

Authentic learning trumps fear tactics

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Why are some innovative secondary teachers using road safety as an authentic context for learning?

Innovative New Zealand secondary teachers are supporting students to gain both deep subject knowledge and a new view of being a road user at the same time. How and why are they doing this? This paper discusses these questions and proposes that more secondary teachers consider voluntarily including road safety as an authentic context for learning in the subjects they teach. It also invites teachers and students to re-use, remix, revise, exemplify, re-distribute and add to this article in ways that are likely to impact positively on the overall aim of achieving a safe New Zealand roading network.

Why road safety?

Our roads are a shared and valuable resource¹, but the way we currently use/see/understand our roads leads to injuries and deaths that have huge costs to families, communities and the economy.

What will it take to change the way we think and act? In a paper Pam Hook and I wrote recently we argued that achieving a roading network that enables people to safely connect with their families, friends, schools, communities and employment will require “challenging what seems to be a dominant New Zealand view, that road deaths are accidents that are inexplicable, unfortunate and reducible but not preventable” (Chamberlain and Hook, 2012 p 1). We believe that an education approach that challenges students’ mental models has the potential to further strengthen the New Zealand Transport Agency’s safe system approach.²

Why are innovative teachers spending time on road safety education?

A number of innovative secondary teachers are currently using curriculum resources provided by the New Zealand Transport Agency (THE NZ TRANSPORT AGENCY) to challenge young peoples’ mental models about road safety. They are doing this because a disproportionate number of young people die on our roads and because good teaching can help make a difference. There are other reasons too. Road safety is being used as an authentic real life context to both help students deepen and apply their subject learning and to encourage them to

¹ Eighty-four percent of New Zealanders personal daily journeys take place on roads

² The Safe System approach works on the principle that it is not acceptable for a road user to be killed or seriously injured if they make a mistake. <http://www.The NZ Transport Agency.govt.nz/about/who-and-what/what-we-do/safer-journeys/system-designers.html>

become active citizens who use their learning to improve their own lives, the lives of others and that of society as a whole.

These teachers and students see our roads as connecting us and believe that using our shared spaces in informed thoughtful ways is a reasonable expectation of good citizens. They see the way we use our roads as both a right and a shared responsibility. They are concerned that travelling in ill informed, thoughtless or selfish ways has serious consequences for fellow citizens.

Why then do some teachers and students still see road safety as a boring topic? I suspect it is partly because road safety was traditionally taught as either a frightening experience designed to scare students into changing their behaviour or as a set of rules to learn and follow. A range of approaches is outlined below.

What is the range of approaches to road safety education?

Approaches to road safety education can be positioned along a continuum. At one end of the continuum teachers try to improve road safety outcomes through “fear or threat” appeals aimed at scaring young people into behaving in ways that reduce crashes (Elliot, 2003). Midway along the continuum is an approach where teachers try to improve road safety outcomes by improving students specific road safety knowledge and skills, and at the other end of the continuum teachers deliberately design engaging learning experiences to help students become better decision makers, who are willing and able to help create a shared transport network where we can all travel safely. The next section explains each of these approaches in more detail.

Fear approaches

In trying to persuade young people to use roads safely some educational interventions focus on shock tactics. These “fear” approaches usually contain graphic descriptions of the potentially negative consequences of risky behaviour. The assumption is that young people will change their attitudes and behaviours if they are exposed to messages and images that shock them and evoke a fear response (Elliot, 2003).

However while such messages have the power to grab attention, research indicates that messages designed to arouse fear or anxiety in young people are almost always ineffective in changing behaviour long term. Donovan and Henley (2000) concluded that there was no evidence that such approaches work outside simulated laboratory environments and Lewis, Watson, Tay and White’s 2007 review of the effectiveness of fear appeals in improving driver safety found that while fear arousal was useful for attracting attention, its contribution to behaviour change was weak. They also found that such appeals were neither relevant nor effective for high-risk young males and suggested that the continued use of such strategies is inappropriate for these groups. Pechmann et al (2003) suggest fear approaches may have a poor impact on behaviour because young people are more likely to focus on potential gains than potential losses, and also because many young people have a “it won’t happen to me mentality.”

No matter what the context, fear is generally an ineffective tool for motivating genuine personal engagement. Repeated exposure to graphic road crash scenes is likely to desensitise viewers and does not support them to improve their skills or to make better decisions (Tay and Watson 2002).

Improving specific knowledge and skills

Midway along the continuum is an approach where teachers try to improve road safety outcomes by improving students' specific road safety knowledge and skills. This usually happens through presenting pre-determined knowledge that is organised under standard topics and delivered through structured transmission teaching. Students learn the rules they need to follow in order to travel to school safely and teachers mark students work and monitor the extent to which students have learnt these rules. Teachers may also provide behavioural feedback, but they do not engage students in problem solving, problem posing or applying their knowledge to influence the network as a whole.

