

# The NZ Transport agency, teachers and educators design evidence-based road safety education in New Zealand schools

Raewyn Baldwin<sup>a</sup> and Wayne Erb<sup>b</sup>

<sup>a</sup> NZ Transport Agency, [Raewyn.Baldwin@nzta.govt.nz](mailto:Raewyn.Baldwin@nzta.govt.nz), <sup>b</sup> Freelance education writer, [wayne.erb@gmail.com](mailto:wayne.erb@gmail.com)

## Abstract

New Zealand's road safety strategy to 2020, Safer Journeys, has led to broadened design-led school-based road safety education. NZ Transport Agency curriculum resources, written by educators and secondary teachers, intentionally give effect to research for best practice teaching and learning. As a result, younger road users may gain the knowledge and dispositions needed to participate and contribute to a safe road system. The resource collection is based on educational theory and practice that finds learning to be contextual, actively constructed, and socially negotiated. There is a need for learning that promotes deeper understanding and builds personal and social agency. Building blocks for innovative learning included collaboration, community service, student inquiry and formative assessment. The NZ Transport Agency design process is future-orientated, scalable, agile and user-driven. The resources enable teachers to address their priorities across curriculum areas. Teachers can scaffold learning in which students relate to and extend road safety concepts situated within relevant personal and community contexts and within subject areas knowledge and skills. Customised sequences of learning experiences support students through opportunities to lead investigations and manage and participate in personal and community road safety outcomes. Interviews with teachers suggest they view curriculum-designed learning experiences in road safety as an authentic context connecting students to deeper notions of curriculum areas such as mathematics and drama et al. These immediate outcomes raise potential for young people to grow adaptive expertise as critical and informed citizens and road users with proactive models of how citizens contribute to harm reduction.

## Introduction

New Zealand's *Safer Journeys Action Plan 2011-2012* stated that "many young New Zealanders do not have access to quality road safety education, either at school or through professional driver training. This needs to be addressed" (Ministry of Transport, 2011, p. 20). In response, the NZ Transport Agency created teaching and learning resources based on evidence for effective learning. Curriculum resources for years 1-8 and years 9-13 are online for teachers to freely download, modify and use.

A mathematics and statistics teacher who wrote and trialled a NCEA L1 assessment resource published by the NZ Transport Agency found:

Students are taking away from this statistics investigation road safety messages about the issue of cell phone use during driving and the impact of being tired on concentration levels. They haven't been explicitly told these messages; instead they've looked at the evidence and formed meaning for themselves from the data (S Howell, personal communication, April 30, 2015).

This discussion will outline how careful design of resources is the vehicle for students to develop agency – the capability to both develop their knowledge of road safe behaviours and to act on that knowledge.

## Effective school-based road safety education

Hakkert and Gitelman (2014) note that systemic approaches to road safety were not a consideration in the early years of motorisation. Today the Safe System approach presents young people with many entry points to unpack road safety in line with the moral, technical and social knowledge curation and creation that being a citizen sharing the roadway can entail.

The agency's curriculum resource design is underpinned by evidence of what works and doesn't work in schools. Influences include *Principles for School Road Safety Education: A Research Summary* (Government of Western Australia, 2009). It advises: embed road safety education programs within a curriculum, use student-centred interactive strategies, and help students influence peers as safe road users.

Another significant work is *Effective community & school based road safety for young people: a summary of the research* which calls for comprehensive curriculum programs that are interactive and focus on the social competency of the students (Harris, n.d.).

Chamberlain and Hook (2012) say curriculum designers need to provide activities deliberately linked to how young people learn, ensure relevance that motivates and engages young people, create dissonance and develop deep knowledge, and develop competencies for making decisions and taking action.

### **Why a socio-constructivist approach to learning?**

Today, learning is often understood to be “shaped by the context in which it is situated, and is actively constructed through social negotiation with others” (Dumont, Istance, & Benavides, 2012, p. 3).

The Transport Agency's program reflects this theoretical base, and supports a nationwide shift in road safety education approaches from transfer of knowledge and skills, toward engaging students in socially-constructed learning. The aim is making new learning relevant for young road users so they deeply understand the complexity of both road safe behaviours and the capabilities of being a citizen in skilled and active ways, and who collaborate with community members to address safety issues (Chamberlain and Hook, 2012).

