

# Learning Outcomes: An International Perspective

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# Acknowledgements

The NCCA would like to acknowledge Professor Mark Priestley, University of Stirling as lead contributor to this review, which was written in partnership with NCCA staff and peer reviewed by researchers from the case study jurisdictions; Singapore, Ontario, British Columbia, New Zealand and Hong Kong.

# Executive Summary

The purpose of this international perspective on Learning Outcomes is to provide support for policy makers, curriculum support officers and practitioners developing and enacting Learning Outcomes in educational settings in Ireland. It explores the experiences of learners, teachers and educationalists from five educational jurisdictions in the face of significant educational reform. The jurisdictions were chosen as having examples of well-developed and successful curriculum reforms which use Learning Outcomes. It is recognised that each education system is a unique product of multiple factors including culture, experience, politics and sociology. This paper offers a view of how Learning Outcomes are used in other jurisdictions in order to inform discussions about how to use Learning Outcomes in the Irish context and drawing out lessons for the future.

Set out as a series of case studies, the review uses policy documents, research literature and stakeholder experiences to explore some of the challenges and opportunities associated with the use of Learning Outcomes in five jurisdictions.

As curriculum policy in Ireland shifts away from prescriptive specification of content towards a more generic, skill-based approach articulated as Learning Outcomes, evidence from the review points to a number of key implications of this approach

- The importance of communicating the nature of knowledge and planning for a good curricular balance in relation to propositional or substantive knowledge (knowing that), and procedural knowledge (knowing how).
- The expectation that teachers use constructive forms of pedagogy to engage students in developing deep understanding and powerful knowledge involves a significant change in both personal and professional beliefs, as well as an increase in pedagogical content knowledge and disciplinary knowledge.
- Careful consideration must be given to the type of professional development necessary for teachers to understand the reform.
  - There is a key role for extensive professional dialogue between all actors in education reform to identify and make sense of how Learning Outcomes link potentially powerful knowledge to values, attitudes and competencies, and how they manifest into teaching.

- The professional dialogue of reform needs to be ongoing and iterative, with policy makers and teachers continually learning from what works and from what doesn't work.
- Any elaborations of Learning Outcomes need to be carefully formulated so that they support direct engagement with the 'big ideas' and messages and the purposes of education. Over elaboration can have unintended consequences with them becoming tick-boxes for assessment or simply completion.
- Rolling review of the curriculum helps to maintain coherence and sustains the dialogue with teachers and the system about the intentions of the curriculum.

# Introduction

Learning Outcomes have become ubiquitous within worldwide curriculum policy in recent years. This move comes with many potential benefits, as it shifts the focus from providers to users of education, and it introduces a common language, addressing issues of progression, transparency and equity (CEDEFOP, 2009). It is generally agreed that Learning Outcomes are ‘statements of what a learner knows, understands and is able to do after completion of learning’ (ibid, p.9). They represent a shift towards framing education in terms of learners and their development, rather than in terms of what is to be taught (Biesta & Priestley, 2013). This shift has been associated with tensions between knowledge-rich and learner-centred/competence-based curricula. These tensions have played out in curriculum policy making across multiple international education jurisdictions, in school-based curriculum making, as teachers used to teaching content-driven curricula have been asked to reinvent their practice, and in academic writing on curriculum (e.g. Young and Muller, 2010). The shift to a Learning Outcomes model of education has been reinforced by the publication of competency frameworks by supra-national organisations such as the OECD and the European Union since the turn of the millennium.

Learning Outcomes have been used across all stages of schooling in Ireland since the early 2000s and their use has been the subject of much discussion. For example, where teachers view Learning Outcomes through the lens of high-stakes examinations, discussion has focused on the relationship between Learning Outcomes and assessment; where they are viewed through the lens of school evaluation or accountability systems, discussion tends to focus on the relationship between Learning Outcomes and the achievement of more general outcomes of schooling. Going beyond the curriculum specification and into classrooms, there have been requests for a review of the kind of support that teachers need to help them to interpret and to develop their practice with Learning Outcomes.

These issues in Ireland have their roots in two fundamental tensions in the Learning Outcomes model.

- The first lies in the function of Learning Outcomes. To what extent are they to be used as assessment standards – as statements for measurement of outcome, linked to high-stakes accountability? Or are they to be viewed solely as statements of purpose, to guide educational planning? In the former case, they lend themselves not just to summative assessment of students, but also to evaluative assessment of teachers and schools, with associated risks of system performativity (e.g. see: Keddie, Mills, & Pendergast, 2011; Tiberghien, 2000; Leat, D. Livingstone & Priestley, 2013). The effects of this have been well-documented, including tick-box approaches to coverage of Learning Outcomes, assessment-driven teaching, et cetera (e.g. Priestley & Minty,

2013). In the latter scenario, Learning Outcomes can be seen as a starting point for educational planning, linked to consideration of purposes, and enabling selection of content and methods to achieve those purposes.

- The second tension lies in the degree to which Learning Outcomes are specified. Under-specification leads to protests from practitioners that the outcomes are too vague, and do not provide sufficiently clear curricular instructions for planning programmes of learning and teaching. Over-specification leads to the development of highly bureaucratic and even unworkable systems, involving complex mapping of specifications onto teaching. In turn, this has been associated with box ticking, strategic compliance with policy, over-assessment and increases in teacher workload (CEDEFOP, 2009) This is a difficult balance to achieve, and often the 'solution' has been to provide additional specification in response to teachers' demands for more detail, leading to a spiral of specification (Wolf, 1995).

There is currently system-wide curriculum reform in Ireland, so it is timely to review the nature and use of Learning Outcomes in Irish curricula. As part of this review, the use of Learning Outcomes across a range of jurisdictions is being examined. Although education systems differ across the jurisdictions, there are common opportunities and challenges associated with the use Learning Outcomes in each of the jurisdictions; this paper will highlight some of those issues and explore ways in which they were handled. The purpose of this review is to provide support for policymakers, curriculum support officers and practitioners developing and enacting Learning Outcomes in educational settings, by drawing upon the experiences of educational jurisdictions that have developed curricula based upon Learning Outcomes.

Five jurisdictions are considered here as case studies in which use of Learning Outcomes is explored under the headings: Structure and purpose of Learning Outcomes; Learning Outcomes in practice; Management of Learning Outcomes; Teachers and Learning Outcomes; Relationship of Learning Outcomes with other curriculum components; Learning Outcomes and school culture. The cases have been chosen as examples of well-developed and arguably successful curriculum reforms, which utilise Learning Outcomes. In each case, policy documents have been available in English, and there has been access to a range of scholarly/research literature offering critique of the reforms. This combination of policy and scholarly literature has permitted the review to look critically at each case, drawing out examples and lessons that might inform the development of policy and practice in Ireland.

# Background

Since the early 2000s, there has been a move in Ireland towards an outcomes-based approach to curriculum development, with learning being defined in terms of what the students should be able to know and do at the end of a course. Learning Outcomes were first used in the rebalanced Junior Certificate subject syllabuses in the early 2000s. Since then, they have been a key feature of junior cycle and senior cycle reform and of primary curriculum developments. In 2011, The National Strategy for Literacy and Numeracy called for curriculum statements at all stages of schooling to adopt a “Learning Outcomes” design, in which the expected Learning Outcomes to be achieved are clearly stated.

*A “Learning Outcomes” approach needs to be incorporated into all curriculum statements at primary level and in all new syllabuses at post-primary levels as they come on stream. Curricula should state clearly the skills and competences expected of learners at six points in their development (end of early years/infants, end of second class, end of fourth class, end of primary stage, end of junior cycle and end of senior cycle). (DES, 2011)*

Using Learning Outcomes in the development of new curricula, has placed emphasis on the knowledge, skills, values and attitudes students will learn, as well as focusing on the subject matter of the course or syllabus.

## Learning Outcomes in Irish education

In Irish curricula, Learning Outcomes are intended to be brief, clear, specific statements of the knowledge, understandings, skills, values, and attitudes, which it is expected students will be able to demonstrate as a result of the learning associated with the specification. They have been written to provide teachers with a guide to teaching and assessment and assist students in understanding what they can expect to know and be able to do at the end of a course. Learning Outcomes have a significant role to play in ensuring that the aims of education, the objectives of the relevant curriculum component, the learning/teaching strategies adopted, and the assessment used are consistent with each other. In other words, their purpose is to contribute to ensuring that the various elements of the curriculum are aligned with each other. The use of clearly stated Learning Outcomes and the maintenance of high levels of curriculum alignment aim to help students to:

- be clear about what they are meant to be learning
- monitor their own progress
- be able to take greater control of their own learning

They aim to help teachers to:

- choose the most appropriate teaching methods and learning tasks
- improve assessment methods by enabling assessment techniques to be matched to the intended Learning Outcomes thereby ensuring more authentic assessment
- provide more focused feedback to students
- select what to teach and the best order in which to teach it

Learning Outcomes were adopted in Ireland in response to the challenge of ensuring that an education system, originally designed to serve the needs of an elite few, be re-shaped to meet the needs of a broader, more diverse group of learners. These include those with special educational needs; both those who need more personalised learning programmes and those who should be enabled to engage in more in-depth application of knowledge and skills.

The essence of NCCA policy intentions is that Learning Outcomes provide students with a clear understanding of what is expected of them and what they can expect thus allowing them to engage more fully in their own learning and adopt desirable effective learning strategies that suit their own strengths and needs and to make connections across learning.

A challenge of this model, however, is finding a way to support everyone who uses them to a shared understanding of how Learning Outcomes guide the teaching and learning process, in particular how to manage Learning Outcomes in terms of their output (assessment) function and their input (planning for teaching) functions.

To help to inform the review of education across all sectors, case studies of five jurisdictions explore the use of Learning Outcomes under a number of headings (table 1). It is recognised that each education system is a unique product of multiple factors – cultural, political and social. The aim of the case studies is to inform NCCA curriculum reviews; it is not an attempt to borrow policy, or to replicate strategies of other jurisdictions.

| Area  | Issues & questions   |
|---|--|
| <b>Structure and purpose of Learning Outcomes</b> | <ul style="list-style-type: none"><li>▪ Definition(s) of Learning Outcomes<ul style="list-style-type: none"><li>– What is their purpose?</li><li>– What words are used to introduce Learning Outcomes?</li></ul></li></ul> |

| Area   | Issues & questions  |
|--|---|
|  | <ul style="list-style-type: none"> <li>- What are the common misunderstandings and contradictions?</li> <li>- Do Learning Outcomes differ across subjects and across sectors?</li> <li>▪ When are Learning Outcomes achieved?</li> <li>▪ What format do Learning Outcomes take and what purpose do they serve?</li> </ul>   |
| <b>Management of Learning Outcomes</b>               | <ul style="list-style-type: none"> <li>▪ What are the characteristics of Learning Outcomes/ what model of Learning Outcomes is used?</li> <li>▪ What measures are in place to ensure that the outcomes have the clarity, consistency and brevity that teachers require?</li> <li>▪ How do Learning Outcomes contribute to curriculum coherence?</li> <li>▪ Are the formats of Learning Outcomes consistent across sectors? If not, how are they adapted and why?</li> </ul>             |
| <b>Learning Outcomes in practice</b>                 | <ul style="list-style-type: none"> <li>▪ What are the practices associated with Learning Outcomes?</li> <li>▪ How do learning outcomes impact on pedagogy?</li> <li>▪ How do teachers view learning outcomes in terms of their own professionalism?</li> <li>▪ How are teachers supported to interpret and to develop their practice with Learning Outcomes?</li> <li>▪ What tensions do Learning Outcomes cause for teachers/ students/ the system? How are these overcome?</li> </ul> |
| <b>Relationship with other curriculum components</b> | <ul style="list-style-type: none"> <li>▪ What relationship exists between Learning Outcomes and other curriculum components, such as assessment?</li> </ul>   |

| Area  | Issues & questions  |
|---|---|
|   | <ul style="list-style-type: none"> <li>▪ What are the particular issues associated with Learning Outcomes when viewed through the lens of a high stakes examination?</li> <li>▪ How do Learning Outcomes contribute to the achievement of more general outcomes of schooling?</li> <li>▪ What kinds of support and scaffolding for working with Learning Outcomes exist for practitioners and the wider education community?</li> </ul> |
| <b>Learning Outcomes and school culture</b> | <ul style="list-style-type: none"> <li>▪ What is the schools/teacher capacity in engaging with Learning Outcomes?</li> <li>▪ What expectations are expressed regarding how teachers are to work with Learning Outcomes?</li> </ul>  |

*Table 1- Key areas and questions*

Different terminology relating to various levels of Learning Outcomes is used across jurisdictions. In the case studies discussed in this document, outcomes are described variously under the headings in Table 2.

| Term                               | Description   |
|------------------------------------|---|
| <b>High level Key Competencies</b> | The skills that students should develop throughout their time in education. They are high level and generally apply across all learning areas. General capabilities encompass the knowledge, skills, attitudes and behaviours to assist students to live and work successfully in the 21st century. In some jurisdictions these are specified at each stage of education, in others they are seen as outcomes of the whole education process. |
| <b>Cross curricular outcomes</b>   | Cross-curricular outcomes enable students to develop understanding about and address the contemporary issues they face; for example, sustainability or, those that relate to cultural identity in Singapore.  |
| <b>Subject specific outcomes</b>   | These are the specific outcomes that relate to a particular learning area at a particular stage, such as the Learning Outcomes in the Irish specifications  |
| <b>Achievement standards</b>       | Whereas Learning Outcomes generally contain a 'doing' component and a 'knowing' component, achievement standards link these with an assessment standard   |

*Table 2 - Terminology*

# Case study 1. Singapore

## Socio-political context

Singapore has been governed by the same political party since it gained its independence in 1965. This has contributed to stability within the education system. There have been four main phases of educational reform, each instigated by political drivers.

- Building a post-colonial education system: social cohesion and skill-building – Survival-Driven Education (1965-1978)
- Building a system for an industrial economy – Efficiency-Driven Education (1979-1997)
- Building a system for a knowledge-based economy – Ability-Driven Education (1997-2011)
- Building a system for social cohesion – Student-Centric Values-Driven Education (2012-Present)

Singapore's education system is the product of a distinctive, unique, set of historical, institutional and cultural influences. Meritocracy is the governing principle of the education system in Singapore. Singapore secondary students are grouped into highly differentiated academic and vocational tracks based on their performance in the national Primary School Leaving Examinations (PSLE) for 12-year-olds. In secondary schools, students are placed into one of four tracks. The best students join the Integrated Programme, a six-year continuous program that provides an exemption from the national secondary school examinations. Approximately 55-60% of each cohort enter the more academically demanding four-year Express track, while a quarter of all students are assigned to the less prestigious five-year Normal Academic program. All three academic tracks prepare students for higher education in the universities or the polytechnics. Approximately 13% of each cohort, are assigned to the four-year vocational Normal Technical track. At the end of the four-year program, these students continue their vocational training at the Institutes of Technical Education (ITE).

In the past, the Singapore education system was known for its academic rigour, direct teaching and repeated practice by the students (Lee, 2008). There was an emphasis on coverage of the curriculum and teaching to the test. In 1980 the Ministry established the Curriculum Development Institute of Singapore, which developed a suite of supporting teaching materials that could easily be applied off-the-shelf by less-experienced and less-skilled teachers. Standardised textbooks and practices for

schools were used. Teachers were expected to follow centrally mandated curriculum and teaching practices.

