

Teaching and assessing the general capabilities in a secondary school context



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Abstract

Education researchers, policymakers and private enterprise agree that, in addition to content knowledge, students in the 21st century need to acquire particular skills to equip them for active citizenship in the modern world. This is a real challenge for teachers today: how do they teach and assess the skills needed to live and work in the 21st century? This paper will explore the development of Eltham High School's focus on teaching and assessment of collaboration, problem-solving, and critical thinking over the past seven years. It will explore the development of the assessment program, its connection to the school and state curriculum, and impacts on staff and students.

Introduction

In recent years, a good deal of attention has been given to the development of 21st-century skills as a means of preparing our students for the world into which they will graduate.

What is undeniable is that the rate of change in the world has accelerated exponentially, largely due to technology. The world that the students are navigating, negotiating and attempting to reconcile is fundamentally different to the one we may have experienced in our own education. The way in which knowledge is gained, built and shared, requires our students to think in new and different ways.

Education researchers, policymakers and private enterprise agree that, in addition to content knowledge, students in the 21st century need to acquire particular skills to equip them for a modern world of work; the ability to think critically, to collaborate, communicate, innovate and to solve problems.

Both the Australian Curriculum and the Victorian Curriculum articulate clearly the capabilities that a child needs to develop as they progress through school. How and where these skills are taught remains the decision of the school.

Eltham High School recognises the importance of the development of these skills. Creativity sits proudly among a well-established and adhered-to set of school values that underpin everything we do. For over a decade, the school has sought to shake things up so that we can move disciplines out of their content silos and into a more coherent and connected learning context.

Prior to the introduction of the general capabilities, the structure of the curriculum at Eltham High School was reworked to carve out time and space to teach these skills in an authentic context through the development of the integrated studies curriculum at Year 7. This curriculum is underpinned by an inquiry model (shown in Table 1) that is structured on the basis of work by Kath Murdoch and is grounded in the work undertaken in the surrounding primary schools.

Eltham High School is a school that is very different to a lot of other schools. We look critically at the way that we define ourselves. We want students to be the creators of their own knowledge and we know that as teachers we have to step back from being the font of all knowledge. We know that if we get too caught up in the traditional content of our disciplines, we leave little room for the development of the skills that we know our students need.

The Eltham High School Integrated Studies Program has a focus on big-ideas and real-world learning and has provided increased opportunities to focus on the teaching of generic skills. This interdisciplinary learning space has given time to teach thinking, communication, collaboration, problem solving and innovation, to step out of the race to cover content and build the generic skills that students need.

Scope and sequence curriculum that defines what these capabilities look like, and consequently what growth looks like across a continuum, ensures that the program makes time for the teaching of routines and strategies. As these are employed, they allow students to demonstrate their development.

We recognise that students come to us at high school at a range of points along the various continua – some ready to undertake the types of thinking expected at pre-tertiary levels but with limited experience in effective collaboration, others with rudimentary development in their thinking skills but as expert communicators. Our task is to identify where the students are at on each of these continua and teach them at the level that will allow them to move to the next stage through a dynamic and flexible model that can offer differentiation across many areas.

At Eltham High School, many familiar classroom practices and instructional strategies that focus on building the capabilities are used over and over again in a way that makes them a core practice of the classroom. For example, 'KWL' (What do you know? What do you want to know? What did you learn?), brainstorming, pushing students to give evidence and to reason by asking them 'Why?', classroom arguments or debates, journal writing, questioning techniques

are used to develop thinking skills. Socratic circles are regularly used to support communication and collaborative spaces (both online and paper based) are routinely used to build knowledge across teams.

In *Intellectual character: What it is, why it matters, and how to get it*, Ritchhart (2002) writes of developing explicit and goal-driven routines for thinking in classrooms. 'For these routines to be effective, they usually consist of only a few steps, are easy to learn and teach, can be scaffolded or supported by others, and get used over and over again in the classroom'.