An implicit future focus arises through the need to build adaptive expertise – “the ability to apply meaningfully-learned knowledge and skills flexibly and creatively in different situations” (Dumont, Istance, & Benavides, 2012, p. 3). Participation in community advocacy requires students to develop agency, defined by Hayward as “a citizen's capacity for developing independent thought (will formation) and the capability for freely choosing to act on those ideas (volition) (Hayward, 2012, p. 64).

Road safety education in the classroom requires innovative learning environments, using ‘building blocks’ such as cooperative learning, service learning that engages students in authentic situations in their communities, formative assessment that helps the students and teacher understand their progress and plan next steps, and inquiry-based approaches (Dumont, Istance, & Benavides, 2012, p. 10).

### **Integration into effective pedagogy**

Hipkins (2015) notes that the Transport Agency's integration of a road safety context within and across subject areas “is used to enlarge the learning in a way that deepens its purpose, making strong links to students' interests and concerns in the process”. She writes that resultant learning “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.”

Resource design supports students to look at the discourses embedded in road use in their locations in terms of normative moral orders (Davies, 2011). The design provides the tools for teachers to make every-day normative actions more visible and support students to create new constructs of road user behaviours for critique.

The Transport Agency asked teachers, and educators who consult in schools, to write and trial the curriculum resources it publishes. The agency mandated to resource writers that concepts of road safety followed best practice methodologies. The process included engaging with user reference groups of teachers to generate ideas and review existing resources.

Example reference group responses:

Resources that get past surface learning outcomes and prompt for deep learning based on the New Zealand Curriculum ... open-ended opportunities to identify, explore and manage transport challenges facing local communities ... editable resources that relate to a young adult's lived experiences in being a passenger, learning to drive, buying a car, getting pink stickered, learning the official NZ Road Code. (Hook, 2014, p. 7)

Each resource enables clear linkages to New Zealand Curriculum values, key competencies and achievement objectives across learning areas as diverse as physics, drama and visual arts. Self-assessment rubrics, exemplars and other content enable students and teachers to monitor and plan their learning.

The resources aim to provide students with agency and develop key competencies like *managing self* as they spiral through a progression into deeper learning (Biggs as cited in Hook, 2015). Teachers, students and the resources themselves enable this by mapping activities to SOLO Taxonomy, a model of learning that is used to develop levels of surface, deep and conceptual understanding (Biggs & Collis, 1982).

The breadth and flexibility in each resource is based on the principles of universal design for learning, that is, providing students with multiple means of representation, action and expression, and engagement (CAST, 2011). The result is unique learning experiences in each classroom.

A secondary maths teacher who adapted agency resource and data set for his year 13 students, found that:

Students responded really well to the context. They took on board the stopping distance message and researched to find other factors that influence it ... I took the data and the context in general and I married that with the demands of the curriculum and assessment at level 3 (NZ Transport Agency, 2013).

### **Ongoing review of student outcomes**

Programme evaluation is real-time, influences the agency's next steps, and has led to published case studies. Phone and email interviews and school visits in the past five years gained qualitative information from at least 35 primary and secondary teachers using curriculum resources plus at least 20 others who took part in agency student competitions and storybook projects with a curriculum focus. Teachers gave access to a few student written and recorded verbal responses. Teachers were asked how they adapted the resources, what learning activities students completed, what helped students learn, characteristics of student engagement and student outcomes related to road safety. A sample of responses follows.

A teacher of year 3-4 class reported "there's that deeper learning – they are predicting. Takurangi writes 'in the future I want to see when you get tickets to the big event, they come with bright jackets so you can be seen by people'" (Ministry of Education, 2011).

An English teacher using NCEA L2 resource on close viewing of road safety ad campaigns:

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 (NZ Transport Agency, 2015b).

## Secondary science teachers:

There are definitely more students that understand force and motion because we taught it this way ... 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 (Ministry of Education, 2012).

A Year 9 student using an English resource aligned to the agency's Drive Social campaign wrote that "I enjoyed doing the persuasive letter because we could change and help improve our roads" (NZ Transport Agency, 2015a).

## Year 13 visual arts student:

I started researching the Legend campaign and the thinking behind it, and I looked at some statistics around youth drunk driving. What I wanted to convey was a focus on the sober driver... I started looking at this comic-book style idea and I've created a character now, who is Soberman and he is a hero (unpublished video, 2013).

These outcomes arise from participatory curriculum-based learning facilitated by teachers adapting agency resources. Each instance raises the opportunity for young people and their whānau to grow adaptive expertise as critical and informed citizens and road users with proactive models of how they can contribute to harm reduction.