Significant review of education since 1998 has led to a strong focus throughout the curriculum documents on the development of skills, values and attitudes. The current review of education was undertaken to ensure the continued success of students at a global level in international assessments, as well as provide a workforce that will ensure Singapore’s continued economic growth.

## Learning Outcomes, structure and purpose

The Singapore curriculum documents comprises a set of syllabuses spanning 12 years, from primary to pre-university education. The curriculum is designed in a spiral manner where concepts and skills in each content strand are revisited and built upon at each level to achieve greater depth and understanding. The concepts that are to be taught are clearly listed at each grade level, and there is a strong focus throughout the syllabus documents on the use of appropriate pedagogical approaches to help students to develop transferable skills.

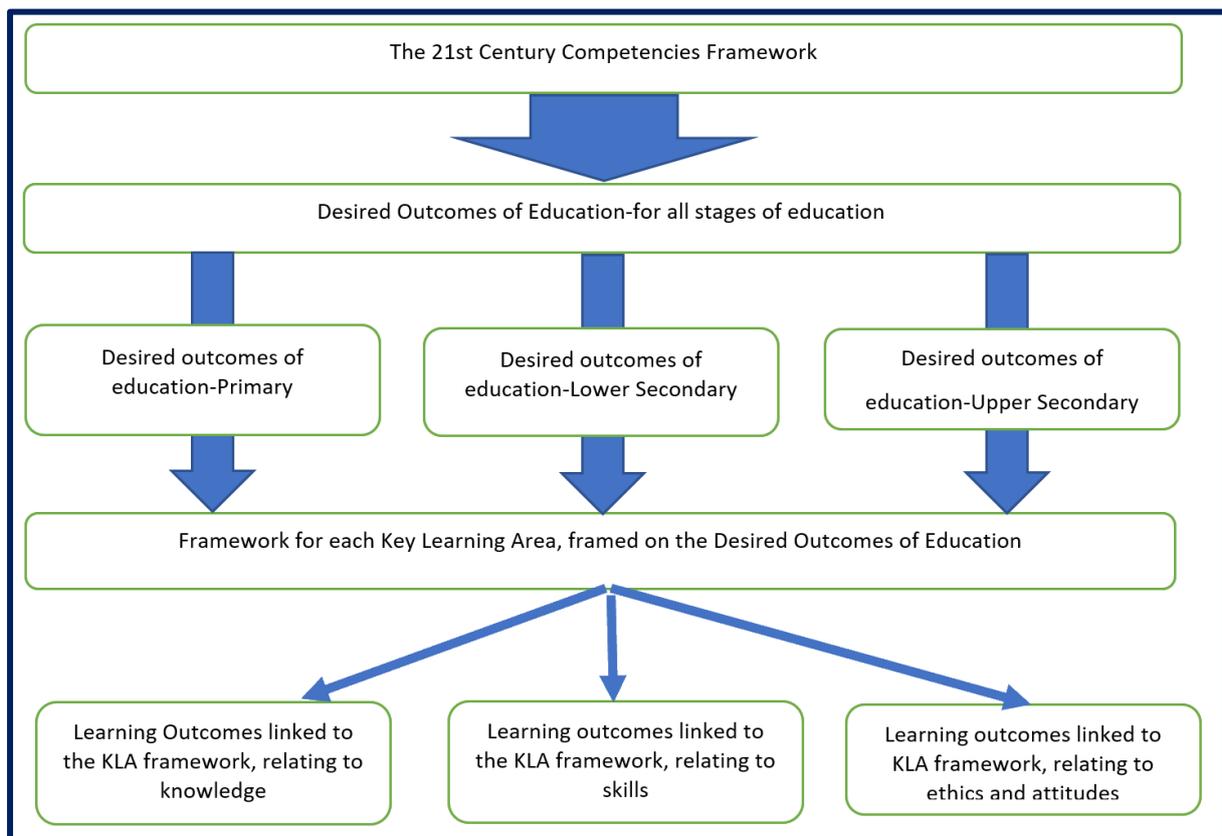
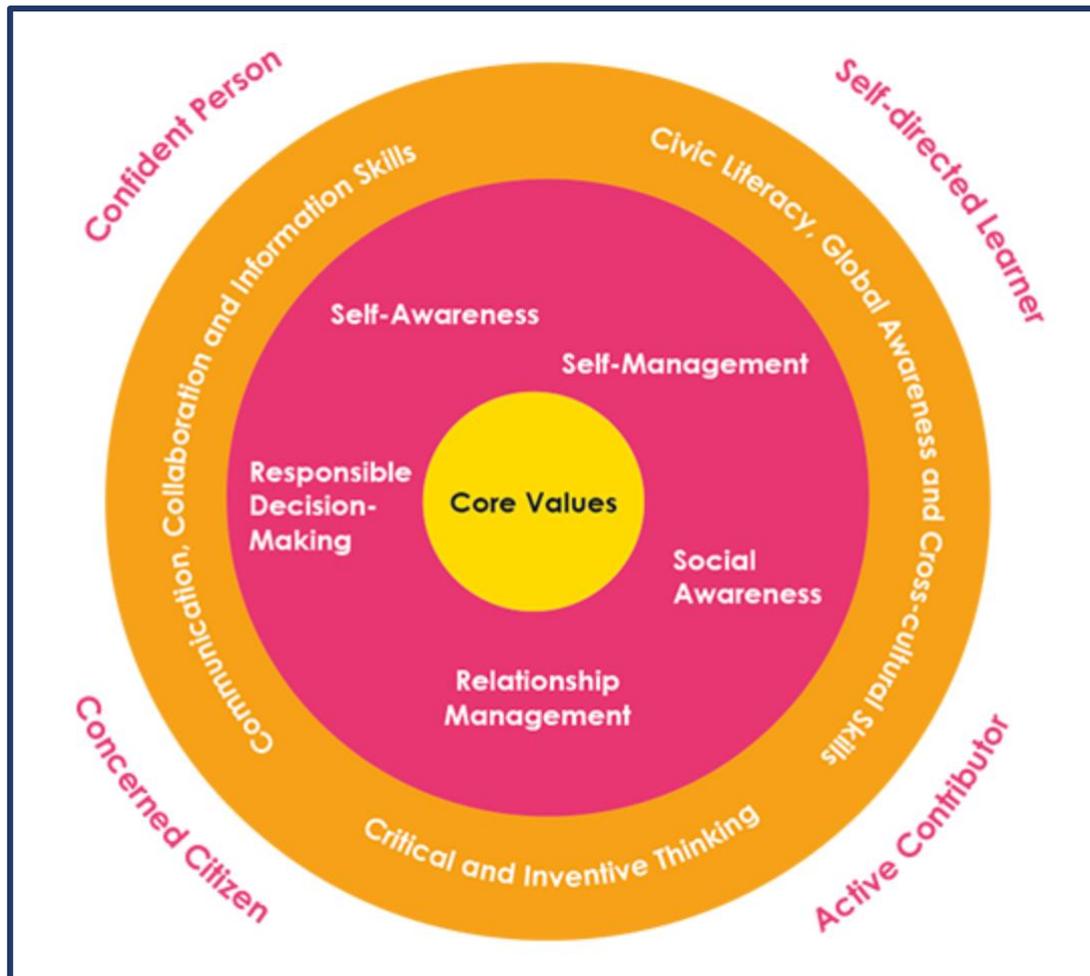


Figure 1-Outcomes structure, Singapore



*Figure 2-21st Century Skills, Singapore*

In the Singapore education system, the Learning Outcomes at all stages of education are underpinned by a set of values, which are at the core of all learning. The Social and Emotional Competencies build on those values and contribute to the Learning Outcomes of the various subject areas at each stage. Desired Outcomes of Education (DOE) (fig. 2.) are represented as an encompassing circle; these are ‘attributes that educators aspire for every Singaporean to have by the completion of his [sic] formal education’<sup>1</sup>.

<sup>1</sup> <https://www.moe.gov.sg/education/education-system/desired-outcomes-of-education>

by the completion of his formal education each Singaporean should be:

- a confident person who has a strong sense of right and wrong, is adaptable and resilient, knows himself, is discerning in judgment, thinks independently and critically, and communicates effectively;
- a self-directed learner who takes responsibility for his own learning, who questions, reflects and perseveres in the pursuit of learning;
- an active contributor who is able to work effectively in teams, exercises initiative, takes calculated risks, is innovative and strives for excellence; and,
- a concerned citizen who is rooted to Singapore, has a strong civic consciousness, is informed, and takes an active role in bettering the lives of others around him.

*Figure 3-Desired Outcomes of Education*

The Desired Outcomes of Education (DOE) are refined into generic Learning Outcomes for each stage of education, which apply across subjects. The subject areas each have a framework which link the DOEs to subject discipline knowledge. For each Learning Area, a curriculum framework describes the key features on which the Learning Outcomes for that subject are based. The same Curriculum Framework is used at all levels from primary through to pre-university education. Each learning area is divided into Themes, with broad Learning Outcomes describing the knowledge, skills and attitudes that all students should develop. Although the Learning Outcomes are broad, and teachers are encouraged to use them as a guide to plan for the Desired Outcomes of Education, each theme has 'Essential Takeaways and Guiding Questions' to direct teachers in their planning.

The Learning Outcomes are presented in syllabi, in which concepts and skills are revisited at different levels and with increasing depth, as students progress through school. Curriculum time known as *white space* is built in to the syllabus. This time is for teachers to use innovative teaching and learning approaches in addition to or to supplement the stated Learning Outcomes. While innovative methods are encouraged, the syllabus states that whatever is taught during the *white space* must meet the aims of the syllabus.

The syllabus is coherent across all levels and there is clear progression across all stages of education. At each stage of education, the Learning Outcomes are built around contexts that students can relate to in their everyday experiences. (Fig.4).

| Learning Outcomes  |  |   |
|--|--|---|
| Knowledge, Understanding and Application   | Skills and Processes   | Ethics and Attitudes  |
| <p><b>19. Interactions within Ecosystems</b></p> <ul style="list-style-type: none"> <li>show an understanding of an ecosystem as the interactions between a community and its physical environment</li> <li>explain the importance of various physical factors like air, water, temperature, light, minerals and acidity/alkalinity, to the life of the organisms</li> <li>recognise how adaptive traits (structural or behavioural) and changes in environmental conditions can affect the survival of organisms</li> </ul> | <ul style="list-style-type: none"> <li><u>investigate</u> an environment using measurement instruments such as datalogger probes to collect data on physical quantities such as pH, temperature and light intensity</li> <li><u>compare</u> photosynthesis and respiration</li> <li><u>compare</u> respiration and breathing in terms of the roles they play in the interactions between living things and their environment</li> <li><u>infer</u> the role of decomposers in recycling of nutrients in the environment</li> </ul> | <ul style="list-style-type: none"> <li>*show an awareness of how some cultures practise sustainable living through their interactions with the environment</li> <li>evaluate the impact of human activities and technologies on the environment (e.g. motor vehicles and modern lifestyle)</li> </ul> |

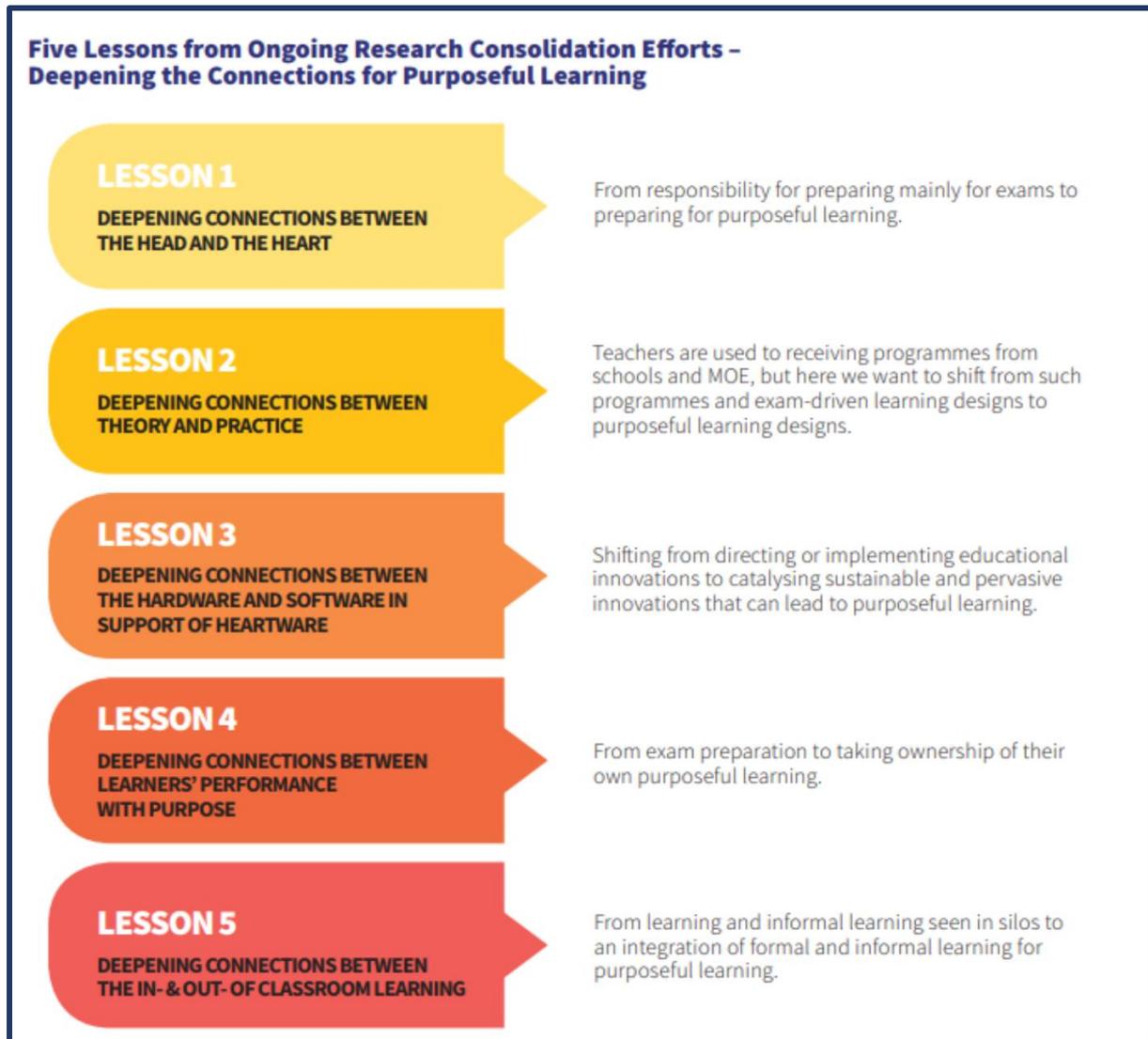
Figure 4-Learning Outcomes Lower Secondary Science, Singapore

## Learning Outcomes in practice

A challenge for teachers is the relationship between cultural and pedagogical pressures in implementing the innovations that are expected of them. There are long established practices that prioritise the acquisition of disciplinary knowledge and academic achievement, particularly from the perspectives of school leaders, teachers, and students as critical stakeholder groups (De Souza, 2018). The national curriculum at every level and in every subject is reviewed once every six years, with a mid-term review in the third year of implementation. There are processes in place to ensure that textbooks and learning materials used in schools are aligned with the national curriculum. Curriculum and pedagogy for each subject area are reviewed together; curriculum planners develop learning and teaching strategies appropriate to the respective syllabuses.