Ritchhart also sees routines as a major enculturating force to communicate expectations for thinking as well as providing students with the tools that they need to engage in that thinking.

Thinking routines help students answer questions they have:

- How are ideas discussed and explored within this class?
- How are ideas, thinking and learning managed and documented here?
- How do we find out new things and come to know in this class?

As teachers, we work to uncover the various thinking, communication and collaboration routines that support students as they go about this kind of intellectual work. When we find gaps, we create new routines and through trial and error, evaluate, refine and improve on these with each new cycle of teaching and learning.

The end result is a bank of teaching and learning resources, protocols and routines that are applied across the course of a student's secondary school experience. Once taught explicitly in Year 7, we see the students go on to engage with these tools as they move through the school.

Assessing the capabilities

Gaining an accurate picture of a child's current capabilities is essential to knowing how to tailor their educational experiences to support their growth. This is the goal of all assessment. This information allows teachers to devise ways to support and foster development in young people, and allow us to be confident that we are indeed providing the strong educational base that they require for their future. Alongside the development of inquiry and 21st-century skills teaching within the school, Eltham High School has articulated a commitment to explicitly assessing and reporting against such skills. The purpose of assessing and reporting on such skills has the same purpose as assessing subject area skills; however, given the relatively new nature of assessment and

reporting in this field, measuring students' proficiency on 21st-century skills may require methods that extend beyond traditional approaches. Before commencing any assessment, the skill being measured needs to be identified and the method of collection must be relevant to the skill under investigation. There needs to be a common and articulated understanding of the hierarchical nature of learning the skill. To record and interpret student proficiency on a 21st-century skill, there needs to be a framework that demonstrates different amounts of the skill and tasks or activities need to be identified that demand different amounts of that skill. The activities need to be in accordance with the increasing level of competence so that when they are administered to students, the students' position on that progression can be identified and monitored. In order to achieve this, the school has developed rubrics and assessments tied to developmental continua of practice that can be applied across all curriculum areas.

At the same time, a broader program of standardised testing using validated assessment tools is in place. Both the ATC21S Collaborative Problem Solving and the ACER Critical Thinking tests are embedded within testing from Years 7–10 in order to develop a greater understanding of the continua of skill development within the school and benchmark student achievement against long-term internal standards of achievement (see Table 2). Assessments aligned with developmental rubrics further validate teacher judgements and inform curriculum and program planning at a higher level for teaching and year level teams.

In particular, through undertaking this program of assessment, we have identified that engagement in 21st-century skill teaching and learning leads to positive progress in learning while it has also identified a gap in understanding about how these skills relate to one another. For example, many students are proficient at problem-solving but struggle to work with others collaboratively. Similarly, some students collaborate well but do not perform as well when a task has cognitive demands. Continued engagement with 21st-century teaching and learning is therefore necessary to continue, and maintain, the development of the general capabilities. Longitudinal data that track the development of cohorts' skills from Years 7 to 10 indicates that students' skills develop steadily across Year 7 and continue to develop through multiple exposures and embedded teaching and assessment throughout the following years of secondary schooling.

We are committed to expanding our teachers' understanding of the capabilities, their ability to develop effective interpretations of how they might work to explicitly teach these capabilities, and create situations in our classrooms that prompt the use of them, nurture and reward them.

Eltham High School's inquiry teaching and learning model

Rationale

Inquiry-based approaches to teaching and learning at Eltham High School encourage students to make connections in their learning across a range of disciplines and develop both broader learning dispositions as well as specific research and investigation skills. The focus of inquiry is dually *on* understanding learning processes as well as content. The school recognises that an inquiry-based approach to learning nurtures students' passions and interests and empowers them to make choices in their own learning. It aims to foster curiosity and a life-long love of learning through exposing students to real, open-ended problems that enable deep learning. Through engaging with inquiry-based approaches, students develop an ability to:

- ask good questions
- develop persistence, motivation and self regulation

- be encouraged to take risks and become resilient
- critically consider the value and impact of information
- reflect on their thinking and learning process
- develop an understanding of the research process
- building a real-world context for learning.

