

Using the e5 Instructional model (engage, explore, explain, elaborate, evaluate) in Traffic Safety Education

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Introduction

“The e5 Instructional Model (e5) was launched in 2009. Developed and tested over 18 months, it is a reference point for school leaders and teachers to develop a deeper understanding of what constitutes high quality teacher practice in the classroom”. (DEECD 16062010)

The e5 Instructional Model signals a systemic recognition of “the need to reach agreement about what constitutes high quality instruction so that we can describe what effective teachers do in the classroom to engage students in intellectually demanding work. The publication of the model also acknowledges the work of Professor Patrick Griffin from The University of Melbourne. Patrick provided the methodology for the project as well as the assessment and measurement expertise necessary to construct the e5 Instructional Model. Patrick continues to assist us to understand the nature of expertise and what it means to improve in a domain of learning..... The e5 Instructional Model is not a recipe for teacher practice but rather a framework to inform conversations and guide the observation, critique and reflection of classroom practice. There are many different ways that teachers can vary in their approach and their behaviour and still be highly effective in the classroom. All teachers use their professional judgement to adapt their practice to the specific context they work in and to the particular cohort of students they teach.” (DEECD 2010: Forward)

e5 responds to requests from teachers about how to effectively develop their own learning and teaching units of work and curriculum delivery. "If you don't have a powerful point of view about what high quality instructional practice looks like and what high level learning looks like, your work in managing and organising is pointless." (Elmore, 2006)

The models that were considered in the development of e5 included:

- Authentic Pedagogy (Newmann & Wehlage, 1993) which is based on students constructing meaning and producing knowledge, students use of the inquiry approach, and students developing outputs that have meaning beyond success in school.
- Five Standards (CREDE, 2002) which use five guidelines, including teachers and students working together, developing Language and Literacy Skills across the whole curriculum, contextualising activities by connecting lessons to students' lives, engaging students with challenging lessons, and emphasizing dialogue over lectures
- Productive Pedagogies (Department of Education, Training and The Arts (2004), a framework which asks teachers in the development of their learning and teaching programs to consider the backgrounds and preferred

learning styles of their students, identify the repertoires of practice and operational fields to be targeted and evaluate their own array of teaching strategies

- BSCS 5E Instructional Model (BSCS 2011) which takes teachers through a process to Analyze Instructional Materials and make evidence-based decisions to meet the needs of their students

The BSCS 5E Model was chosen as the starting point for a Victorian model because, with significant overlap between some of the models, it could be used to provide a sequential process for the development of programs, units and/or lessons and support teachers to internalise the five steps. Moreover the model has an affinity with the Victorian Education Department's Principles of Learning and Teaching (Department of Education and Early Childhood Development (2007a & b)

e5 aims to provide in plain English a guide to what high quality practice looks like and how to work with students every day in the classroom. e5 supports teachers to increase their understanding and build their knowledge base in leading practice.

e5 stands for the five phases built around five active verbs:: engage, explore, explain, elaborate and evaluate. E5 allows teachers to self assess against the learning and teaching continuum, and to identify their current proficiency level and areas for improvement.

The rationale behind the development of the e5 Instructional Model is to show how teachers **use** what they know in the classroom and to clearly articulate for themselves and others what high quality teaching and learning looks like in the classroom, including the intended capabilities of students when they leave the class.

These understandings can then underpin the subsequent development teacher the professional learning required to improve proficiency in the model's five domains.

Development of the e5

The printed e5 publication includes a full discussion of its Context, addressing:

- Curriculum, pedagogy, assessment and reporting;
- Research, theory and practice;
- The imperative for a shared view of quality instruction;
- Evidence-based models;
- Research on instructional models and frameworks;
- In the classroom; and
- Looking forward.

The model was developed in consultation with feedback from expert groups and school leaders.

There were 8 main stages in the model's development (outlined at: <http://www.education.vic.gov.au/proflearning/e5/about/development.htm>)

1. Domain descriptors, which brings together the evidence base about effective instruction and learning theory

2. Capabilities, which addressed the key questions as to whether each capability was learnable and identifiable by particular behaviours
3. Performance Indicators, specific behaviours identified within each capability and domain (these do not appear in the published model)
4. Quality criteria describe how well, what level of performance teachers achieve; protocols framed the development of quality criteria (based on Griffin 2008).
5. Validating the quality criteria, in which over 8000 teachers were consulted to refine them
6. Profiles were written with the quality criteria ordered within domains and in increasing level of competence
7. Consultation and review involved teachers, principals, critical friends and an e5 Project Board
8. Research and documentation which is reflected in the bibliography of this paper.