Measures are put in place to support teachers to adopt their practice in line with the TLLM reforms. For example, the Office of Education Research (OER) at the National Institute of education (NIE), Singapore brings together researchers, educators and administrators to provide evidence-based and research-informed improvements to teaching and learning. Current research of the OER centres around how to support teachers away from an exam-oriented perspective in teaching towards implementing pedagogical innovations. The research emphasis has shifted recently from examining how the overall system performs, to how to improve the system, in order to align with the TLLM initiatives (OER-CRPP, 2016).

In 2003, the Centre for Research in Pedagogy and Practice (CRPP), was established to establish ways in which student and teacher learning could be improved and sustained. The focus for 2016-2018 centres on 5 key lessons (figure 5).



*Figure 5 - Key lessons for teachers for school-based curriculum development*

Each of the five lessons in some way addresses the shift from an emphasis on teaching to an emphasis on learning.

## Management of Learning Outcomes

The Asian financial crisis of the late 1990s prompted a fundamental review of education. It was realised that the education system that had placed Singapore at the top of international league tables was no longer appropriate for either the complex demands of globalisation and 21st knowledge economies, or to prepare students for life after school (Lee, 2008). While students were very engaged in the learning process, they tended to be passive learners, driven externally to perform but not necessarily inspired by education or learning. In 1997 an initiative called *Thinking Schools, Learning Nation* (TSLN) was put in place to provide the direction for educational change. In response to a call for more innovation and entrepreneurship in the curriculum, to help young people develop the

creative and thinking skills that were considered necessary to ensure Singapore's continued economic success, the *Teach Less Learn More (TLLM)* initiative was launched in 2005. As part of the TLLM reforms, syllabuses were shortened to free up time for students to focus on core knowledge and skills, and to provide greater space for flexibility in carrying out school-based activities in the curriculum. Part of the rhetoric around the reform was that schools were to provide more opportunities for character building and innovation and that teaching would focus on developing understanding, critical thinking and the ability to ask questions and seek answers and solutions. By giving students greater choice to meet their different interests, and by allowing them to choose what and how they learn, it was hoped that they would be encouraged to take greater ownership of their learning. To align with these reforms, assessment methods were reviewed to reduce reliance on rote learning and encourage independent learning and experimentation. As part of (TLLM), power was devolved to school leaders to provide teachers with the necessary support to improve their pedagogy and engage the students. At systemic level, the Ministry had to be flexible enough to relinquish control and facilitate ownership by supporting schools in this journey. The fundamental purpose of these reforms was to strengthen the professional practices of the entire teaching profession.

There have been criticisms that the educational reforms in Singapore can be regarded as 'mere tinkering around the edges' (De Souza, 2018), as they have not resulted in dramatic changes to classroom pedagogical practices. However, the reality is that Singapore has adopted a strategy aimed at strengthening an already high-performing system (Hogan et al., 2013). They have retained the core of the system, such as the Learning Outcomes related to high stakes assessment and supplemented it with school-initiated programmes to allow for some school-based innovation and flexibility. The stakes of the external summative assessment have been reduced by making the entry criteria into secondary and post-secondary institutions broader, and by introducing additional modules for which students can opt through their schools, and which are outsourced to post-secondary institutions equipped for and specialised in applied learning. In 2005, to offer greater flexibility in the curriculum, secondary schools were given the option to offer O-Level School Initiated Electives (OSIE) which students can take in addition to, or as replacement for, the traditional syllabus. OSIEs are examinable, and the grades can be used to go towards the O-Level aggregate score for admission to the Junior Colleges and Polytechnics. The OSIEs are developed in conjunction with a junior colleges or polytechnics and must be approved by the MOE. Since 2008, polytechnics and secondary schools have been able to collaborate to develop Applied Subjects to cater for students who want to progress along an applied and practice-oriented education path. These subjects are examined by the polytechnics and the grades can be used for O Level.

The outsourced modules supplement the Learning Outcomes that students achieve in school, with the kinds of practical and theoretical learning that the education reforms espouse. The modules are usually in industry-relevant areas related to Business, Engineering, Media and Design, Mathematics and Science, and Information Technology. These outsourced modules, according to the curriculum documents, are important programmes that contribute to Singapore's consistent performance in international benchmarking tests; providing students with opportunities to hone their interests in skills relevant to the twenty-first century, and opportunities to apply classroom learning in more authentic contexts (MOE, 2016)

## Teachers and Learning Outcomes

Schools and their teachers are experiencing increased autonomy in Singapore; however, there remains a 'tightly coupled' network, where the three key bodies of Education, namely the Ministry of Education, the National Institute of Education and schools, share responsibility and accountability in a unified manner (OECD, 2011).

The reduction of national curriculum content across subjects to free up 10-20 per cent of curriculum time as 'white space' is a sign of the increased level of autonomy being offered to teachers. Teachers are free to use this 'white space' to develop innovative pedagogies and programmes that are more finely tailored to the needs of their students. This is a good example of what the Minister for Education Mr. Tharman Shanmugaratnam called 'top-down support for bottom-up change'<sup>2</sup>. Another example is the loosening of external assessment demands with a summative function to allow more space for school-based assessment with a formative function.

Implementation of reform has posed major challenges for schools, as it requires a fundamental change in how students engage with their learning, and how teachers relax their grip on what students learn (Ng Tee, 2008). Reform does not just mean a change in pedagogy, it also means a change of student and teacher identity and disposition, as well as a change in the relationship between student and teacher. There is evidence that the legacy of previous policy structures greatly influences teachers' practices and beliefs (Albright & Kramer-Dahl, 2009) and that a "hybrid pedagogy" is emerging, with the transmissive and teacher-dominant model still in frequent usage (Tan, 2013; Gopinathan & Lee, 2013). Examination results are still extremely important, and teachers and students continue to be driven to perform in examinations. The well-established institutional rules continue to drive teachers

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<sup>2</sup> <http://www.nas.gov.sg/archivesonline/speeches/view-html?filename=20050922991.htm>

to teach in ways that prioritise coverage of the curriculum, knowledge transmission and teaching to the test over “the quality” of learning.

The teachers in the Singapore study were positioned as active agents who critically interpreted and enacted the curricular reforms. Despite the high level of engagement by the teachers in this study, and the fact that they collaborated to develop their own active learning pedagogies, they still found the new pedagogies intensive and problematic. The researchers concluded that this was partly due to the long legacy of behaviourist ‘drill and exam’ instructional practices. These findings are consistent with other studies (Koh, 2004), which have shown inconsistencies between teachers’ conceptions of pedagogy and assessment and their beliefs about the best kind of teaching for their students.

## Relationship with other curriculum components

The other curriculum components include the Desired Outcomes of Education, the Subject Area Framework, the assessment and the outsourced modules. The Learning Outcomes in each learning area are based on an overarching framework, which provides detailed descriptions of how the Learning Outcomes link the aims of the Learning Area to the Desired Outcomes of Education. The frameworks illustrate diagrammatically how the conceptual understanding, skills, proficiency and process are linked to values and attitudes. Throughout the curriculum documents, examples are presented to illustrate the linkages. There is an extensive section on pedagogy and practice, as well as on formative assessment.

The Learning Outcomes for each subject are related to assessment via Assessment Objectives. The Assessment Objectives are based on the Learning Area Frameworks, rather than on the specific Learning Outcomes; the detail of the Learning Outcomes therefore does not constrain the assessment. See, for example, Figure 6 (below).

#### **4.2 ASSESSMENT OBJECTIVES (AO)**

In the syllabuses, the geographical knowledge and skills to be assessed are defined in the Assessment Objectives (AOs). These AOs are as shown below.

##### **AO1: Knowledge**

*Students should be able to:*

- demonstrate relevant factual knowledge – geographical facts, concepts, processes, interactions and trends; and
- demonstrate knowledge of geographical inquiry process (formulating questions, gathering data, exercising reasoning and reflective thinking).

##### **AO2: Critical Understanding and Constructing Explanation**

*Students should be able to:*

- select, organise and apply concepts, terms and facts learnt;
- construct explanation and undertake analysis; and
- describe the strengths and limitations of geographical investigation undertaken and of the conclusions reached (*applicable to geographical investigation only*).

##### **AO3: Interpreting and Evaluating Geographical Data**

*Students should be able to:*

- comprehend and extract relevant information from geographical data (numerical, diagrammatic, pictorial and graphical forms);
- use and apply geographical knowledge and understanding to interpret geographical data in graphs, maps, photographs, sketches, tables and texts/quotes; and
- recognise patterns in geographical data and deduce relationships.

*Figure 6 - Assessment Objectives Geography*

The Assessment Objectives are described in National Examination Syllabi, separate to the subject syllabi. They are determined by the Singapore Education and Assessment Board (SEAB). The Assessment Syllabi describe the Assessment Objectives related to the syllabus Learning Outcomes in each Key Learning Area.

At primary level, the Assessment syllabus provides information about the Primary School Leaving Examination and lists the assessment objectives. The syllabus refers to the MOE primary syllabus documents. At post primary level the University of Cambridge International Examinations (CIE), the Ministry of Education, Singapore and the Singapore Examinations and Assessment Board (SEAB) are the joint examining authorities.

The post-primary assessment syllabuses list detailed specific Learning Outcomes for each Learning Area, however the assessment objectives do not reference specific discipline knowledge. Assessment items are generally based on unfamiliar, contextual information, where students apply their conceptual knowledge and understanding and use them in a logical, reasoned or deductive manner

to a novel situation. The factual knowledge that students need to be able to recall or explain are signalled by the action verb in the Learning Outcome.

Although the specific Learning Outcomes in each area are visibly linked to the Desired Outcomes of Education and the 21<sup>st</sup> Century competencies, the effects of the high-stakes examination system continues to affect how teachers use Learning Outcomes. The system is working towards reducing this reliance, through intensive teacher education and by allowing schools to use the outsourced modules referred to earlier, which encourage independent learning and include assessment for learning and assessment of learning (Heng, 2014).

Support is provided to teachers to help them to use *Learning Outcomes* in the way that the curriculum developers intended. OCR provides evidence-based and research-informed professional development throughout teachers' careers, to support teaching and learning and improve teachers assessment literacy. For example, at primary level, a Certificate in Educational Assessment (CEA) provides teachers with a qualification in the practical understanding of assessment principles and concepts and in assessing the Learning Outcomes of the Primary English Language curriculum, specifically in the areas of reading and writing.

All forms of professional learning are aimed at supporting teachers to move away from a traditional teacher-led pedagogy towards more flexible teaching, in which they use Learning Outcomes to guide rather than dictate. Educational priorities are clearly reinforced throughout the curriculum documents and Learning Outcomes are elaborated within the syllabus document, with examples that illustrate flexible and innovative teaching and how to link specific *Learning Outcomes* to the broader outcomes of education. Despite these interventions, there remain technical, cultural, institutional and political challenges to achieving a sustainable balance of knowledge-building pedagogies that don't seriously compromise the overall performance of the system (Toh, Hung, Chua, He, & Jamaludin, 2016; Tan & Ng, 2007; Lim-Ratnam et al., 2016).

## Learning Outcomes and school culture

In Singapore, key areas have been identified for future development including: reducing the over-focus on examinations and grades; ensuring continued social inclusion and mixing; improving special needs education and increasing industry involvement in applied education pathways. The Teach Less, Learn More (TLLM) initiative continues to encourage students to participate in activities that go beyond the formal curriculum, and to be more independent, and more actively involved in their learning.

Singapore is strongly committed to capacity building at all levels of the system, especially in the selection, training and professional development of principals and teachers. Education development has strong political support and there is a major government commitment to educational research (£109m between 2003 and 2017). The strong tri-partite relationship between the Ministry, the National Institute of Education and schools has ensured strong alignment between policy, planning and implementation. These factors have had significant impact on the quality of the teaching profession and the education system; there is strong professional development support for teachers throughout their career. The most recent Teaching and Learning International Survey (TALIS) findings show that the teaching force in Singapore is *well-trained and supported, dynamic in its practice and committed to the profession* (OECD, 2013). Beginning teachers are supported in their transition from their pre-service training to qualified teacher status, through induction and mentoring programmes overseen by more experienced teachers. 98% of Singapore teachers take part in professional development activities, which include courses and workshops, peer observations, education conferences and professional learning networks.

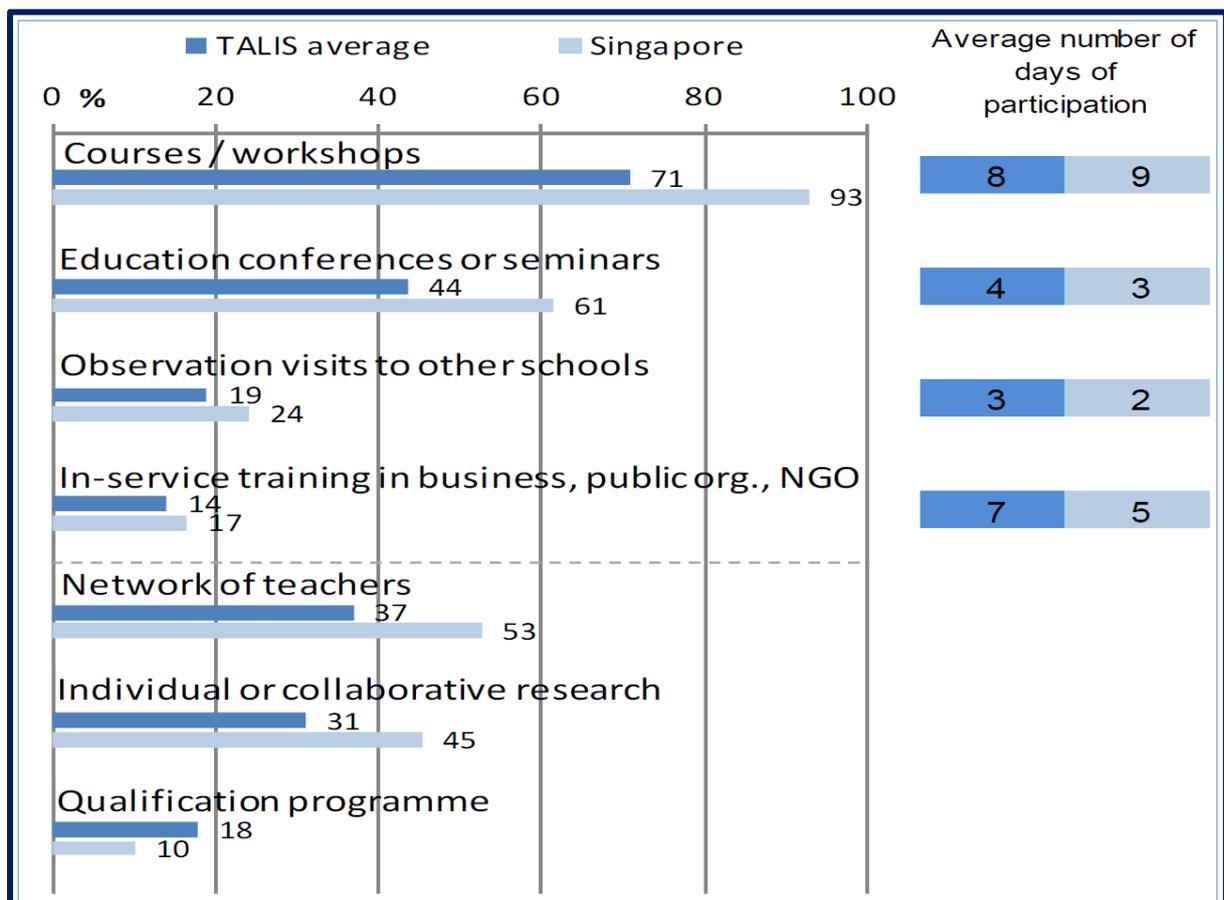


Figure 6-Participation rates and average number of days for each type of professional development (OECD, 2013).