As students move through inquiry at Eltham High School they are given increasing levels of responsibility for their own learning and inquiry process. This moves from highly structured and guided approaches at Year 7 to greater student direction at Year 9 and 11. Regardless of the structure, the teacher is a central aspect of guiding student learning using a combination of inquiry pedagogy and direct instruction. This is designed to provide students with the knowledge and skills they need to be successful in their inquiry learning. At all levels, the curriculum knowledge generated within student inquiry is as important as the development of research skills and both work together to deliver learning outcomes on intellectually rigorous topics.

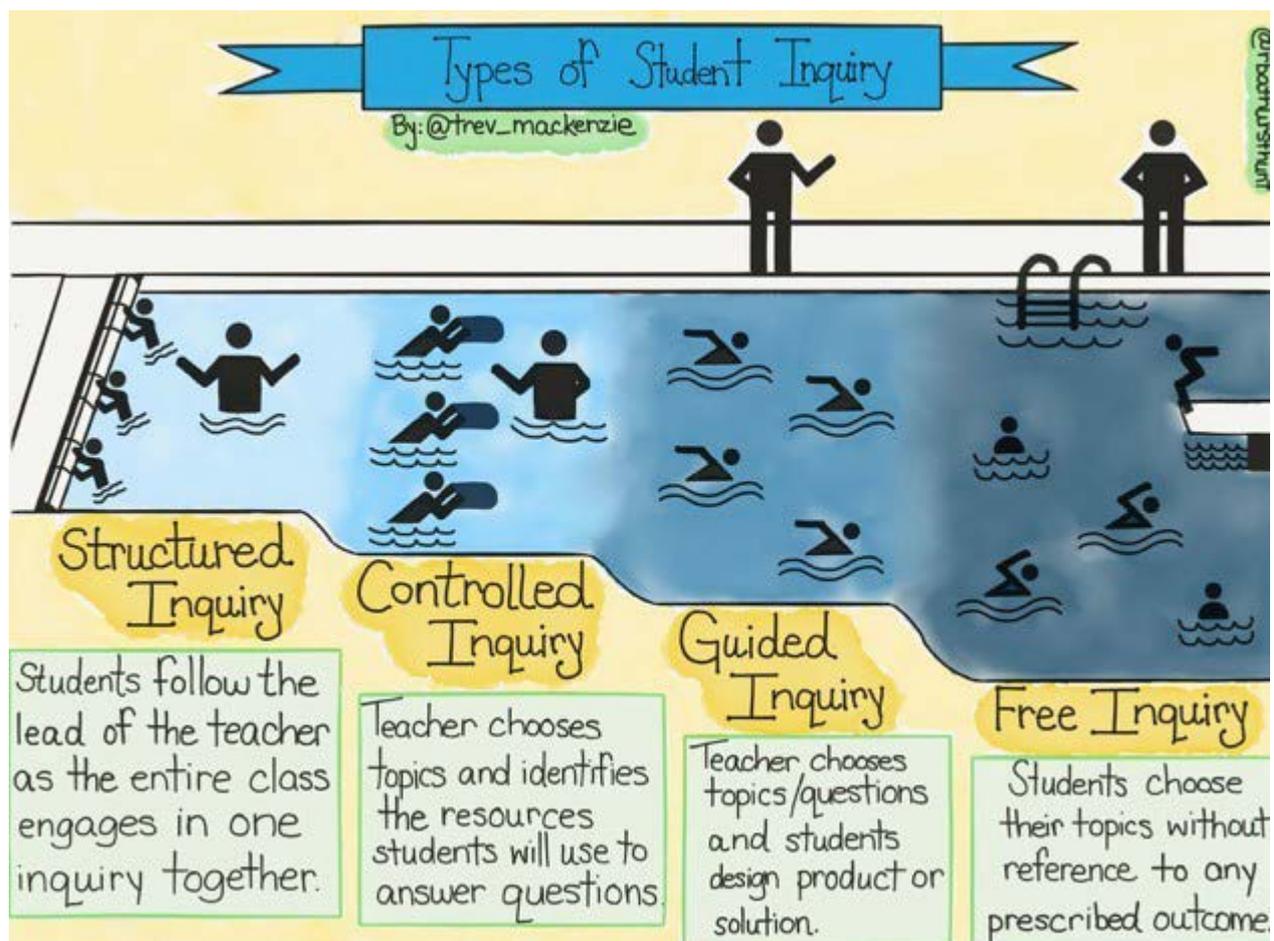


Figure 1 Progression of inquiry teaching and learning

Table 1 School inquiry model

Engaging		
<p>Purpose</p> <ul style="list-style-type: none"> • To understand what students already know, think and can do • To provide students with opportunities to be engaged with the topic • To help plan future learning and differentiation. 	<p>This might look like</p> <ul style="list-style-type: none"> • Artefact or gallery walks • Watching thought-provoking clips • Mind mapping • Completing reflection tools • Brainstorming • Generating KWL charts • Excursions/Incursions • Guest speakers • Image analysis. 	Skill progression
Building key knowledge		
<p>Purpose</p> <ul style="list-style-type: none"> • To continue building students' curiosity and knowledge. • To establish meaning and significance • To develop students' understanding of essential concepts, skills and knowledge. 	<p>This might look like</p> <ul style="list-style-type: none"> • Direct instruction of core content/skills • Note taking • Short research tasks • Guest speakers • Excursions/Incursions • Jigsaw activities • Think, pair, share • Experiments • Image analysis. 	Skill progression