Knowing the rules is necessary, but it is not sufficient to either keep our young people safe or to ensure they become active participants in creating safe roading network. There are two reasons for this. First, just knowing what to do doesn't necessarily translate into behaviour change - think about how difficult it is for most people to translate knowledge about the benefits of good nutrition and fitness into changed diets or fitness regimes. And second, all of the situations our young people may find themselves in are not knowable in advance. Even if they were, teaching a rule wouldn't help in every situation.

Actively contributing to a safe network

This takes us to the right-hand end of the continuum. While at school young people are in the process of constantly becoming better learners, more educated individuals and more sophisticated members of society. They are becoming skilled at growing their identities so that they can thrive in increasingly complex personal, interpersonal and societal situations.

Approaches at this end of the continuum foster the development of positive, socially located, and socially connected road user identities. Students come to see themselves as part of a community of road users rather than as merely drivers, cyclists or pedestrians. These approaches are relevant to students' lives and the lives of people in their communities because they deliberately engage with young peoples' everyday issues, concerns and emotions in the context of the larger road use issues.

They are underpinned by socio-cultural theories that see individual learners growing and managing different ways of being, in relationships with other people, the natural world, and with the technological artifacts of our built world (Gilbert 2005, Lemke 2002). They are also underpinned by evidence about effective teaching and learning including the need to provide authentic³ and relevant learning opportunities that enable students to learn in ways that

³ Authentic learning typically focuses on real-world, complex problems and their solutions, using role-playing exercises, problem-based activities, case studies, and participation in communities of practice.

increase their academic subject knowledge, their competencies and their ability to make decisions and apply their knowledge all at the same time. If students know they will be able to apply their learning in ways that will be useful to others (rather than just producing something for marking) then they will be more likely to invest time and effort in learning at a different and deeper level.

THE NZ TRANSPORT AGENCY materials have been deliberately positioned at this end of the continuum. Students are expected to build explicit subject content knowledge at the same time as they are learning about and solving local problems related to travelling responsibly and safely as a pedestrians, cyclists, drivers and passengers. The materials are focussed on important outcomes; they are age appropriate and theoretically robust. Suggested activities are aligned to desired outcomes, and they focus students on important big ideas in both the subject they are studying and road safety education.

Secondary teachers who developed and trialled subject based units of work for THE NZ TRANSPORT AGENCY found that learning in these ways influenced the mental models of road safe behaviour students held in their heads and advanced subject outcomes at the same time.

In art, teachers developed a unit⁴ that improved students' safe pedestrian behaviour using creative and playful advertising strategies. Students deepened their awareness about crossing roads minimising distractions such as mobile phones and iPods and at the same time they learnt about the design process and the relationship of text and images in creating an idea.

Students' self evaluations told us that many of them now unplug their iPods and stop texting when crossing the road. As teachers we are also much more aware of the issues and the importance of our own modelling. I give myself 10 extra minutes to walk to school because I now only cross with green lights

Art teacher

In a maths unit⁵ about investigating stopping distances using statistical inquiry teachers started with data that they wanted to investigate.

We were looking for a teaching and learning process that was likely to spark a chain of thinking and action. Most students were not surprised about stopping distances, but they were surprised about the extent of the difference a small amount of extra speed can make.

Maths teacher

In a science unit⁶ focused on how to use forces to make crashes survivable teachers found that students deepened the knowledge needed to make their own well-informed choices.

⁴ <http://education.The NZ Transport Agency.govt.nz/resources/school-curriculum/art-and-design>

⁵ <http://education.The NZ Transport Agency.govt.nz/resources/school-curriculum/mathematics>

We want our students to make decisions based on science and logic-not just to remember rules... There are definitely more students that understand force and motion because we taught it using road safety as a context.

Science Teacher

⁶ <http://education.The NZ Transport Agency.govt.nz/resources/school-curriculum/science>

Table 1 Common Approaches to Road Safety Education

The table below provides a summary of the approaches to road safety education described in the section above.

	Approach or purpose	Sample learning activities	Likely student outcomes
Fear Appeals	To raise awareness, keep the importance of road safety visible and to scare students into changing their behaviour	Students are exposed to images, messages and scenarios designed to shock them and create a fear response	Signals what “not to do” and has little long-term impact for most students
Developing specific road safety knowledge and skills	Students are taught to follow road safety rules eg how to safely cross the road, buckle up, drive a car and so on.	Students learn through direct transmission teaching, others modelling appropriate behaviours, practicing skills, behavioural feedback and positive reinforcement	Students learn road safety skills and can follow rules, for example they know how to walk, cycle or drive to school or safely.
Actively contributing to a safe network	<p>Students build subject knowledge and competencies. Students use the knowledge and competencies to critically examine the current system and to constructively engage in problem posing and problem solving.</p> <p>Students help solve relevant local road safety issues and play an active role in creating a shared network supportive of all road users.</p>	<p>There is a focus on students’ subject learning needs and on local issues. Both subject learning and road safety learning are authentic and engaging for students.</p> <p>Adults and students contribute expertise and students develop and apply knowledge and skills from and with their peers and other experts</p>	Students acquire and apply the knowledge skills and dispositions needed to be active learners critical thinkers and change makers in their communities