The push to educate students for the twenty-first century has been a key impetus for major policy reform initiatives over the past two decades. Singapore has, in the past, relied heavily on an output model of education, using exam results as a measure of educational success. Recent policy has focused more on inputs, enabling students to develop creative and critical thinking skills, and its strategies include the explicit teaching of creative and critical thinking skills, reduction of curriculum content, revision of assessment modes, and greater emphasis on process instead of outcomes in learning and teaching (Tan, Koh, Chan, Onishi-Costes, & Hung, 2017). *Learning Outcomes* link the Twenty-first Century Competency (21CC) framework with the academic curriculum; the challenge is in educating teachers to use the Learning Outcomes as a guide for teaching and learning, and to reduce the constraining influence of the summative assessment.

# Case study 2. Ontario

## Socio-political context

In 2003, the Ontario government instituted a series of reforms that have attracted worldwide attention. The reforms focussed on a limited number of educational goals, specifically increasing student achievement, closing educational gaps, and increasing confidence in public education. There has been a programme of collective capacity building, with the aim of building a progressive partnership with the teaching profession (Fullan, 2013; OECD, 2010; National Public Education Support Fund, 2011), although the success of this is questionable, with strained relationships between teachers and government.

Since 2003, it is claimed that the overall performance of the almost 5,000 schools in the province has improved on most key measures, although questions have been raised about the validity of the tests, which have changed over time. According to some international measures and independent expert assessment, Ontario is recognised as one of the best school systems in the English-speaking world (Mourshed, Chijioke, & Barber, 2010a). During the reform, the government drew from the advice solicited from Michael Fullan. In his review of his nine-year journey as special advisor to the Premier of Ontario, he said:

*Behind the obvious achievements of increased literacy, numeracy, and high school graduation rates, not to mention the benefits of early learning, lies the real strength of the accomplishment of the last nine years — the deep, widely shared ownership on the part of teachers, schools and school board leaders of the reform agenda (Fullan, 2013).*

Fullan has been critical of many top-down initiatives, which he states are unable to achieve deep and lasting changes in practice for various reasons:

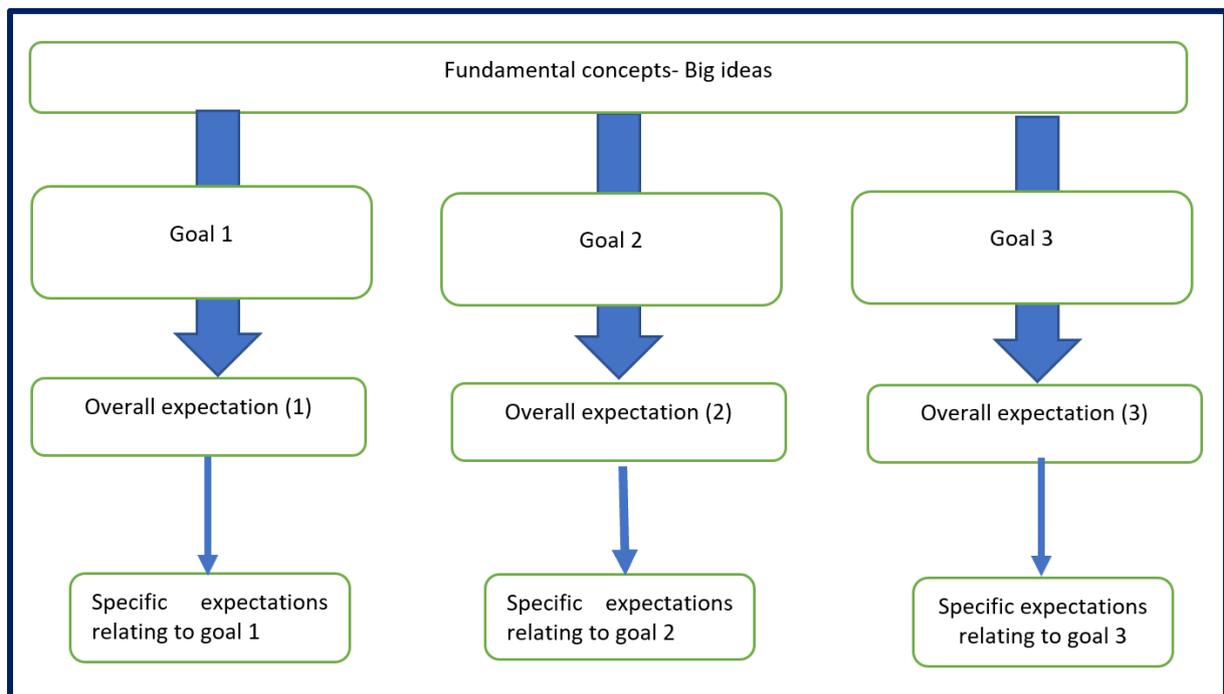
- the reforms focus on things that are too distant from the instructional core of teaching and learning;
- the reforms assume that teachers will know how to do things they actually didn't know how to do;
- too many conflicting reforms ask teachers to do too many things simultaneously; and
- teachers and schools do not necessarily buy in to the reform strategy.

He also suggests that the success of curriculum reform, evident in countries such as Finland, and replicated to some extent in the very different context of Ontario, is highly dependent on the ability

to engage reform agents in sense-making through innovative collaborative learning, an idea which is supported in the literature (Hargreaves & Fink, 2006; Pietarinen, Pyhältö, & Soini, 2017; Pyhältö, Pietarinen, & Soini, 2018).

## Learning Outcomes, structure and purpose

In Ontario, the term Expectations is used, rather than Learning Outcomes. The curriculum is organised into subjects (e.g. Language); strands (e.g. Oral Communication); overall expectations and specific expectations (the equivalent of Learning Outcomes in Ireland).



*Figure 7 - Structure of the curriculum, Ontario*

The Ontario Curriculum identifies the Fundamental concepts, the Big ideas Overall expectations and the Specific Expectations for each grade. It describes the knowledge and skills that students are expected to acquire, demonstrate, and apply. Two sets of Expectations are listed for each grade in each strand; overall expectations and specific expectations. The Overall Expectations are high level outcomes that describe the knowledge and skills that students are expected to demonstrate by the end of each grade, while the specific expectations provide more detail. Taken together, the Overall Expectations and Specific Expectations represent the mandated specifications of curriculum.

The Ontario Curriculum is divided into two stages. Early childhood education refers to programs for children from birth to age 6. Grades 1-8 are the elementary grades, and Grades 9- 12 are the secondary grades. There is a high level of consistency across the grades in relation to the Fundamental concepts,

Big ideas and the Goals of the program, as well as the Expectations (Figure 9). The same organisational chart is used at each level from grade 1 to grade 12.

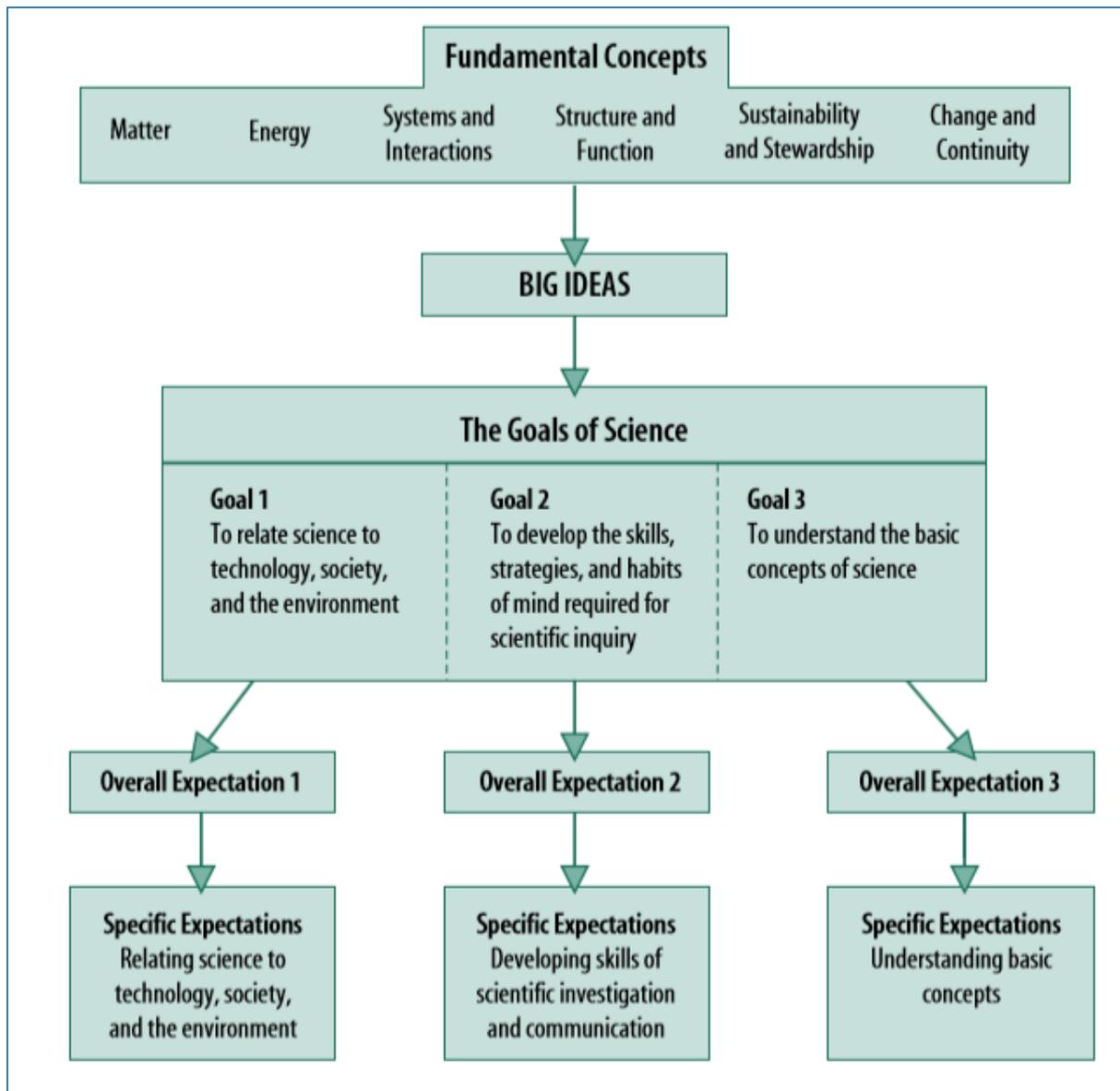


Figure 8 - Relationship between curriculum components Ontario

The stem used to introduce Expectations in the Ontario curriculum is: *By the end of this course, students will.*

The overall goals of particular subject areas are reflected within each strand of every course in the *Overall Expectations*, which in turn are developed in corresponding sets of related *specific expectations*. For example, in the strand: **Earth and space science: earth’s dynamic climate**, Goal 1. Relating Science to Technology, Society, and the Environment there is an Overall Expectation:

**D1.** analyse effects of human activity on climate change, and effects of climate change on living things and natural systems.

For this Overall Expectation, there are two Specific Expectations:

*D1.1 analyse, on the basis of research, various ways in which living things and natural systems have been affected by climate change*

*D1.2 analyse ways in which human actions have increased or decreased the production of greenhouse gases*

The *Specific Expectations* describe the knowledge and skills that students are expected to develop and demonstrate in their class work and investigations, on tests, and in various other activities on which their achievement is assessed and evaluated.

## Management of Learning Outcomes

The goals and their relationship with the *Expectations* reinforce the idea that the subjects cannot be learned as a collection of facts. The grouping of Expectations is not meant to imply that the Specific Expectations in any one group are achieved independently of the Specific Expectations in the other groups.

To help teachers to manage Expectations and to ensure clarity and consistency, each Expectation has a number of elaborations associated with it.

1. Abbreviations in square brackets following many Specific Expectations link the expectation to one or more broad areas of skills. In achieving the expectation, students are expected to apply skills from the area(s) specified by the abbreviation(s).
2. Sample issues provide a broader context for Specific Expectations. They are examples of current, relevant, open-ended issues related to the topic of the expectation that students can explore and debate, forming and justifying their own conclusions.
3. Sample questions (not sample assessment items) are provided to help teachers initiate open discussions on a range of current issues related to the topic of the Specific Expectations. They can also provide students with a focus for inquiry and/or research.
4. Examples attached to Specific Expectations illustrate the kind of knowledge or skills, the specific area of learning, the depth of learning, and/or the level of complexity that the expectation entails. The examples are illustrations only, not requirements.

The examples and the sample issues, questions, problems, and prompts help to clarify the requirements specified in the expectations and model appropriate practice for the grade and are meant to serve as illustrations for teachers. Teachers can choose to use the examples and samples that are appropriate for their classrooms, or they may develop their own approaches that reflect a similar level of complexity. The curriculum documents also contain skills continua to demonstrate expected progressive skills development for each of the skills areas.

| CONTINUUM FOR SCIENTIFIC INQUIRY/EXPERIMENTATION SKILLS                     |   |  |   |
|---|---|--|---|
| Beginning → Exploring → Emerging → Competent → Proficient                   |   |  |   |
| Initiating and Planning   |   |  |   |
| The student:  |   |  |   |
| asks questions that demonstrate curiosity about the world around him or her | asks questions that can be answered through tests/experimentation, and chooses one to investigate | asks questions that can be answered through tests/experimentation, and formulates a specific question to investigate | asks questions that arise from practical problems and issues, and formulates a specific question to investigate |
| with support, follows the steps in a simple,                                | follows the steps in a simple, teacher-   | creates, from a variety of possible methods, a   | plans for safe experimentation, showing   |

Figure 9 - Skills continuum

A student’s achievement of the *Overall Expectations* is evaluated on the basis of his or her achievement of related *Specific Expectations*. Teachers use their professional judgement to determine which *Specific Expectations* should be used to evaluate achievement of the *Overall Expectations*, and which ones will be covered in instruction and assessment (e.g., through direct observation) but not necessarily evaluated.

## Learning Outcomes in practice

There has been sustained investment in building the capacity of Ontario’s teaching profession, to work collaboratively to examine their own practices and the effect of those practices on the quality of student life inside and of outside school.

To support teachers and leaders in practice, and to set the discursive agenda for public school education, the Literacy and Numeracy Secretariat publishes a journal *Inspire: The Journal of Literacy and Numeracy for Ontario*<sup>3</sup>. It is a journal of successful practices for teachers, principals, supervisory officers, directors of education and anyone interested in learning how to further student achievement.

<sup>3</sup> <http://www.edu.gov.on.ca/eng/literacynumeracy/inspire/index.html>

It comprises two series: *Capacity Building*, which supports leadership and instructional effectiveness, and *Research into Practice*, which highlights promising teaching practice at the classroom level.

Ontario's curriculum, assessment and reporting system has moved from an emphasis on mastery of content to an understanding of big ideas and the ability to apply knowledge in authentic situations. Assessment of development of skills and habits of mind are expected to be embedded in all aspects of schooling and assessed and reported on by the teacher. There are extensive elaborations, examples, sample issues and prompts to help teachers to align assessments with the Specific Expectations; however, while these are intended to clarify the Learning Expectation and illustrate the broad nature of the expectations, there is evidence that many teachers use and rely on the curriculum for instructional and assessment strategies, and this has resulted, in many cases, in the curriculum examples becoming the text-book, thus narrowing the expectations and fragmenting learning (FitzPatrick & Schulz, 2015).