Making connections		
<p>Purpose</p> <ul style="list-style-type: none"> • To synthesise new learning • To connect new learning to existing knowledge; upcoming tasks; significance of topic • To encourage students to begin applying and transferring knowledge • To identify areas of interest/questions to pursue • To challenge existing beliefs, ideas and values. 	<p>This might look like</p> <ul style="list-style-type: none"> • Introducing assessments • Creating collages • Critical thinking activities regarding information • Using graphic organisers to sort and categorise information • Graphing information and perspectives. 	Skill progression
Researching		
<p>Purpose</p> <ul style="list-style-type: none"> • To develop research skills • To make sense of information • To document development of ideas • To reflect on how knowledge and skill has expanded. 	<p>This might look like</p> <ul style="list-style-type: none"> • Defining the problem at a smaller scale • Note taking and researching from: <ul style="list-style-type: none"> - books - internet - interviews - visual source analysis, original data collection (surveys, focus groups) • Reflecting on validity and reliability of information • Individual or group project work. 	Skill progression
Responding		
<p>Purpose</p> <ul style="list-style-type: none"> • To assist students to make conclusions and propose solutions • To assess and demonstrate students' progress towards learning goals • To encourage reflection • To support students to consider the impact of audience and relevant presentation modes • To support students to present and justify a case/position. 	<p>This might look like</p> <ul style="list-style-type: none"> • essays • debates • games • concept maps • posters • videos/advertisements/radiosegments • models/dioramas • oral presentations • drama performances. 	Skill progression