Structure of the E5 Model

The e5 Instructional Model is made up of three main components:

- Instructional Practice Domains, which describe the five major phases of instructional practice: engage, explore explain, elaborate and evaluate
- Instructional Practice Capabilities, which describe the expected knowledge, skills and approaches (linked to tasks performed at varying levels) that lead to effective instructional performance
- Instructional Practice Profiles which are sets of level statements for each domain that describe performance in the Instructional Practice Capabilities.

Using the e5 Instructional Model in Traffic Safety Education

What follows is a short explication of how Traffic Safety Education activities can be developed using the e5 instructional model to enhance delivery. A more comprehensive coverage can be explored within the published e5 or online at: <http://www.education.vic.gov.au/proflearning/e5/started/default.htm>

In effect this paper becomes a short workshop illustrating how, working within the context of developing traffic safety education units or work, and drawing on the profile statements or the domain descriptors can generate key understandings of effective learning and teaching in traffic safety education.

It should be noted that the e5 instructional model also reflects a backward planning approach as part of an effective schools model (Department of Education and Early Childhood Development 2011). Such an approach focuses on first identifying the nature of and evidence for learning outcomes; being able to identify what students must produce or end up with lays the foundation for what processes, activities, resources and information will be required to support students achieving those outcomes.

In the table below units of work from the Victorian Traffic Safety Education Resources, Kids on the Move (for primary schools) and Traffic safety Essentials (for

secondary schools) are used because they exemplify the backward learning process aligned with the e5 instructional model.

The following examples demonstrate 5 different ways the questions could be framed for an individual teacher, team, learning area, year level team or school and the possible responses in the Traffic Safety Education domain at the highest level (level 4) of performance, through examples drawn from the two Victorian resources.

Domain: engage	Capabilities	Questions	TSE Example Level 1-2
<p>The teacher fosters positive relations with and between students and develops shared expectations for learning and interacting. They stimulate interest and curiosity, promote questioning and connect learning to real world experiences. The teacher structures tasks, elicits students' prior knowledge and supports them to make connections to past learning experiences. They present a purpose for learning, determining challenging learning goals and making assessment and performance requirements clear. The teacher assists students to consider and identify processes that will support the achievement of the learning goals</p>	<p>Develops shared norms</p> <p>Determines readiness for learning</p> <p>Establishes learning goals</p> <p>Develops metacognitive capacity</p> <p>Level 4</p> <p>The teacher refers to shared norms in their interactions with students and shares responsibility with them for reinforcing protocols. The teacher uses all available evidence to determine each individual student's current level of understanding. They use questions generated by students to extend the focus of learning and to connect with students' lives. The teacher supports students to use evidence to personalise their learning goals and align them with curriculum standards. The teacher provides assessment rubrics, illustrating increasing levels of proficiency based on curriculum standards. They support students to evaluate their own and others' thinking. The teacher facilitates processes for students to monitor the effectiveness of their learning.</p>	<p>What behaviours should we model in the classroom?</p> <p>How do we stimulate interest and curiosity in learning?</p> <p>How do we assess students' prior knowledge?</p> <p>How do we decide on the nature and quality of assessment tasks?</p> <p>What strategies do we use to support students' thinking?</p> <p>How do we assist students to monitor their own learning?</p>	<p>Kids on the Move</p> <p>Module 1 – activity: Let's go walking</p> <p>Mark out different widths of 'roads' in the school ground to practise crossings.</p> <p>Plan, then go on a group walk around your local area.</p> <p>As you walk, look out for driveways.</p> <p>Introduce the concept of the time it takes to cross a road.</p> <p>Remind students about the concept of hazard, and ask them to think of examples they have seen.</p> <p>Organise the class into small groups and allocate them a road safety hazard that was identified in the local area.</p> <p>Emphasise the importance of holding hands.</p>
Domain: explore	Capabilities	Questions	TSE Example Levels 4-5
<p>The teacher presents challenging tasks to support students to</p>	<p>Prompts inquiry</p>	<p>How do we use questions to draw out students' prior</p>	<p>Kids on the Move</p> <p>Module 1 - activity: The</p>