## Teachers and Learning Outcomes

The role of teachers in developing practice based upon Learning Outcomes in Ontario has been contested, perhaps reflecting the tensions highlighted in the introduction to this report. On the one hand, since 2003, policy makers in Ontario have provided opportunities at each stage for all the education partners to engage in collaborative learning. The reform process is said to have facilitated ownership and active participation, with integration of bottom-up and top-down initiatives. Teachers and school leaders have been encouraged to be innovative contributors and to develop and contribute to shared understanding. The power relation dynamics were managed throughout the reform period with the aim of successfully translating policy initiatives into school practices, with a focus on cultivating school-led innovation and improvement (Mourshed, Chijioke, & Barber, 2010b). Teachers in Ontario are certainly seen as key actors within the broader context of schooling. Many teachers have a strong sense of professionalism, engaging in collaborative work and self-directed professional learning (Osmond-Johnson, 2016). Throughout the curriculum reform, teachers were expected to use their professional judgement to use the Expectations as a guide to decide which aspects of learning, which student strengths, and which next steps are most important to comment on for any given reporting period. On the other hand, these developments have occurred in an environment with a heavy emphasis on raising attainment, often with a narrow focus on areas like numeracy/mathematics. Schools are publicly ranked and compared with other schools, and the active participation of teachers is often limited to consideration of present objectives.

## Relationship with other curriculum components

The EQAO (Education Quality and Accountability Office) carries out province-wide assessments of reading, writing and mathematics.

The assessment and its relationship to the learning expectations is set out in the document *Growing Success: Assessment, Evaluation, and Reporting in Ontario Schools* (Ontario Ministry of Education, 2010)

Whilst well-regarded by professionals in education, updating and relaunching *Growing Success* to support commitments to equity and current developments in Assessment and Reporting was one of the thirteen improvement areas identified by the Independent review of Assessment 2017. There was strong consensus in this large scale independent review about the need for changes in EQAO assessments, in particular the suitability of assessing students in Grades 3 and 9 was questioned given the negative impact large scale assessments have on student well-being and anxiety (Campbell, Fullan, Hargreaves, James, & Longboat, 2018).

An Achievement Chart sets out a province-wide expected standard of achievement at each level. This is intended to provide teachers and parents with a bench-mark. The Achievement Chart is used by teachers to make judgements about students' work based on their performance aligned with standards. Teachers report on students' achievement based on a body of evidence collected over time. The Achievement Chart is aligned to skills rather than to Learning Expectations. While teachers use Learning Expectations in planning for teaching, learning and assessment, the measurement of their achievement is based on Knowledge and Understanding; Thinking; Communication and Application.

The Elementary Provincial Report Card provides separate sections for comments on the development of learning skills and work habits and for comments on the achievement of *Expectations*. The Secondary Provincial Report Card provides a space for comments, in which the teacher may include comments on the development of learning skills and work habits in addition to comments on the achievement of *Expectations*. The comments relating to the development of learning skills are reported on separately to the evaluation of student achievement of the curriculum expectations.

Throughout their time in school, students are assessed by teachers. At the end of grade 9 and grade 12, the results are formally reported using a Provincial Report Card. Seventy per cent of the grade is based on evaluations conducted throughout the course, reflecting the student's most consistent level of achievement. Thirty per cent of the grade is based on a final evaluation in the form of an

examination, performance, essay, and/or other method of evaluation suitable to the course content and administered towards the end of the course. As well as reporting on the Learning Expectations, the report card provides a record of the learning skills demonstrated by the student in every course, in the following five categories: Works Independently, Teamwork, Organization, Work Habits, and Initiative. The learning skills are evaluated using a four-point scale (E=Excellent, G=Good, S=Satisfactory, N=Needs Improvement). The separate evaluation and reporting of the learning skills in these five areas reflects their critical role in students' achievement of the *Expectations*. The evaluation of learning skills is not considered in the determination of percentage grades.

Literacy and Numeracy are tested by external province-wide tests at three stages in a child's schooling. A separate body, the *Educational Quality and Accountability Office* EQAO administers the literacy and numeracy assessments. In grade 3 and grade 6 (primary), students are assessed on reading writing and mathematics. At the end of grade 9, students are assessed in mathematics, and in grade 10, they complete the Ontario Secondary School Literacy Test (OSSLT).

The successful completion of the OSSLT is required for progression to third level education, but the results do not count toward students' grades. According to the OISE-Public-Attitudes-Report-2018<sup>4</sup> the support for province-wide testing of every student at primary level is decreasing, although there continues to be support for province-wide testing of secondary students in Literacy and mathematics, to provide provincial data to inform the whole system performance.

## Learning Outcomes and school culture

It is widely claimed that Ontario has created a broad set of enabling conditions to support school successful improvement in its schools (Glaze, 2013), although we note that these claims have been contested, particularly in relation to defining what constitutes improvement and success (e.g. Pollock, 2013). Nevertheless, there has been a major investment in the development of a comprehensive early learning and childcare system, now under the umbrella of the Ministry of Education, and there is a strong cultural commitment to the importance of education<sup>5</sup>.

Although the number and scale of the initiatives launched by recent Government reforms has attracted some criticism (Coffield, 2012), it is clear that the Ontario reform designers worked hard to

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<sup>4</sup> [https://www.oise.utoronto.ca/oise/UserFiles/Media/Media\\_Relations/OISE-Public-Attitudes-Report-2018\\_final.pdf](https://www.oise.utoronto.ca/oise/UserFiles/Media/Media_Relations/OISE-Public-Attitudes-Report-2018_final.pdf)

<sup>5</sup> <https://www.ontario.ca/page/ministry-education>

develop and implement a systemic response to the problems and challenges they inherited from the previous education system. The government and the key stakeholders generated a sense of shared understanding and common purpose, and consequently their two major systemic initiatives – the Literacy and Numeracy Secretariat<sup>6</sup> and the Student Success strategy – have enjoyed broad public understanding and support.

To support stakeholder engagement, the Ministry has created the *Ontario Education Partnership Table*, where a wide range of stakeholders can meet with Ministry officials two to four times a year. The establishment of this body led to Working Tables, where smaller groups of stakeholders can work in more detail on particular issues.

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<sup>6</sup> <http://www.ontla.on.ca/library/repository/mon/17000/263658.pdf>

# Case Study 3. British Columbia

## Socio-political context

British Columbia (BC) is a Canadian province with a sovereign education system that is among the top performers in international student assessments. The school system is governed by the Ministry of Education and the district school boards, and it serves around 650,000 students, about 10% of whom are in independent schools, with the rest in public schools, managed by school districts.

Recently, BC undertook major reform of its education system into one that *'enables and supports increasingly personalised learning, through quality teaching and learning, flexibility and choice, and high standards'*<sup>7</sup>. The rationale was that a curriculum was required that better engages students in their own learning and fosters the skills and competencies students will need to succeed in the 21<sup>st</sup> Century.

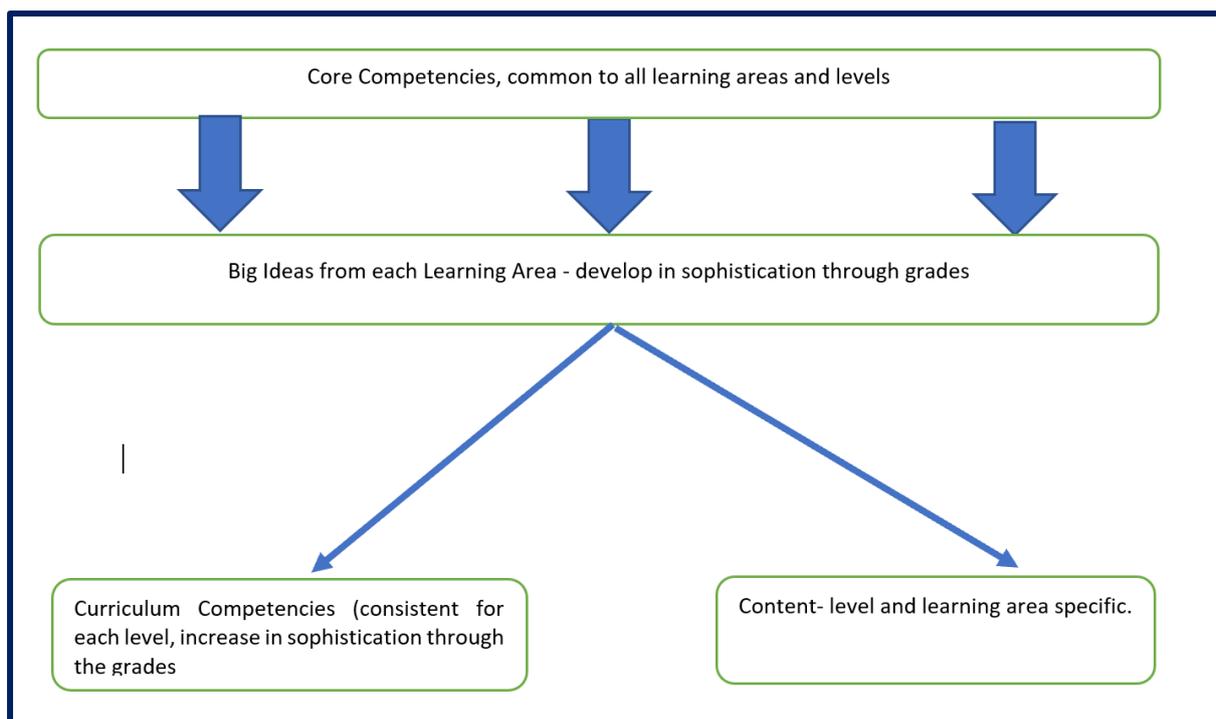
To inform the review, BC conducted reviews of trends in national and international jurisdictions and invited authorities on curriculum and assessment design to advise on proposed changes (although the extent and influence of this engagement is unclear, for example lacking references to academic authors). With the support of the British Columbia Teachers' Federation (BCTF), as well as curriculum experts at the province's Schools of Education, a development group was formed to write new content standards. The development groups limited themselves to one page per subject and grade. The groups also came up with a small number of "big ideas" in each subject and year. By agreeing on these ideas at the provincial level, they hoped to overcome the tension between local autonomy and ensuring all students developed key content knowledge.

## Learning Outcomes structure and purpose

The Revised BC curriculum is concept based and competency-driven, with an emphasis on deep understanding of concepts and the application of processes rather than on memorisation of isolated facts and information. The entire curriculum has been harmonised into a single policy document, which emphasises a coherent and increased focus on 21st century learning competencies, such as creativity, innovation, critical thinking, and character. The review has come to an end, and by 2019/20 all grades will use the new curriculum.

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<sup>7</sup> <https://curriculum.gov.bc.ca/curriculum/overview>



*Figure 10 - Outcomes structure British Columbia*

- The Grades 10-12 curriculum drafts were available for trial use by teachers throughout the province during 2016/17. They were revised and improved based on feedback from the trial, and finalised during the summer of 2018.
- In 2018/19, all BC schools will use the final redesigned Grade 10 curriculum; the final Grades 11 & 12 curriculum will remain optional for trial use.
- In 2019/20, all BC schools will use the final redesigned Grades 11 & 12 curriculum.

A set of Core Competencies underpin the BC school curriculum, and these are consistent across stages and learning areas.

All areas of learning in the curriculum are based on a *Know-Do-Understand* model, to support the Core Competencies. Three elements, the Content (*Know*), Curricular Competencies (*Do*), and Big Ideas (*Understand*) all work together to support deeper learning (Figure 11).



Figure 11 - Learning areas of the BC curriculum

The curriculum comprises the following elements:

- **Big Ideas (Understand):** The big ideas consist of generalisations and principles and the key concepts in an area of learning. The big ideas represent what students will understand at the completion of the curriculum for their grade. They are intended to endure beyond a single grade and contribute to future understanding.
- **Learning Standards (equivalent to Irish Learning Outcomes)**
  - **Curricular Competencies (Do):** The curricular competencies are the skills, strategies, and processes that students develop over time. While curricular competencies are more subject-specific, they are firmly connected to the Core Competencies.
  - **Content (Know):** The content learning standards detail the essential topics and knowledge for each subject at each grade level.

Students are also expected to develop and demonstrate proficiency in numeracy and literacy across all subjects and grade levels. Literacy and numeracy skills are developed through applications in all curricular areas.

See Figure 12 below as an example of how the curriculum is presented (using a grade 5 science Learning Area).

The screenshot shows the BC Curriculum Structure for Science 5. At the top, it says 'Science 5' and 'Science K 1 2 3 4 5 6 7 8 9 10 11 12'. Below this are navigation tabs: 'Introduction', 'Goals and Rationale', 'Curriculum Overview', and 'Supports'. The main content is divided into sections: 'Core Competencies' (Communication, Thinking, Personal and Social Competencies), 'Big Ideas' (Multicellular organisms, Solutions, Machines, Earth materials), and 'Learning Standards' (Curricular Competencies and Content). Red callouts point to the top navigation, Core Competencies, Big Ideas, and Content sections. Green callouts point to the Curricular Competencies and Content sections.

Curriculum from K-12

Introductory material including support material

Core Competencies- comon to all subject areas

Big ideas- consistent across all levels of each learning area

Curriculum competencies- consistent across all levels

Content- level and subject specific

Figure 12 - BC Curriculum Structure

The structure and emphases are consistent across all subjects and all levels.

## Management of Learning Outcomes

In recent years, educators and academics in BC have argued that, through constant reform, curricula have become increasingly crowded, rendering it almost impossible for teachers to manage the Learning Outcomes mandated in any given document (Sun, Raptis, & Weaver, 2015). The process of updating the BC curriculum traditionally occurred in cycles, subject by subject. Each update would result in schools receiving sets of new binders, and each time the number of content standards teachers were expected to cover increased. One of the most common criticisms of curricular reform in BC is that every reform has resulted in something being added, but nothing removed. As well as more, new and relevant content, each review saw an increased demand for deeper understanding and application of more challenging skills. All of this required more effort being put into teaching and learning to achieve the desired goals in the allotted time (BCTF, 2013).

As the latest cycle of curriculum reform approached, curriculum developers realised from their own experience and from working with teachers that the ever-increasing numbers of content standards had impacted negatively on teaching and learning and that it was time to reverse the trend. The most recent curriculum review has seen the vast number of prescribed Learning Outcomes being replaced with fewer, broader topics and competencies.

The Learning Standards and Big Ideas for each area of learning identify what is essential—what students are expected to know, be able to do, and understand at each grade. The detail of how this model is enacted is at the discretion of the teacher; they are expected to combine the three elements in ways they see fit, to personalise learning in their classrooms. The curriculum is designed to be flexible and to allow teachers to innovate. To help teachers to manage this change, *Instructional Samples* are provided in each Learning Area. These samples consist of authentic examples of how teachers from across the province have interpreted the redesigned BC Curriculum to plan learning experiences for their students. Each sample identifies clear connections to the Big Ideas, Learning Standards, and Core Competencies. The use of cross-curricular connections, choice for students and teachers, multiple entry points and adaptations are highlighted in the samples. The samples also provide assessment ideas and include samples of student work. Some also show how teachers have made explicit connections to the curriculum through cycles of thinking, planning, and reflection.

As well as instructional samples, there is extensive support and information for teachers to ensure that the Core Competencies are integral to learning. How to integrate Core Competencies into teaching and learning is illustrated in a number of Core Competency Profiles, developed by BC teachers, based on students' work. The Core Competency Profiles consist of two elements.