Road safety and citizenship

The approach described at the right hand end of the continuum – “actively contributing to a safe network,” is also informed by a vision about the kinds of citizens we want our young people to become. It is founded on the belief that students applying their learning and taking practical steps to make a difference for themselves and others is a key part of becoming educated.⁷⁸ This is also in line with the New Zealand Curriculum vision:

Our vision is for young people who will be active participants in a range of life contexts (and) contributors to the well-being of New Zealand...

The New Zealand Curriculum 2007, p8.

The NZ Curriculum (ibid) expresses the importance of students being connected and actively involved. This involves supporting students to develop empathy and understanding for multiple societal roles. In a road safety context it means helping students to consider and hear the voices of pedestrians, cyclists, passengers and drivers who all use the roading network.

The way students are taught is likely to influence the students’ mental models and values about both road safety and what it means to be a citizen. The design and underlying pedagogy of units of work and supporting materials provided by THE NZ TRANSPORT AGENCY encourages students to become active citizens and they support teachers to challenge ego-centric ideas such as:

- *Speed is good, fast cars are good because I need to get where I’m going as fast as possible*
- *I can make phone calls and text my friends while driving because I’m a good driver*
- *I’m in a car- cyclists and pedestrians should watch out for me, I am bigger therefore I have more rights than them*
- *I am a passenger and I’m entitled to get where I’m going with no hassle- I don’t really know anything about the road and how it works- and I don’t need to*

Table 2 outlines how THE NZ TRANSPORT AGENCY road safety materials might be used to support students to become actively engaged citizens, citizens who make personal meaning for themselves and who apply what they have learnt in ways that help themselves, others and their communities.

⁷ See Vygotsky’s seminal work on the ways in which social interaction leads to higher order thinking

⁸ See Bruner’s emphasis on the difference between learning about physics and learning to be a physicist and his view that learning is not meaningful or relevant until learners **do** something with it

Table 2: What kinds of citizens do we want our young people to become? ⁹

	Personally Responsible (focus on self)	Participatory (focus on others)	Justice oriented (focus on society)
Description	<p>Acts responsibly in his/her school and community</p> <p>Obeys rules and laws</p> <p>Does crossing duty</p> <p>Volunteers to help in a crisis</p>	<p>Active member of school or community groups and/or improvement efforts related to road safety</p> <p>Knows strategies for accomplishing collective tasks</p>	<p>Critically assesses road safety issues and sees beyond surface causes</p> <p>Seeks out and addresses some road safety issues</p> <p>Knows how to effect change</p>
Sample Action	<p>Secondary students make way for a neighbouring primary school's walking bus</p>	<p>Secondary students help organise a walking bus for a neighbouring primary school</p>	<p>Secondary students explore why primary school walking buses are needed and takes some action to help solve root causes</p>
Core Assumption	<p>To improve society citizens must have good character; they must be honest, responsible, and law-abiding.</p>	<p>To improve society citizens must actively participate within established systems and community structures</p>	<p>To improve society citizens must question and change established systems and structures when they continually reproduce patterns that harm some community members</p>

⁹ Adapted from a table developed by Westheimer and Kahne (2004, p 2)

An invitation

This article has illustrated how the context of road safety can deepen subject knowledge and improve students' knowledge about road safety at the same time. It has highlighted the availability of high quality editable and downloadable THE NZ TRANSPORT AGENCY resources that save teachers time. Teachers can draw on the work of leading New Zealand educators who have designed and trialled units of work and assessment activities for year 9-13 students¹⁰
www.education.The NZ Transport Agency.govt.nz.

You and your students can make a difference that matters. I invite you to think about our roads as a valuable resource that we all own and share, and to engage your students in using their subject learning to make a positive difference to the lives of their peers and their communities. I also invite you to re-use, remix, revise, exemplify, re-distribute and add to this article in ways that are likely to impact positively on the overall aim of achieving a safe New Zealand roading network.

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¹⁰ THE NZ TRANSPORT AGENCY has developed innovative, editable units of work for years 9 and 10 in English, Science, The Arts-drama, Mathematics and Health and Physical Education. These are explicitly curriculum linked. NCEA assessment materials for NCEA level 1 and 2 in Health Education, Physical Education, Physics, Drama, Media Studies and Digital Technologies are also available on the THE NZ TRANSPORT AGENCY website. This material has been quality assured by NZQA as meeting the requirements of the relevant NCEA achievement standards.

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