<p>generate and investigate questions, gather relevant information and develop ideas. They provide tools and procedures for students to organise information and ideas. The teacher identifies students' conceptions and challenges misconceptions. They assist students to expand their perspectives and reflect on their learning. The teacher is mindful of the learning requirements of the task, attentive to student responses and intervenes accordingly</p>	<p>Structures inquiry</p> <p>Maintains session momentum</p> <p>Level 4</p> <p>The teacher introduces new perspectives, extending the inquiry and supporting students to reflect on their understanding. The teacher challenges misconceptions through the use of specific tasks and questions to extend student thinking. They prompt students to select tools and strategies appropriate for documenting the collected information. They teach students processes to evaluate the quality of information. The teacher attends to student's verbal and non-verbal cues, responds to individual behaviour and supports learning accordingly. They provide strategies to enable students to manage their time effectively</p>	<p>knowledge?</p> <p>What are misconceptions?</p> <p>How do we address students' misconceptions across different disciplines?</p> <p>What is a productive learning environment?</p> <p>What are real world applications?</p> <p>How do we create routines in our classrooms?</p>	<p>physics of road crashes</p> <p>Investigate the forces involved in road crashes.</p> <p>Investigate how friction influences stopping distances.</p> <p>Introduce the contribution speed makes to road crashes.</p> <p>Make links between the concept of speed and its relationship to stopping distance.</p> <p>Explore stopping distances.</p> <p>Build an understanding of road safety initiatives designed to prevent crashes or minimise injury in a crash.</p> <p>Explore the effectiveness of safety equipment.</p> <p>Have students become advocates for road safety by developing reports on local speed zones.</p>
<p>Domain: explain</p>	<p>Capabilities</p>	<p>Questions</p>	<p>TSE Example Level 4-5</p>
<p>The teacher provides opportunities for students to demonstrate their current level of understanding through verbal and non-verbal means. They explicitly teach relevant knowledge, concepts and skills. This content is represented in multiple ways. The teacher provides strategies to enable students to connect and organise new and existing knowledge. They assist students to represent their ideas, using language and images to engage</p>	<p>Presents new content</p> <p>Develops language and literacy</p> <p>Strengthens connections</p> <p>Level 4</p> <p>The teacher assesses the student's level of understanding, selecting and introducing content at individual point of need, in response to student explanation. They assist students to select strategies to demonstrate relationships between ideas</p>	<p>How do teachers in our learning area or year level team represent the content in different ways?</p> <p>How do teachers in our learning area or year level team allow time for the practice of new skills?</p> <p>How do teachers in our learning area or year level team identify the</p>	<p>Kids on the Move</p> <p>Module 4 - activity 1: Way to go</p> <p>Public versus private transport</p> <p>Investigate the disadvantages/advantages of public transport.</p> <p>Think critically about travel choices.</p> <p>Identify others' beliefs about</p>

<p>them in reading, writing, speaking, listening and viewing. The teacher explicitly teaches the language of the discipline. They progressively assess students' understanding and structure opportunities for students to practise new skills</p>	<p>and to connect new content with prior learning. The teacher challenges students to represent their understanding in multiple ways. They guide students to establish independent practice routines to reinforce and extend the student's level of understanding. The teacher supports students to use the language of the discipline and to select the mode of language appropriate to the task. They support students to identify and use strategies to meet the literacy demands of the task</p>	<p>language proficiency levels of students?</p> <p>How do teachers in our learning area or year level team model the use of English language conventions?</p> <p>How do teachers in our learning area or year level team model the language of our discipline?</p> <p>How do teachers in our learning area or year level team incorporate different modes of language in our lessons?</p>	<p>public transport.</p> <p>Planning to travel on public transport.</p> <p>Practise public transport safety skills on the excursion.</p> <p>What to do when the unexpected happens.</p> <p>Identify antisocial or unsafe behaviours on public transport.</p>
Domain: elaborate	Capabilities	Questions	TSE Example Level 6
<p>The teacher engages students in dialogue, continuously extending and refining students' understanding. They support students to identify and define relationships between concepts and to generate principles or rules. The teacher selects contexts from familiar to unfamiliar, which progressively build the students' ability to transfer and generalise their learning. The teacher supports students to create and test hypotheses and to make and justify decisions. They monitor student understanding, providing explicit feedback, and adjusting instruction accordingly</p>	<p>Facilitates substantive conversation</p> <p>Cultivates higher order thinking</p> <p>Monitors progress</p> <p>Level 4</p> <p>The teacher explains the taxonomy used to structure the task and inform the assessment criteria. They support students to use evidence to challenge assumptions underpinning principles when extending the learning to new contexts. The teacher structures opportunities for students to sustain a conversation, deepening individual and collective understanding. They support students to critique one another's ideas to increase the intellectual rigour of the conversation. The teacher continuously monitors student progress and provides feedback that enables each</p>	<p>What does an intellectually challenging task look like?</p> <p>What is cognitive demand?</p> <p>What does substantive conversation look like in the classroom?</p> <p>What is quality feedback?</p> <p>How do you modify instruction?</p> <p>What are different modes of language?</p> <p>What is transfer?</p>	<p>Traffic Safety Essentials</p> <p>Unit 1 Driving or just steering</p> <p>Problem recognition</p> <p>The over representation of young people in road crashes</p> <p>Identify the causes of young people's involvement in road trauma</p> <p>Identify the costs associated with road trauma</p> <p>Problem solving</p> <p>Making a difference</p> <p>Taking action</p> <p>Getting the experience you need</p>