**Competency Profiles:** These present an overview and the set of profiles. The overview provides background about the competency and includes a description of its facets. The sets of profiles are descriptions of students as they progress to sophisticated stages of competency. The profiles are written from the student's point of view, reflecting student ownership and responsibility for demonstrating the competencies. The profiles include 'I can' statements. The Competency Profiles emphasise the concept of expanding and growing and are progressive and additive.

**Competency Illustrations:** the competency illustrations offer examples of ways in which students from diverse backgrounds and communities can demonstrate the competence. For each competency, there are numerous illustrations for each facet and at different stages of development. The Illustrations have the profile (stage of development), the *I can* statements and the Facet (see example figure 18)

## Monster Roommates

Students crafted a monster story and develop criteria to determine who would be good roommates.

Students in this French Immersion class had studied extracts of stories about monsters and now, were crafting their own monster stories. At this point, students had to figure out which monsters would be compatible roommates: how would they be able to live together – without eating or destroying each other! Students discussed each monster’s habits and habitation, developed criteria for the roommates, and prepared ‘contracts’ for three monsters to live together.



“ Contract between monster roommates ”

“ student drawing of monster roommates ”

| Profile | Description   | Facets                          |
|---------|---|---------------------------------|
| 2       | <p>I can use evidence to make simple judgments.</p> <p>I can ask questions, make predictions, and use my senses to gather information. I can explore with a purpose in mind and use what I learn. I can tell or show something about my thinking. I can contribute to and use simple criteria. I can find some evidence and make judgments.</p> | <p>Question and Investigate</p> |

Figure 18-Competency Illustration: critical thinking

It will be interesting to see if the teachers in BC come to use these illustrations as text-book examples, as has happened to some extent in Ontario.

## Learning Outcomes in practice

In a recent interview, *British Columbia's Curriculum: A Glimpse of the Future?*<sup>8</sup>, Rod Allen, a former associate deputy minister in the British Columbia Education Ministry, provided some insights into the emerging issues around reform in BC, and the impacts on teachers. He acknowledged that teachers find it difficult to reconcile their desire for a curriculum, with broad Learning Outcomes that allow them to use their professional judgement, with one in which the detail of exactly what is to be learned is not made clear. This tension is reflected in the report on teachers’ responses to consultation on the reforms (BCTF, 2016). In their feedback, teachers were generally positive about the inquiry and cross-curricular approach promoted in the redesigned curriculum, including the framework of Big Ideas and Core Competencies. For example, one teacher said this framework was ‘concise and broad enough to

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[http://blogs.edweek.org/edweek/top\\_performers/2018/06/british\\_columbias\\_curriculum\\_a\\_glimpse\\_of\\_the\\_future.html](http://blogs.edweek.org/edweek/top_performers/2018/06/british_columbias_curriculum_a_glimpse_of_the_future.html)

allow teachers to choose what they can do best'. They also welcomed the flexibility around Learning Outcomes as an opportunity to adapt subjects to meet the needs of particular groups of students. However, while welcoming the reform, teachers worried about reconciling the vision of curricular change with the realities of their schools and classrooms. Some teachers see the top-down implementation of a pedagogical approach as eroding their professional autonomy, others are concerned about inadequate time and resources for new pedagogical approaches.

Teachers also had diverse views on relationships between breadth and depth in curricular content. For some teachers, the curriculum offers increased 'options for teachers to decide what they teach and how they teach it', providing opportunities for 'taking on a topic and delving into it thoroughly', and leading to deeper comprehension and appreciation among students. For other teachers, the redesigned curriculum is too vague, and that there are gaps in content. They argue that flexibility comes at the expense of particular skills and knowledge, and reducing the content has 'dumbed-down' the curriculum.

In response to the teachers concerns, Allen suggests that balance between central specification of curriculum frameworks and flexibility for teachers in implementing the new curriculum is about right. He suggests that as some teachers think it is too vague and some think it is too tightly specified, the balance is probably just right. He warns that giving teachers great latitude to develop a curriculum is dependent on their own deep understanding, and that if the teachers don't have a firm understanding of their subject at a fairly deep level, it is impossible to teach a curriculum focused on understanding and the application of what the student knows and understands to real world challenges.

*The key is abandoning the idea that one is teaching the curriculum [...] Instead, what the teacher should be doing is creating experiences for students that will result in the outcomes we want. Those experiences will produce unexpected corners for both teacher and student. The teacher has to be prepared to say, 'I don't know. Let's find out' (Rod Allen).*

There is also concern about assessment within the new curriculum, and there is a perception that there is a lack of alignment of the Learning Outcomes with the current government external assessments in Mathematics and Literacy. There is as yet little empirical evidence about how the reform will impact on teachers', learners and classroom practice, as is very early days of the reform; however, it will be interesting to see what emerges and what lessons can be learned.

# Teachers and Learning Outcomes

Each school district has a union (known as an association), and teachers are all also part of the BCTF – the province-wide Teachers’ Federation. The BCTF and the Ministry have a difficult relationship that stretches back decades. In the 28 years since teachers were granted the right to strike, there have been many strikes across the province. In 2012, the government introduced legislation, which limited the BCTF’s ability to strike. In response, for almost a year in 2012-13, teachers were forbidden by the BCTF from speaking to their administrators, and in 2014 they held the longest teacher strike in Canadian history, leading to several weeks of missed school. It concluded in mid-September, with a new six-year deal of moderate pay increases and a new fund for additional teachers and specialists in schools. A collective bargaining agreement was reached in 2012, between the British Columbia Teachers' Federation (BCTF) representing the province's public-school teachers, and the BC Public School Employers' Association (BCPSEA) representing the province's 60 public boards of education. This agreement expires on June 30, 2019, and negotiations around a new collective bargaining agreement are due to commence in December 2018.

Following the 2012 agreement, there was a high level of dissatisfaction amongst BC teachers about how their professionalism was perceived. The BC Teachers’ Federation compares the relationship between the Ministry and the teachers with the widely-discredited Harris era in Ontario.

*The approach taken by BCPSEA in both its Discussion Paper and its tabled language [.....] arguably reverts to a Harris-like vision of how education can be monitored and controlled, while keeping investments, support, and collaborations at minimal levels (BCTF, 2013) .*

With this background of troubled industrial relations, and continued language of conflict in public correspondence between the BCTF and the BCPSEA, it is yet to be seen how the relationship between teachers and the government impacts on implementation during the next round of collective bargaining. Teachers have argued that BCPSEA is not engaging with teachers, in the existing collaborations between teachers and school districts, where teachers are directing their own professional development.

One initiative, developed to share the challenge of rethinking pedagogy, is the *K12 Innovation Partnership*, which was launched in January 2015<sup>9</sup>. The partnership provides support to educators throughout BC, who are interested in pursuing – or already undertaking – innovative teaching and learning practices that benefit students in the K-12 system. The partnership is run by the Innovation

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<sup>9</sup> <http://k12innovation.ca/>

Partnership Working Group IPWG, and is made up of expert practitioners, including principals and vice principals, superintendents, and the Teachers' Federation. Although the Ministry provides the funds for partnership projects, the governance is shared amongst the stakeholders to ensure sustainability and legitimacy. The Ministry felt it was key that the focus should be on learning, and wanted to provide the opportunity for the group to act free from other government priorities.

BC teachers are very proud of their high levels of autonomy and competence. They consider the rethinking of pedagogy to align with the new curriculum as the teachers' job. The agreement, at provincial level, of a small number of Big Ideas in each subject, has gone some way to reduce a perceived erosion of local autonomy.

## Relationship with other curriculum components

The relationship between the Learning Outcomes (Learning Standards) and the Core Competencies has been the subject of concern since the outset of the initial consultation on curriculum reform. The discussion has centred around assessment and reporting, and the relative emphasis given to content vs. competencies.

In its original advice, the Curriculum and Assessment Framework Advisory Group stated that the Core Competencies should be clearly defined for both curriculum and assessment purposes. They also specified that these definitions should be 'supported with descriptive continua and student samples, similar to performance standards, to describe and illustrate the developmental stages of each competency' and "clearly related to complex real-world tasks and performances' (MOE, 2012). Further, the importance of establishing 'competency links' was emphasized in order to connect Core Competencies directly with each area of learning (p. 6).

This early planning document also contained a clear objective for some form of assessment of these competencies. The Advisory Group 'recommended that teachers report at key times in the year on Cross-Curricular Competencies and key concepts within areas of learning using clear performance-based language' (p. 7). Identifying the complications with traditional marking schemes, an emphasis was placed on self-assessment and flexibility in demonstrating competency (p. 7). In their final report, the Advisory Group on Provincial Assessment agree that, while focus on the areas of reading, writing, and numeracy should remain, there is also a need to develop assessment of the Cross-Curricular Competencies and that they should be included in the 'provincial assessment system' (Magnusson & Frank, 2014).

Again, this difference may impact attention to these core skills, as originally envisioned by the Advisory Group and widely supported in public and educator feedback. As the Ministry continues to mandate the use of letter grading in reporting in grades 4-12, the focus of teachers and students will continue to be drawn to indicators that dictate what ‘counts’, when it comes to Learning Outcomes. As seen from the outset of the public consultation process, there is consensus on the importance of Core Competencies to students’ future success. However, there is real risk of losing sight of this larger mission in the face of the significant challenge of meaningful implementation and assessment. Future research might examine approaches to the evaluation or demonstration of competencies that are both efficacious and realistic, and also explore ways in which self-assessment can be meaningfully managed or combined with other types of reporting, to legitimize Core Competency development in the eyes of students, parents, educators and post-secondary stakeholders.

BC’s assessment system is being redesigned to align with the new curriculum. The assessment is designed to support the flexible, personalised approach to learning and measure deeper, complex thinking. The assessment system has three programs:

- Classroom Assessment and Reporting
- Provincial Assessment
- National and International Assessment

## Classroom assessment and reporting

Assessment of Learning Standards is being given a much higher profile in the new Curriculum than in the past. A Framework for Classroom Assessment<sup>10</sup> and examples of assessment have been developed to support teachers’ understanding about the relationship between the Cross-Curricular Competencies, Content and Learning Standards. The frameworks for assessment are built on the Learning Standards and do not include the Core Competencies, which are assessed as part of the provincial assessment. The frameworks represent an extensive spiral of specification, which is contrary to policy intentions about decluttering. Two contrary trends emerge: while the curriculum, on the face of it, has become less cluttered, and the number of Learning Standards significantly reduced, assessment standards have become highly specified to the extent of the creation of sub-levels within levels (see figs 13-16).

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<sup>10</sup> <https://curriculum.gov.bc.ca/sites/curriculum.gov.bc.ca/files/pdf/assessment/a-framework-for-classroom-assessment.pdf>

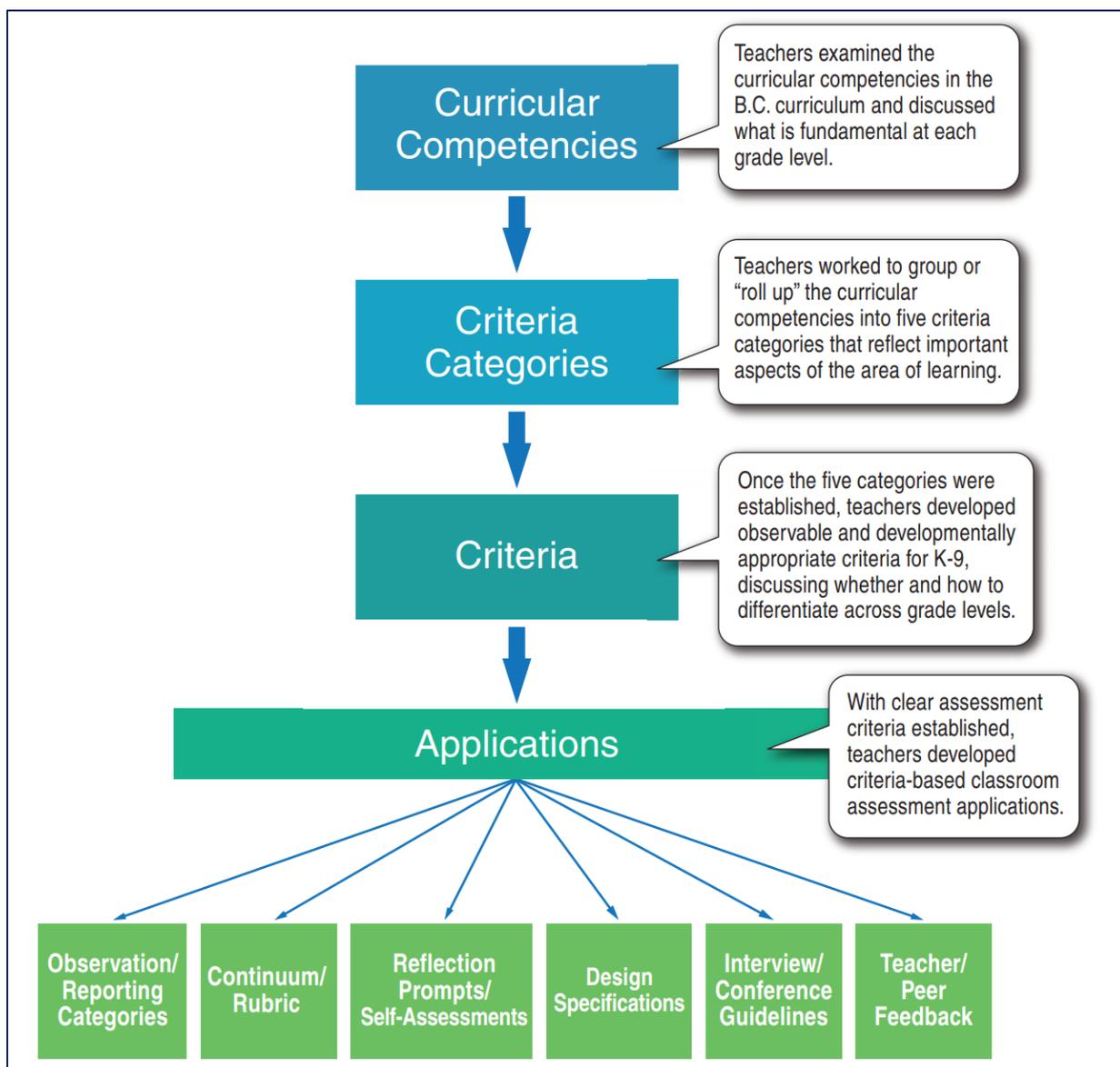


Figure 13 - Framework for Classroom Assessment

| Science                 | English Language Arts          | Social Studies                  | Mathematics                    |
|-------------------------|--------------------------------|---------------------------------|--------------------------------|
| Questioning             | Engaging and Questioning       | Inquiry and Questioning         | Questioning and Investigating  |
| Procedures and Evidence | Processing                     | Evidence and Interpretation     | Connecting and Reflecting      |
| Analysis                | Analyzing                      | Analysis                        | Reasoning and Analyzing        |
| Ethics                  | Recognizing Identity and Voice | Ethics and Decision-making      | Understanding and Solving      |
| Communicating           | Constructing and Creating      | Communication and Justification | Communicating and Representing |

