

Changing mental models: The New Zealand Transport Agency's work with schools

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The NZ Transport Agency's approach to road safety education

The goals of road safety education (RSE) in schools:

- Assist young people to acquire the competencies to be responsible, safer citizens
- Help young people take steps to improve road safety in their community, and demand and expect safety improvements at a system level.

The NZ Transport Agency produces resources that support teachers in their core work. Resources are strongly aligned with the outcomes and philosophy of the NZ Curriculum and are a downhill run for teachers – easily downloaded and modified to suit each class.

These resources help teachers integrate road safety into their learning area, thus giving students the chance to engage deeply with issues and concepts. Students become problem finders and problem solvers.

What we are doing

The NZ Transport Agency is building a flexible, participatory set of resources which are suggested, developed and trialled by teachers.

Around 60 resources cover 7 curriculum areas for students aged 5-18. All are available online.

We worked with other agencies on guidelines which help schools evaluate RSE offerings in light of what we know about effective teaching and learning.

This work rests on research by Mary Chamberlain and Pam Hook, two respected icons of NZ education.

Research findings on effectiveness of RSE approaches

More effective

- Approaches based on best evidence about effective teaching and learning
- Content which is explicit, appropriate and challenging
- Focus on individual learning needs
- Targeting causes of risk behaviour
- Approaches that are evaluated

Less effective

- One-off approaches not linked to students' ongoing learning
- Activities that lack clear goals
- Teaching not evaluated for impact on students' learning
- One-size-fits-all approaches

Detrimental

- Programmes that promote early licensure
- Traditional training focused on vehicle emergency handling skills
- Use of scare tactics or confrontation without providing a parallel positive experience

Chamberlain and Hook surveyed research literature and found many RSE initiatives lacked sufficient evaluation to determine lasting effects. However, effective RSE takes a form that

teachers recognise. It works in conjunction with best practice pedagogy, aligns with the NZ Curriculum and focuses on students and how they learn.

Pam Hook: "It is really important to let students engage deeply and discover their own understandings so they are not simply following rules but also making their own independent choices towards safe journeys."

A change from the past

The NZ Transport Agency's work differs from a didactic, one-size-fits-all approach. In the past, someone brought to school a smashed up vehicle and a story of grief, or a set of bicycles and road cones.

These props and concepts told young people about potential danger, or imparted skills, but may not have generated change in behaviours and values. In part, lessons lacked involvement or follow-up by the class teacher who knew the students best. RSE in this mode was not unlike other student learning that lacked depth or clarity of purpose. Aitken and Sinnema (2008), commenting on social sciences pedagogy and findings from the Education Review Office, say students often experienced "hit and miss" programmes that resulted in shallow learning. It was rare for students to experience a sequence of activities with a purpose they understood.

As well, any approach to RSE has an opportunity cost. For example, Christie, quoted in McKenna, argued that resources committed to driver education and training may actually undermine effective RSE by diverting scarce funds and community attention away from initiatives more likely to reduce crash risk.

Promising design and delivery approaches

Much has been written about "what" students need to know in relation to road safety; less established is a process for teaching this content using new understandings around "how" young people learn.

Recent learning theories (Alton-Lee, 2003, Hattie 2012) suggest that to change the mental models of young people, we needed to consider four key features in our approach:

1. Designing activities deliberately linked to how young people learn
2. Ensuring relevance that motivates and engages young people
3. Creating dissonance and developing deep knowledge
4. Developing competencies for making decisions and taking action.

Adaptation within a complex system

We see teachers as adaptive experts who constantly examine the impact of their practice on their students' learning. This model of "teaching as inquiry" is promoted within the NZ Curriculum.

Schools are empowered to customize their own curriculum to meet student needs and community aspirations. In a similar vein, the specific priorities for road safety education vary among school communities.

The design of NZ Transport Agency resources includes clear learning goals and progressions while giving teachers

flexibility in what they include. This supports teachers to achieve the four key design and delivery features above. It builds on research, such as by Professor John Hattie, into “what works best” in the classroom. What works best will be a little different in every school community.

NZ Transport Agency resources are created by teachers for teachers and can be shared and altered by each teacher to meet the needs of individual students.

Citizenship education

Andrea Milligan, Education Lecturer at Victoria University of Wellington, has said: “When young people think critically about how safe road use intersects with both their lives and society as a whole, they are considering what it is to be an engaged citizen in a changing world.”

When teachers adapt road safety education to fit the day-to-day world of their students, it gives young people opportunity to develop their own ideas and to participate in the process of solving problems. This gives them the skills to participate more actively as citizens.

What research into how people learn means for RSE

<p>Clear outcomes</p> <ul style="list-style-type: none"> Set and expect high standards for all students. Focus on what you want students to know and do after your teaching. Share what you want them to learn and why. Broaden your approach to provide a hook for every student.
<p>Quality teaching</p> <ul style="list-style-type: none"> Check what each student already knows and can do. Plan with any external providers to meet student learning needs. Build learning-focused relationships with students and provide a variety of ways to learn. Design units long enough for learners to: take in ideas; link these; look at ideas in a new way; and do something with them in real life to make a difference for others.
<p>Home and community support</p> <ul style="list-style-type: none"> Gather parents, students and communities to consider road safety behaviour and actions. Homework that encourages relevant dialogue with caregivers.
<p>Timely, useful feedback</p> <ul style="list-style-type: none"> Help students answer: How am I going and what’s my next step? Provide specific, responsive feedback on their learning as they’re learning.

How do we measure behaviour change resulting from classroom lessons?

The teacher looks for outcomes related to the curriculum area. For example, achievement in art or statistics is measured. At the same time, teachers in trials report students are clearly learning and applying knowledge and skills, and developing attitudes and values, which are likely to impact on their road safety behaviour.

Our approach is not about short-term behaviour change. It is about changing the mental models of young new Zealanders-

empowering them to make informed decisions and influence wider attitudes and behaviours. Our work is based on research about teaching and learning that tells us how we are likely to get the best long-term results.

Evidence from case studies indicates that teaching RSE through curriculum contexts can change students’ mental models.

As one teacher pointed out, looking at data and considering what it means often leads to a change in knowledge, behaviour or attitudes, because when young people discover things for themselves those things have more chance of sticking.

Unless we continue to rethink and evaluate RSE in the light of these new approaches to learning, we risk wasting time and resources on busy work or even detrimental work that reinforces erroneous mental models which include road deaths as accidents that are inexplicable, unfortunate and reducible but not preventable.

Conclusion

The way the NZ Transport Agency provides resources to schools is a form of participatory government. Teachers adapt suggested learning experiences and then students generate their own ideas, often taking their learning in new directions. Our approach uses the web and social media in a way that works for schools.

This approach supports NZTA’s national goals of a “thriving Aotearoa” and a road system increasingly free from death and serious injury. This occurs though empowering young people to be citizens who expect to contribute and who understand how to respectfully share our roads as resources with one another.

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