	student to understand what they need to do to improve.		
Domain: evaluate	Capabilities	Questions	TSE Example Level 6
<p>The teacher supports students to continuously refine and improve their work using assessment criteria in preparation for a performance of understanding. They integrate evidence from each phase, formally recording students' progress against learning goals. The teacher provides feedback and assists students to evaluate their progress and achievements. They support students to reflect on their learning processes and the impact of effort on achievement. The teacher guides students to identify future learning goals</p>	<p>Assesses performance against standards</p> <p>Facilitates student self assessment</p> <p>Level 4</p> <p>The teacher moderates both within and across classes to ensure consistent judgements. They support students to reflect on their learning outcomes and evaluate strategies used. The teacher conferences with individual students using student reflection and teacher judgement to discuss progress against curriculum standards. The teacher refers to the conference and curriculum standards when facilitating an individual student's identification of future learning goals and strategies</p>	<p>How can I ensure that my judgments about student work are consistent with other staff?</p> <p>What evidence would I provide that demonstrated how I assist students to reflect on their learning?</p> <p>How can I assist students to identify their future learning goals?</p> <p>How can I improve the quality of the tasks I design for students?</p> <p>What evidence would I provide that demonstrated the fairness and consistency of my assessment methods?</p>	<p>Traffic Safety Essentials</p> <p>Unit 4 Alcohol and other drugs</p> <p>Problem recognition How do alcohol and other drugs affect a road user? Surely walking isn't dangerous!</p> <p>Problem solving Approaches to managing road users affected by alcohol and other drugs Understanding the myths about alcohol and other drugs</p> <p>Taking action How much can you drink? Why don't we make some changes?</p>

Conclusion: Using the e5 model in Traffic Safety Education

Recommended additional resources to support a professional learning approach to using the e5 instructional model in the development of Traffic Safety Education lessons, units, modules and programs are:

- FUSE (<https://fuse.education.vic.gov.au/pages/Teacher.aspx>) - a portal, a repository, a search engine, a workspace and a way of sharing quality education digital content and resources. Users can search for websites, images, video, audio, interactives, documents and other rich media types with all resources tagged according to audience
- Principles of Highly Effective Professional Learning (<http://www.education.vic.gov.au/proflearning/default.htm>) - the seven principles of highly effective professional learning
- Educator's Guide to Innovation (<http://guidetoinnovation.ning.com/events>) - a calendar of online professional learning events in the Virtual Conference Centre and online discussion forums for educators

- Principles of School Road Safety Education (<http://www.det.wa.edu.au/sdera/detcms/navigation/road-safety/principles-for-school-road-safety-education/>) - presents a set of 16 principles in school road safety education that ensure content and delivery methods of road safety education are consistent with what is currently understood to be leading practice in the field. They guide users through core concepts and values in planning, implementing and reviewing school road safety education programs, policies and practice.

Bibliography

Bloom, B S (Ed) (1956) *Taxonomy of Educational Objectives, The Classification of Educational Goals, Handbook 1: Cognitive Domain*, Longman, London.

BSCS 2011 The BSCS 5E Instructional Model,
<http://www.bsos.org/curriculumdevelopment/features/bsos5es.html>

CREDE (2002) Teaching Alive! Five Standards for Effective Pedagogy,
http://gse.berkeley.edu/research/credearchive/standards/standards_data.html

Dalton, S S (1998) *Pedagogy Matters: Standards for Effective Teaching Practice*, Centre for Research on Education, Diversity & Excellence, University of California, Berkeley, CA.

Department of Education (2007) *The Developmental Learning Framework for School Leaders*, Department of Education, Melbourne.

Department of Education and Early Childhood Development (2007a) *The Principles of Learning and Teaching P–12*, Department of Education and Early Childhood Development, viewed 11 December 2008 at
www.education.vic.gov.au/studentlearning/teachingprinciples/principles/default.htm.