Figure 14 - Criteria categories for Science, ELA, Social Studies, and Mathematics

| Criteria category              | Criteria  |   |   |
|--------------------------------|---|---|---|
|                                | Science: K  | Science: Grades 3-4   | Science: Grades 7-8   |
| <b>Questioning</b>             | <ul style="list-style-type: none"> <li>Makes observations about objects and events in familiar contexts</li> <li>Uses observations and curiosity to form questions</li> </ul> | <ul style="list-style-type: none"> <li>Makes and records observations about objects and events in familiar contexts</li> <li>Asks questions about observations that can be investigated</li> <li>Makes predictions based on prior knowledge</li> </ul>  | <ul style="list-style-type: none"> <li>Makes and records accurate and precise observations</li> <li>Asks questions about their observations that lead to a scientific inquiry</li> <li>Makes predictions about their scientific inquiries</li> <li>Formulates a hypothesis</li> </ul>   |
| <b>Procedures and Evidence</b> | <ul style="list-style-type: none"> <li>Safely uses materials</li> <li>Gathers simple data</li> </ul>  | <ul style="list-style-type: none"> <li>Suggests ways to plan and safely conduct an investigation</li> <li>Collects, sorts, and classifies simple data</li> <li>Recognizes that data comes from multiple sources</li> </ul>  | <ul style="list-style-type: none"> <li>Chooses appropriate methods and materials to safely conduct their own inquiry</li> <li>Measures and controls variables</li> <li>Accurately collects and records data using a variety of tools</li> <li>Finds and uses data from multiple sources</li> </ul>                                      |
| <b>Analysis</b>                | <ul style="list-style-type: none"> <li>Represents simple data in a variety of ways</li> <li>Discusses observations</li> </ul>   | <ul style="list-style-type: none"> <li>Represents patterns and relationships in data using given methods (e.g., table, graph)</li> <li>Uses data to infer the relationship between predictions and results</li> <li>Reflects on evidence to determine whether an investigation was a fair test</li> </ul> | <ul style="list-style-type: none"> <li>Identifies and represents patterns and relationships in data in a variety of ways</li> <li>Uses data to support conclusions</li> <li>Identifies possible sources of error and refines investigation methods</li> <li>Identifies bias and assumptions in primary and secondary sources</li> </ul> |
| <b>Ethics</b>                  |   | <ul style="list-style-type: none"> <li>Considers ethical responsibilities when designing an investigation</li> </ul>  | <ul style="list-style-type: none"> <li>Evaluates social, ethical, and environmental implications in investigations</li> </ul>   |
| <b>Communicating</b>           | <ul style="list-style-type: none"> <li>Communicates observations and ideas reflecting personal experience of place</li> </ul>   | <ul style="list-style-type: none"> <li>Explains ideas and processes reflecting personal or shared experience of place</li> </ul>  | <ul style="list-style-type: none"> <li>Clearly and concisely communicates scientific ideas and information</li> <li>Expresses and reflects on place through a variety of methods</li> </ul>   |

Figure 15 - Assessment Criteria for Science

| Proficiency Scale |                                   |  |   |  |
|-------------------|---|--|---|--|
|                   | Emerging  | Developing   | Proficient  | Extending  |
|                   | The student demonstrates an initial understanding of the concepts and competencies relevant to the expected learning. | The student demonstrates a partial understanding of the concepts and competencies relevant to the expected learning. | The student demonstrates a complete understanding of the concepts and competencies relevant to the expected learning. | The student demonstrates a sophisticated understanding of the concepts and competencies relevant to the expected learning. |

Figure 16 - Assessment Criteria Proficiency scale

There are three formal written report cards for each student every school year, including one at the end of the school year. These are written on an approved form, identify student progress and are placed in the student's permanent file. As well as the formal report cards, two informal reports are generated each school year. Each school decides how informal reporting takes place. Added to the

highly specified Assessment Framework, the latest order (circular)<sup>11</sup> from the Ministry has mandated that letter grades are to be used in reporting on achievement from grades 4-12.

## Provincial Assessment

There is province-wide assessments of Literacy and Numeracy. These assessments are designed to provide a snapshot of student performance in key areas and are used to monitor key outcomes of BC's education system. Provincial assessments are external.

## Learning Outcomes and school culture

Teachers are given flexibility to create learning environments, based on development of Core Competencies, that are relevant, engaging, and novel. To help them in their planning for teaching and learning, and to place learning in the context of their every-day lives, teachers are provided with support to show them how to place Core Competencies rather than content as the focus of teaching, learning and assessment.

Each of the three Core Competencies has its own set of documents, providing detail of how they should be developed through all aspects of the students' experience. They are described as sets of intellectual, personal, and social and emotional proficiencies that all students need to develop in order to engage in deep learning and life-long learning. How the Core Competencies manifest themselves in each discipline is contained within the learning standards. The goal is for learners to employ the Core Competencies every day in school and in life, and for the Core Competencies to be an integral part of the learning in all curriculum areas.

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<sup>11</sup>[https://www2.gov.bc.ca/assets/gov/education/administration/legislationpolicy/legislation/schoollaw/e/m192\\_94.pdf](https://www2.gov.bc.ca/assets/gov/education/administration/legislationpolicy/legislation/schoollaw/e/m192_94.pdf)

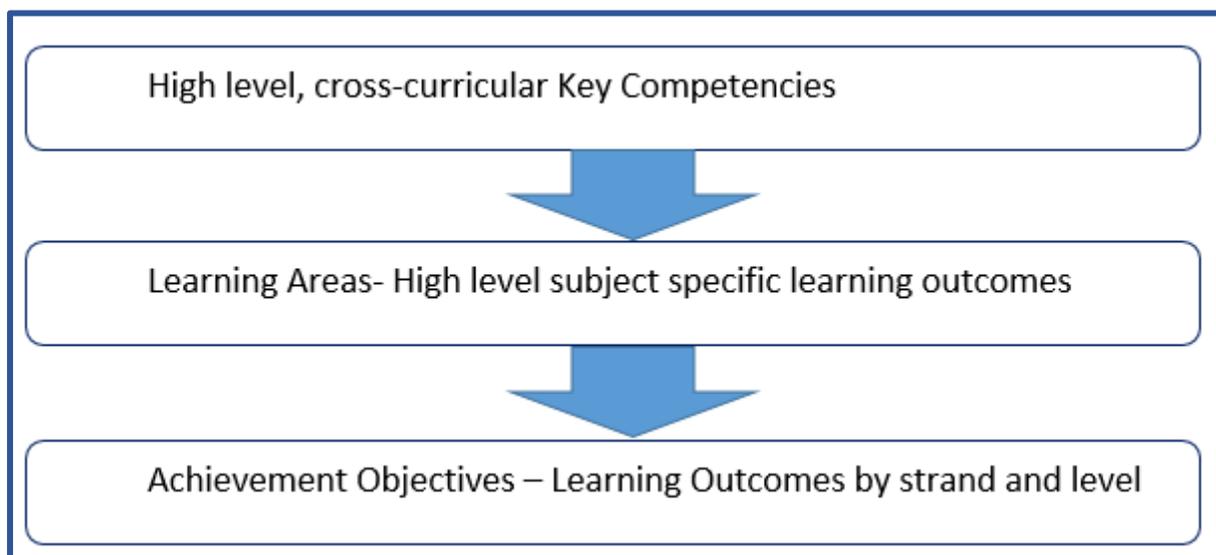
# Case Study 4. New Zealand

## Socio-political context

A review of the curriculum was undertaken in 2000-2002, and at that stage it was decided to revise it in line with social change, an increasingly diverse population, advances in technology, and changing demands of the workplace. Following a development process that included trials in schools, collaborative working parties, online discussions, and an inquiry into relevant national and international research, the draft New Zealand Curriculum for consultation was published in 2007. A revised version is currently in development.

The principal function of the New Zealand Curriculum (NZC) is to set the direction for student learning and to provide guidance for schools, as they design and review their own curriculum. It includes a clear set of principles on which schools base their own curriculum decision-making. It sets out values that are to be encouraged, modelled and explored. It defines five Key Competencies that are critical to sustained learning and effective participation in society, and that underline the emphasis on lifelong learning.

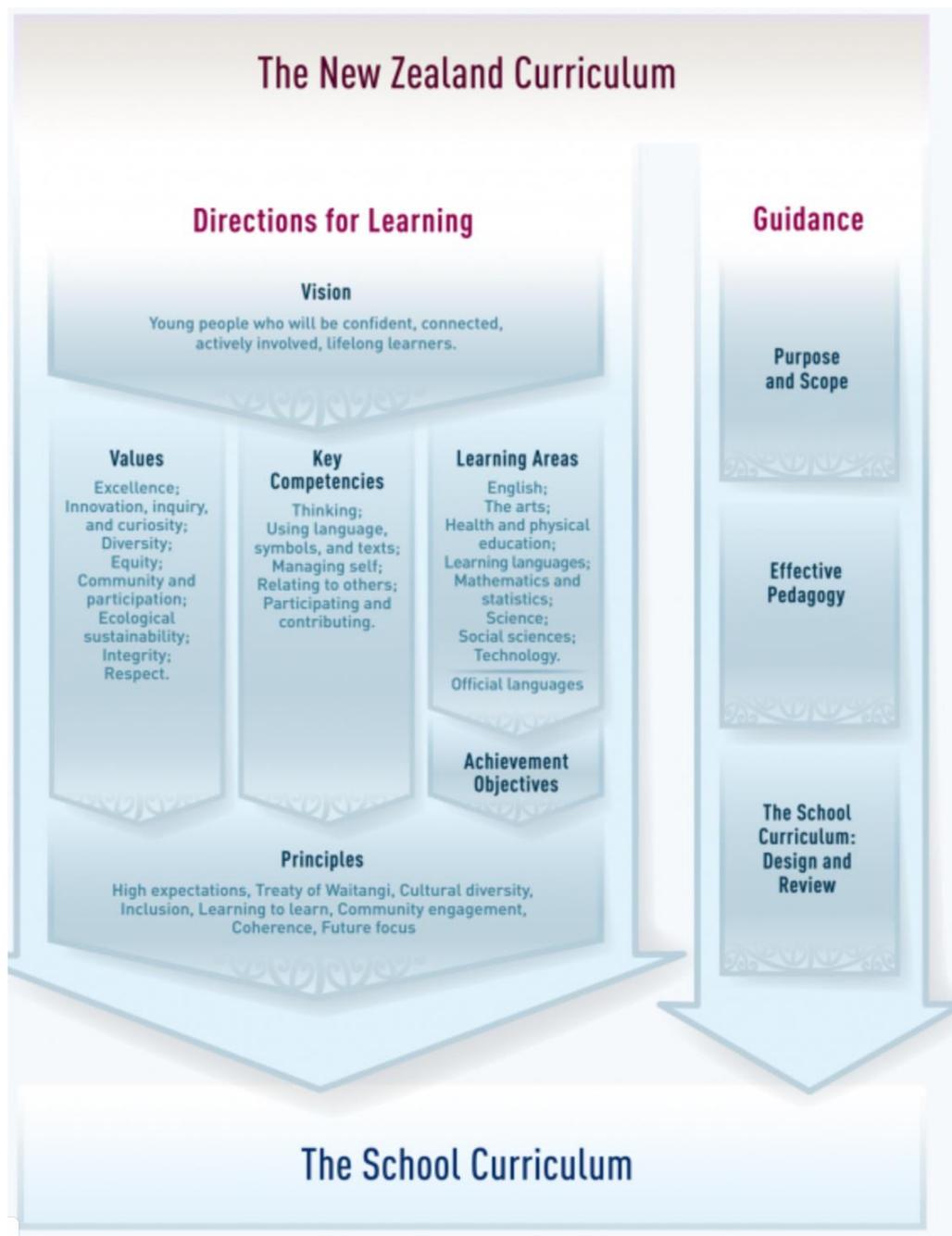
## Learning Outcomes Structure and purpose



*Figure 17 - Outline Curriculum Structure*

The NZC identifies five high level cross curricular Key Competencies: thinking; using language, symbols and texts; managing self; relating to others. The cross curricular competencies are integrated across

the learning areas and the learning levels. They are described as more complex than skills, as they draw on knowledge, attitudes and values as well as skills in ways that lead to action. The curriculum learning area statements provide broad descriptions of the essential nature of each learning area. The learning areas are divided into strands, there are high level Learning Outcomes that are consistent across all levels for each strand. The Achievement Objectives set out selected learning processes, knowledge, and skills relative to eight levels of learning, and are equivalent to Learning Outcomes in Irish specifications, but with an important difference; they are not mandatory, and can be significantly adapted by schools and teachers.



*Figure 18 - Overview of the NZ curriculum*

## Management of Learning Outcomes

Following the introduction of the Tomorrow's Schools<sup>12</sup> policy in 1989, New Zealand developed a school governance model that relies heavily on the professionalism of teachers and leaders and on the quality of the partnership that they establish with their communities. This model places considerable responsibility on school leaders and on teachers, as teachers are the principal assessors of their students' learning progress. By introducing a self-management model, the New Zealand reforms gave schools considerable freedom to choose how to interpret and implement national curriculum and how to approach assessment and reporting. The state determines a broad regulatory framework but does not prescribe actual practice. Individual schools shape their own assessment and reporting policies consistent with the National Education Guidelines (NAG), and decide what assessment tools they will use and how they will report student achievement. The ongoing review of the education system will potentially introduce far-reaching reforms of the above features of the current system (e.g. see: <https://conversation.education.govt.nz/assets/TSR/Tomorrows-Schools-Review-Report-13Dec2018.PDF>).

The philosophy of the NZC is that the local curriculum of each school is shaped depending on needs, interests, and circumstances of their students and community; Achievement Objectives have the status of guidance rather than prescription and are subject to school discretion. However, even for confident teachers in well-established communities of practice, there is evidence that this level of autonomy, over how the Achievement Objectives are managed, continues to be challenging (Wylie, McDowall, Ferral, Felgate, & Visser, 2018). In particular, there is emerging evidence of the tendency for teaching to Achievement Objectives to narrow the curriculum. In History, for example, Ormond (2017, p.599) has noted 'the potential for substantive historical knowledge to be downplayed in favour of procedural knowledge and the potential for assessment drivers to dominate or distort selection of knowledge for history' (Ormond, 2017).

Schools thus have considerable flexibility when determining the detail of how they manage Achievement Objectives. There are mandatory learning areas that must be taught, and within those

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<sup>12</sup> These reforms were heavily criticised a neo-liberal (for example introducing marketization and an economic rationality into the education system. See, for example, O'Neill, 1996).

learning areas, the curriculum outlines the values and Key Competencies that students should develop. There is considerable support for teachers in managing teaching learning and assessment. For example, there is a tool-kit for curriculum leadership<sup>13</sup>.

## Learning Outcomes in practice

Following the implementation of the revised national curriculum in 2007, a national evaluation of its implementation was commissioned by the Ministry of Education (Sinnema, 2009). The evaluation was carried out by researchers at the Faculty of Education at the University of Auckland. The report specifically looked at change in practice over the initial two years of implementation 2008/2009, and in particular the precursors to change in practice in line with policy intentions – receptivity and understanding. The evaluation found that the new curriculum was well regarded, with most teachers viewing it as an improvement on the previous one. The report found that teachers welcomed the flexibility of the curriculum, the relevance to 21st century learners, and its potential to support high quality teaching and learning for students. However, despite this positive reception, the evaluation did not find any significant progress in implementing many key aspects of the curriculum over the short period of the evaluation.

