awarua to develop a Road Code learning module.