Table 2 Developmental rubric

	Emerging		Consolidating		Established
Engaging					
Prior knowledge	With support students begin to engage with the inquiry area and can identify what they already understand about a topic and their personal interest.	With support students begin to engage with the inquiry area and can identify what they already understand about a topic and their personal interest.	With support students begin to engage with the inquiry area and can identify what they already understand about a topic and their personal interest. They begin to consider other perspectives.	As students engage with the inquiry area they can independently identify what they already understand about a topic and their personal interest. They consider a number of different perspectives and how this compares to their own.	As students engage with the inquiry area they can independently identify what they already understand about a topic and their personal interest. They consider a range of different perspectives and the factors that have led to their own position.
Building knowledge					
Documenting knowledge	Students are scaffolded to take notes and document their learning within structured templates/worksheets.	Students are scaffolded to take notes and document their learning within structured templates/worksheets.	Students are scaffolded to take notes and document their learning within structured templates/worksheets.	Students are scaffolded to take notes and document their learning in the most appropriate format.	Students can independently take notes and organise their ideas.
Making connections					
Connect ideas	Students can use a range of structured graphic organisers to make links between key ideas and their own understanding.	Students can use a range of structured graphic organisers to make links between key ideas and their own understanding.	Students begin to select relevant graphic organisers and ways of representing information to make links between key ideas and their own understanding.	Students independently engage in making links between key ideas and their own understanding. They begin to deal with a wider range of material and are supported to establish connections.	Students independently engage in making links between ideas and their own understanding. They identify links between a wide range of ideas and material.
Thinking critically	Students can use a range of structured critical thinking activities to reflect on: the development of arguments, bias, problem-solving, and developing creative solutions.	Students can use a range of structured critical thinking activities to reflect on: the development of arguments, bias, problem-solving, and developing creative solutions.	Students can use a range of structured critical thinking activities to reflect on: the development of arguments, bias, problem-solving, and developing creative solutions. They can begin to identify connections between these activities and their own independent work.	Students can use a range of structured critical thinking activities to reflect on: the development of arguments, bias, problem-solving, and developing creative solutions. There is increasing evidence that they are able to use these strategies independently in their own reasoning and processing of information.	Students can use both a range of structured critical thinking activities and their own critical thinking capabilities to reflect on: the development of arguments, bias, problem-solving, and developing creative solutions. There is evidence that they can apply these strategies independently throughout the conduct of their research.
Reviewing knowledge	Students use checklists provided by teachers to ensure they have reviewed relevant knowledge and developed their understanding. With support they use this to identify areas for further consolidation. They use information provided by teachers to support identified gaps.	Students use checklists provided by teachers to ensure they have reviewed relevant knowledge and developed their understanding. With support they use this to identify areas for further consolidation. They use information provided by teachers to support identified gaps.	Students begin to independently reflect on the development of their knowledge. With support they can identify areas for further consolidation and are provided with information to support these gaps.	Students independently reflect on the development of their knowledge and identify areas for further consolidation. With support they can locate information to support these gaps.	Students independently reflect on the development of their knowledge and identify areas for further consolidation. They can independently locate information to support these gaps.

	Emerging		Consolidating		Established
Researching					
Question development	Students are able to conduct independent research within a set topic/question scaffolded by the teacher. In some cases they narrow this to a specific issue/solution of their choice.	Students are able to conduct independent research within a set topic/question scaffolded by the teacher. They have greater choice in narrowing this to a specific issue/solution of their choice.	Students are able to independently develop a research question within a set field of study. This is guided by/negotiated with their teacher.	Students are able to independently develop a research question within an area of interest. This is guided by/negotiated with their teacher.	Students are able to independently develop a research question within an area of interest. This is guided by/negotiated with their teacher.
Resources (validity, provision of resources, terminology)	Students are supported through their research through the provision of key resources. They are able to identify further resources with support. Students are guided to begin assessing the reliability of information and the usefulness of this information to answer their question.	Students are supported through their research through the provision of key resources. They are able to identify further resources with support. Students are guided to begin assessing the reliability of information and the usefulness of this information to answer their question.	With support students are able to identify relevant sources. With support they can assess the validity and reliability, and usefulness of this information to answer their question.	Students are able to independently identify relevant sources of information. They begin to access academic research to further support this. With support they can assess the validity and reliability, and usefulness of this information to answer their question.	Students are able to independently identify relevant sources of academic research. They can independently judge the validity, reliability, and usefulness of this information to answer their question.
Attribution of ideas: Referencing	Students can document their research using bibliography scaffolds. They understand that the attribution of information is an important part of the research process.	Students can document their research using bibliography scaffolds. They understand that the attribution of information is an important part of the research process.	Students can document their research using bibliography scaffolds. They understand that the attribution of information is an important part of the research process.	Students understand the components of a bibliography and begin to reference accurately in their work. With support they can engage in academic referencing consistently with an established referencing system.	Students can independently generate bibliographies and use academic referencing that is consistent with an established referencing system.
Note taking	Students can use structured note taking templates to document their information and engage in learning tasks.	Students can use structured note taking templates to document their information and engage in learning tasks.	Students can use structured note taking templates to document their information and engage in learning tasks.	Students can independently take notes as they collect information and engage in learning tasks. They begin to consider the most appropriate format for their notes.	Students can independently take notes as they collect information and engage in learning tasks. They use a range of note taking structures and consider the most appropriate format for their notes.