## References

- TNR Biggs, J.B., & Collis, K.F. (1982). *Evaluating the quality of learning: The SOLO taxonomy*. New York: Academic Press.
- CAST (2011). *Universal design for learning guidelines version 2.0*. Retrieved from [http://www.udlcenter.org/sites/udlcenter.org/files/updateguidelines2\\_0.pdf](http://www.udlcenter.org/sites/udlcenter.org/files/updateguidelines2_0.pdf)
- Chamberlain, M., & Hook, P. (2012). *Changing Mental Models: How recent developments in teaching and learning can be applied to road safety education in schools*. Retrieved from <http://education.nzta.govt.nz/guidelines/research-on-road-safety-education/changing-mental-models>
- Davies, B. (2011). Bullies as Guardians of the Moral Order or an Ethic of Truths? *Children and Society* 25 (4), 278–286
- Dumont, S., Istance, D., & Benavides, F. (Eds.). (2012). *The Nature of Learning: Using Research to Inspire Practice. Practitioner Guide*. Retrieved from <http://www.oecd.org/edu/cei/50300814.pdf>
- Government of Western Australia, School Drug Education and Road Aware. (2009). *Principles for School Road Safety Education: A Research Summary*. Retrieved from <http://www.det.wa.edu.au/sdera/detcms/navigation/for-schools/resources/principles-for-school-road-safety-education/>
- Hakkert A., & Gitelman, V. (2014). Thinking about the history of road safety research: Past achievements and future challenges. *Transportation Research Part F* (25), 137–149
- Harris, A. (n.d. ). *Effective community & school based road safety for young people: a summary of the research*. Melbourne: VicRoads and the Transport Accident Commission. Retrieved from <http://www.roadsafetyeducation.vic.gov.au/research.html>
- Hayward, B. (2012). *Children, Citizenship and Environment: Nurturing a democratic imagination in a changing world*. Abingdon: Routledge.

- Hipkins, R. (2015, May). Unwrapping the potential of purposeful context. *NZ Transport Agency Education Portal Newsletter*, 25, 3. Retrieved from <http://education.nzta.govt.nz/resources/school-community-partnerships/newsletters-education-portal>
- Hook, P. (2014). *Transport as a context for encouraging skilled and active citizenship*. Retrieved from <http://education.nzta.govt.nz/guidelines/research-on-road-safety-education/transport-and-active-citizenship>
- Hook, P. (2015). Why learning with SOLO Taxonomy is like licking ice cream. Retrieved from <http://pamhook.com/2015/06/30/why-learning-with-solo-taxonomy-is-like-licking-ice-cream/>
- Ministry of Education. (2007). *The New Zealand Curriculum*. Wellington: Learning Media.
- Ministry of Education. (2011). *New Zealand Transport Agency case studies*. Retrieved from <http://nzcurriculum.tki.org.nz/Curriculum-stories/Case-studies/New-Zealand-Transport-Agency>
- Ministry of Education. (2012). *Road safety as context for the secondary curriculum*. Retrieved from <http://nzcurriculum.tki.org.nz/Curriculum-stories/Case-studies/Road-safety/Science>
- Ministry of Transport. (2010). *Safer Journeys New Zealand's Road Safety Strategy 2010-2020*. Retrieved from <http://www.saferjourneys.govt.nz/resources/#resource-Safer-Journeys-Strategy>
- Ministry of Transport. (2011). *Safer Journeys Action Plan 2011-2012*. Retrieved from <http://www.saferjourneys.govt.nz/resources/#resource-Safer-Journeys-Strategy>
- NZ Transport Agency. (2013). *Year 13 stats classes delve into road safety*. Retrieved from <http://education.nzta.govt.nz/stories/bay-of-plenty/year-13-stats-classes-delve-into-road-safety>
- NZ Transport Agency. (2015a). Students study TV ads and write to persuade. *NZ Transport Agency Education Portal Newsletter*, 23, 1. Retrieved from <http://education.nzta.govt.nz/resources/school-community-partnerships/newsletters-education-portal>
- NZ Transport Agency. (2015b). Analysing What's Acceptable. *NZ Transport Agency Education Portal Newsletter*, 25, 2. Retrieved from <http://education.nzta.govt.nz/resources/school-community-partnerships/newsletters-education-portal>