Department of Education and Early Childhood Development (2007b) *The Principles of Learning and Teaching P–12 Unpacked*, Department of Education and Early Childhood Development, viewed 11 December 2008,
www.education.vic.gov.au/studentlearning/teachingprinciples/principles/unpacked.htm.

Department of Education and Early Childhood Development (2008a) *Effective Schools are Engaging Schools, Student Engagement Policy Guidelines*, Draft guidelines, Department of Education and Early Childhood Development, Melbourne.

Department of Education and Early Childhood Development (2008b) *Literacy Paper Series 2006–2008*, Education Policy and Research Division, Office for Policy, Research and Innovation, Department of Education and Early Childhood Development, Melbourne.

Department of Education and Early Childhood Development (2008c) *Literacy Professional Learning Resource – Key Concepts*, viewed 10 June 2008 at

www.education.vic.gov.au/studentlearning/teachingresources/english/literacy/concepts/1earlylangdev.htm.

Department of Education and Early Childhood Development 2010 *The e5 Instructional Model*, viewed 16 June 2011, <http://www.education.vic.gov.au/proflearning/e5/> on

Department of Education and Early Childhood Development (2011) *Accountability and Improvement Framework for Victorian Government Schools*, viewed 20 June 2011 at: http://www.eduweb.vic.gov.au/edulibrary/public/account/operate/saif2011/Accountability_and_Improvement_Framework_Guidelines_2011_FINAL.pdf

Department of Education and Training (2003) *Quality Teaching in NSW Public Schools, an Annotated Bibliography*, NSW Department of Education and Training, Sydney.

Department of Education, Training and The Arts (2004) *The New Basics Project, Productive Pedagogies*, The State of Queensland.

Elmore, R (2006a) *Improvement of Teaching at Scale*, Math Science Partnership Learning Network Conference, Washington, DC, January.

Elmore, R (2006b) *The Resilience of Teacher Culture*, excerpt from the UCEA Mitsifer Lecture, 11 November, viewed 10 January 2007 at au.youtube.com/watch?v=AfQzo5e4iSU.

Elmore, R (2008), *Usable Knowledge*, Harvard Graduate School of Education, viewed 20 February 2008 at www.uknow.gse.harvard.edu/leadership/leadership001a.html.

Fraser, D & Petch, J (2007) *School Improvement: A Theory of Action*, Department of Education, Melbourne.

Gagné, R M (1985) *The Conditions of Learning and Theory of Instruction*, (4th Edition), Holt, Rinehart and Winston, New York, NY.

Gardner, H (2004) *Changing Minds: The Art and Science of Changing Our Own and Other People's Minds*, interview by Harvard Graduate School of Education News, 1 June.

Hattie, J (2002) *What Are the Attributes of Excellent Teachers? Teachers Make a Difference, What is the Research Evidence?*, paper presented at the New Zealand Council for Educational Research Annual Conference, University of Auckland, Auckland.

Isaacs, G (Ed) (1996) *Bloom's Taxonomy of Educational Objectives*, Teaching and Educational Development Institute, viewed 23 December 2008 at www.tedi.uq.edu.au/downloads/bloom.pdf.

Krathwohl, D R (2002), 'A revision of Bloom's Taxonomy: An overview', *Theory into Practice*, **41**, 4, p 212–218.

Organisation for Economic Cooperation and Development, Programme for International Student Assessment (PISA)
www.pisa.oecd.org/pages/0,2987,en_32252351_32235731_1_1_1_1_1_1,00.html.

Perkins, D & Blythe, T (2008) 'What is teaching for understanding?', *Usable Knowledge*, Harvard Graduate School of Education, viewed 27 June 2008 at www.uknow.gse.harvard.edu/teaching/TC3-1.html.

Victorian Curriculum and Assessment Authority (2005) *Victorian Essential Learning Standards*, Victorian Curriculum and Assessment Authority, Melbourne.

Victorian Institute of Teaching (2003) *Standards of Professional Practice for Full Registration*, Victorian Institute of Teaching, Melbourne, viewed 11 June 2008 at www.vit.vic.edu.au/files/documents/787_standards.PDF.

VicRoads (2007) Kids on the Move, Melbourne, viewed 1 June 2011 at <http://www.education.vic.gov.au/studentlearning/programs/traffic/resources.htm>

VicRoads (2008) Traffic Safety Essentials, Melbourne, viewed 1 June 2011 at <http://www.education.vic.gov.au/studentlearning/programs/traffic/resources.htm>

Vygotsky, L S (1962) *Thought and Language*, MIT Press, Cambridge, MA.