	Emerging		Consolidating		Established
Responding					
Understanding audience	With support students can identify specific audiences for their presentation and consider the needs of these people when formatting and structuring their information.	With support students can identify specific audiences for their presentation and consider the needs of these people when formatting and structuring their information.	Students begin to independently identify different audiences and consider how their presentation can be most effectively conveyed for these groups. They consider aspects such as format and tone to meet the needs of these audiences.	Students begin to independently identify different audiences and consider how their presentation can be most effectively conveyed for these groups. They consider aspects such as format, language, and tone to meet the needs of these audiences.	Students can independently consider the demands of the audience and the impact of this on their presentation. They consider aspects such as language, format, tone, and visual representation of information to meet the needs of specific audiences.
Terminology	Students begin to use key terms identified in class within their work.	Students begin to use key terms identified in class within their work. There is increasing accuracy in their use of terminology.	Students use an expanding range of key terms identified in class within their learning. There is increasing accuracy in their use of terminology.	Students use a wide range of key terms in their work. They are able to identify some of this terminology independently.	Students engage with the key terminology across their inquiry area. They identify key terms and begin to use synonyms to adjust this across their work.
Responding to research area	Students present a response to the research question/issue/problem. They demonstrate they have taken into account the materials presented to them and have made some general connections between ideas.	Students present a response to the research question/issue/problem. They demonstrate they have taken into account the materials presented to them and have made some general connections between ideas.	Students present an increasingly detailed response to the research question/issue/problem. They demonstrate they have taken into account the materials presented to them and have begun to collect additional information to expand this. They are able to make some general connections between ideas and their research question.	Students present a detailed response to their research question. They demonstrate that they have taken into account a range of information and have begun to make connections between ideas in coming to their conclusions. They have connected all information to their central research question/issue/problem.	Students present a coherent and detailed response to their research question. They demonstrate that they have taken into account a range of information and have synthesised this in coming to their conclusions. They are able to critically engage with ideas and connect all information to their central research question/issue/problem.
Selection of medium	Students select from a number of provided formats to present their information. They begin to demonstrate an understanding of the required format and conventions of this presentation medium.	Students select from a number of provided formats to present their information. They begin to demonstrate an understanding of the required format and conventions of this presentation medium.	Students select from a number of provided formats to present their information. They begin to consider the most appropriate format for their work. They demonstrate an increasing understanding of the required format and conventions of this presentation medium.	Students independently select from a range of presentation mediums. They consider the most appropriate format for their work and demonstrate an understanding of the required format and conventions of this presentation medium.	Students independently select from a range of presentation mediums. They consider the most appropriate format for their own and can justify their selection. They demonstrate an understanding of the required format and conventions of the medium.

Reference

Ritchart, R. (2002). *Intellectual character: What it is, why it matters, and how to get it*. San Francisco, CA: Jossey-Bass