The lack of progress was not due to resistance, but due to teachers' confidence in engaging with the curriculum as the developers (including teachers, as the curriculum was co-constructed) intended. These findings (Sinnema, 2009) resonate with the evidence from other jurisdictions about how little impact curriculum change can have on teaching practice (Cohen, Raudenbush, & Loewenberg Ball, 2003; Levin, 2007; Wilson et al., 2018). In the New Zealand case, teacher confidence in working with the Achievement Objectives was shown to be a key consideration, despite there being a strong programme of support in place. It was suggested that the lack of confidence could also be related to teachers' own deep understanding about the distinctions between the new and the old curriculum elements. There was evidence from teachers' responses that, when they perceived new curricular elements as being similar to old elements, the tendency was to assimilate new ideas with their existing ones. The report argues that teachers had only a superficial understanding of the extent of the changes in approach advocated by the new curriculum. Even those who did recognise the extent of the changes, and who had high regard for the curriculum's shift were not always able to effect change in their classrooms to any meaningful extent. While there were instances of teachers making meaningful changes to their practice, many were unsettled by the disruptions to existing practice.

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<sup>13</sup> <https://curriculumtool.education.govt.nz/>

They were “grounded by time-honoured methods, curriculum outlines, and culturally constructed conceptions of how to teach a particular subject...[and] often felt as if a secure foundation had been pulled out from underneath them” (p. 33).

Since the publication of that report, New Zealand has implemented The *Teaching and School Practices Survey Tool* (TSP), an online survey tool designed for schools to inquire into their teaching and principal leadership practices. The survey is anonymous; teachers report on their own teaching practices, and their views of the school’s practices and of the principal’s leadership. In the most recent report (Wylie et al., 2018), ten years after the original report, there is evidence that many teachers still have some way to go to in interpreting and implementing the Achievement Objectives in the way that the curriculum planners envisaged. One of the reasons given for this lack of progress is the perception that while teacher recognise the changed nature of the Achievement Objectives, they appear to add their new understandings onto existing structures, rather than fundamentally changing their practice. It is important to reiterate here that the learning area statements (referred to informally as the one pagers) are the mandatory parts, the prescribed curriculum. The Achievement Objectives have the status of guidance and schools are free to use them , alter the, add their own, use only their own, et cetera.

## Teachers and Learning Outcomes

Schools in New Zealand are among the most autonomous across OECD countries (although this is likely to change following the current review). Schools are managed by school boards, with a focus on student achievement. The government sets annual objectives in a Statement of Intent for its central education agencies, and the Ministry of Education develops a national policy framework.

In New Zealand, teacher may base assessment of student work based on curriculum Achievement Objectives. The Objectives define a broad range of knowledge and skills expected of students. Teachers are responsible for choosing or designing assessment tasks as well as making the final summative judgements. Because of the complexity inherent in the Achievement Objectives (i.e. articulating assessment with competencies and values, which the curriculum requires schools to integrate across the design process), teachers often use assessment tasks that have been commercially developed (Edwards, 2013; Alison, 2005). If Achievement Objectives are seen as part of a larger picture, and treated as guiding inputs, then they tend to be used more holistically. In New Zealand, when teachers use Achievement Objectives as the ends of education, rather than as part of a larger picture, the process of curriculum development comprises little more than identifying evidence to show that the Achievement Objective has been meet. This in turn leads to a tick-box

approach to learning and fragmentation and incoherence, with patchy educational coverage of key content. Teachers select fragments of knowledge that align with the achievement objective, rather than embed the desired skills attitudes and values into key substantive knowledge (B. Ormond, 2011).

## Relationship with other curriculum components

For some time, the approach to assessment in New Zealand has been moving beyond a narrow summative focus to a broader focus on assessment as a means of improving teaching and learning. The assessment strategy prioritises support for teachers and schools, through the availability of new assessment tools and professional learning targeted at improving assessment capability.<sup>14</sup>

Prior to 2018, school qualifications were achieved through the assessment of student work against a set of National Standards that were based on the Achievement Objectives. Each Standard was effectively a subset of Achievement Objectives with associated assessment criteria, accompanied by the standard of performance required to show proficiency in that subject. National Standards were very unpopular with teachers, as they saw them as constraining the flexibility that was inherent in the Achievement Objectives.

*National Standards narrowed the curriculum, put undue pressure on children, increased teacher workload and weren't even an accurate measure of a child's progress (Press release NZ teachers association).*

Aligning the *Achievement Objectives* with National Standards, on which teachers had to report, resulted in value being placed on performance related to selected disciplinary skills and conceptual knowledge. The unintended consequence was a shift towards targeting 'suitable' knowledge at the expense of breadth of knowledge.

*In bringing about this shift, procedural factors such as the NZQA policies on examination formats and examiner's decisions on generic questions or specific content-based questions, have proven critical and provided an environment where a reductive and piecemeal approach to disciplinary knowledge can be adopted (B. Ormond, 2011).*

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<sup>14</sup> <http://assessment.tki.org.nz/Assessment-and-reporting-guide/Measuring-progress-across-the-curriculum>

The de-coupling of the Achievement Objectives from the other curriculum components with the introduction of Assessment Standards is an indicator of how critical the relationship between curriculum components are in attaining a balance between a broader overview versus in-depth knowledge. (Counsell, 2011) has suggested, 'perhaps the most important insight from teachers in recent years is that it is not the incidence of overview and depth but their interplay that counts'. It is the relationships between bodies of knowledge, or concepts, and how knowledge is built on that matters rather than the collection of discrete bits of knowledge.

## Learning Outcomes and school culture

Since the introduction of the new curriculum, the relationships between students, teachers, leaders and the wider education community have changed, as pedagogies and educational ethos have changed. Teaching and learning encompass the building of values and dispositions that young people will take from school into their post-school world. For students, education has come to focus on building agency and developing capabilities and competencies through the *Achievement Objectives*. For schools, relationships with parents and the wider community has changed in response to the changes in teaching, learning and assessment. As a result, there is greater need for more systematic support, in order to foster teacher confidence and capability to interpret and use Achievement Objectives in an integrated way that meets the needs of individual students and the wider educational community. Schools have the sole responsibility for how and indeed whether to use the *Achievement Objectives* to monitor the progress of individual students. They are placed at a high level of trust to develop a curriculum that best suits their students' needs. Since the introduction of the new curriculum, it is evident that school leaders have adjusted to the changes relatively well, and there is a high level of confidence that schools are well on the way to adapting to their new role. A significant proportion of teachers however, lack confidence in fully embracing the system-wide change that the 2007 curriculum has brought. In the 2017 National Survey, fewer than 25% of teachers stated that they did well in collaborating with the community or with ensuring that students engage with Higher Order learning and manage their own learning (Wylie et al., 2018). Teachers and school leaders continue to see time as a key resource in successfully incorporating the Achievement Objectives into practice.

# Case Study 5. Hong Kong

## Socio-political context

Major reform of the Hong Kong education system started in the late 1990s, particularly after 1997 when the Hong Kong Special Administrative Region (HKSAR) was set up under the One Country, Two Systems by Mainland China. The economy had shifted from one of manufacturing to one of service, and a new framework for education was needed, so that students would develop deeper levels of knowledge and the ability to work in a complex, multicultural environment. The framework of the current curriculum (for pre-primary through to lower secondary) has been in place since 2002, following the release of two major reports — Learning through Life (2000) and Learning to Learn (2001) — which focused on the need to shift Hong Kong's education system from one centred around rote learning to one aimed at developing 21st century skills, to broaden the knowledge base, and promote positive values and attitudes. Pre-primary and upper secondary were added to the framework in 2006 and 2009. Since the implementation of curriculum reform in 2002, Hong Kong students have achieved outstanding results in a number of international studies. There are also reports pointing out the significant improvements in the education system of Hong Kong (Mourshed et al., 2010a) (OECD, 2016)

The curriculum reform is part of Education System Reform initiatives recommended by the Education Commission in 2000 (EC, 2000). One of the major issues of the reforms relating to assessment was reducing public examinations and unnecessary excessive testing that existed in both secondary and primary sectors. The ten-year operation plan of the overhaul reform was marked by the curriculum reform document entitled Learning to Learn: The Way Forward in Curriculum<sup>15</sup>. It emphasised the provision of equal learning/curriculum opportunity for all. Schools were given the freedom to determine their educational mission within the policy framework, allowing for flexibility in assessing students' needs, in budgetary matters, in curriculum focus, and in involving stakeholders. Greater school autonomy was accompanied by school accountability for student performance. Building on these experiences, in 2009, the New Academic Structure providing all students three years of senior secondary education, leading to the new HK Diploma of Secondary Education (HKDSE), brought continuous changes in curricula and assessment on top of the 6+3 free primary and junior secondary education. One selective examination at Secondary 5 and the 2-year sixth form were abolished. This

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<sup>15</sup> <https://www.edb.gov.hk/en/curriculum-development/cs-curriculum-doc-report/wf-in-cur/index.html>

is meant to prepare students better for the new 4-year university programme which replaces the 3-year programme and other diversified study and work pathways. Liberal Studies was made a core subject for university admission. It allows students to design their own program of study using current events and non-textbook based materials, and is assessed accordingly. Universities have changed their admission systems to align with the changes to the curriculum.

Upon completing the whole cycle of change from 2002 to 2012 in school education, curriculum reform in Hong Kong is now moving towards continual curriculum renewal, to ensure that teaching and learning can maintain relevance to local, regional as well as global changes and keep the Learning Outcomes in line with the broader outcomes of education. Schools identify focal points of curriculum development in response to future needs, according to the school contexts. They target these in the planning and implementation of their school curriculum. Such curriculum renewal is communicated as a continuum, rather than as an add-on. (CDC,2013,2015,2017)

## Learning Outcomes structure and purpose

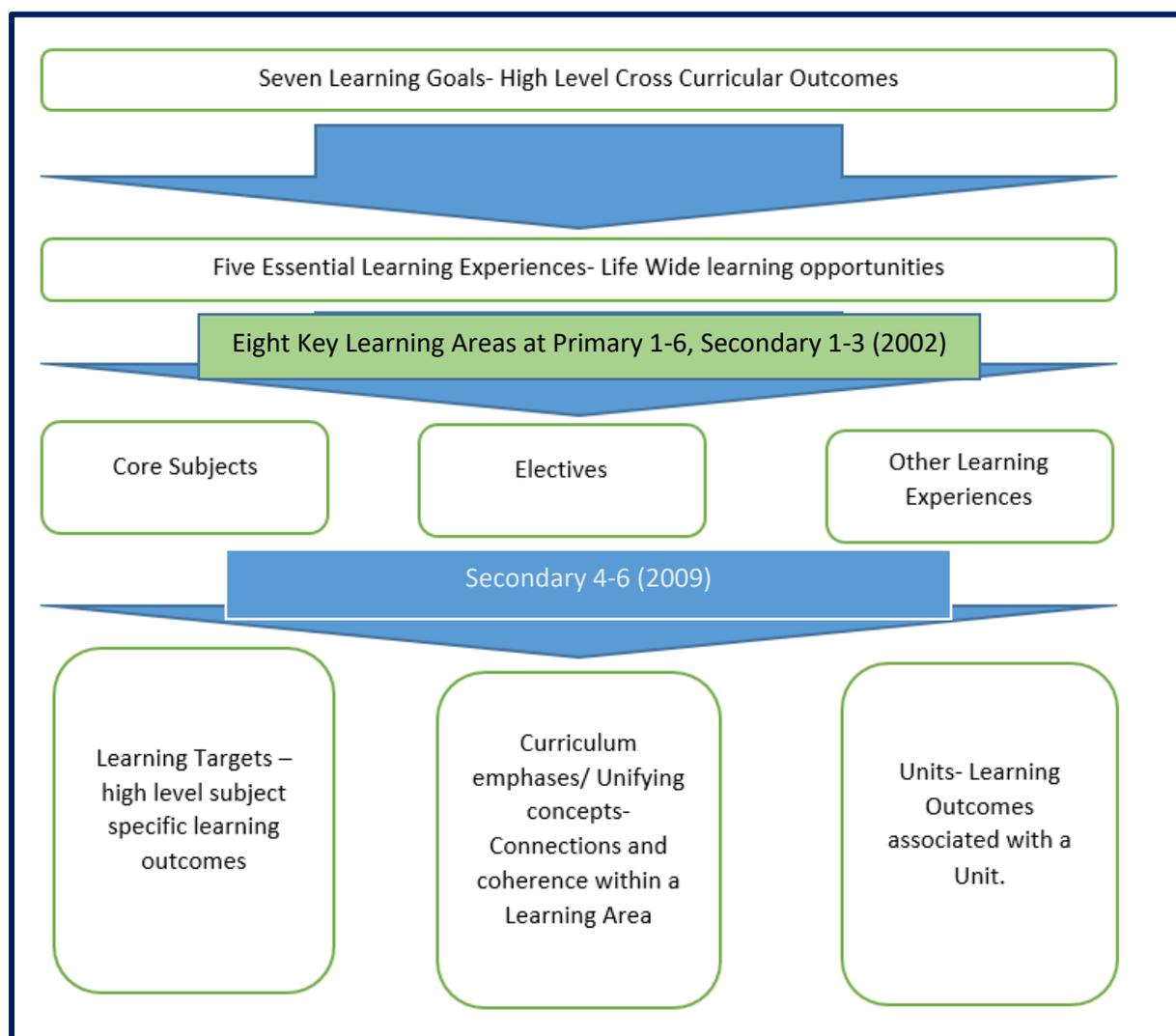


Figure 19 - Curriculum Structure Hong Kong

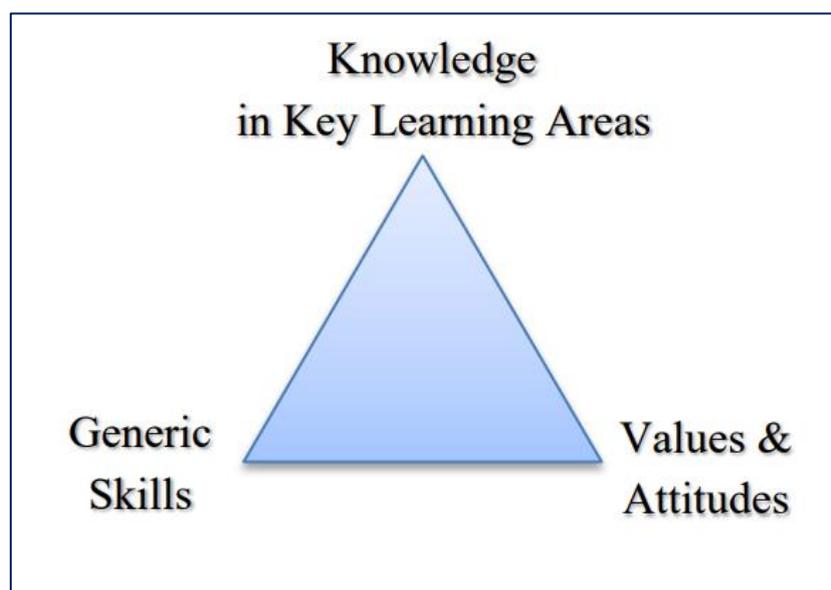
In Hong Kong, Learning Outcomes are defined as

*...what students are expected to master by the end of a particular stage of learning. They are developed based on the learning targets and objectives of the curriculum for the purpose of evaluating learning effectiveness. Learning Outcomes also describe the levels of performance that students should attain after completing a particular key stage of learning (The Curriculum Development Council, 2017).*

The curriculum builds on eight Key Learning Areas (KLAs): Chinese Language; English Language; Mathematics; Science; Technology; Personal, Social and Humanities Education; Arts Education; Physical Education. Applied Learning subjects that combine theoretical learning with practical learning in six areas of working professions have been introduced. In addition, all students are entitled to undertake Other Learning Experiences (including community services, moral and civic education,

career-related experiences, arts and physical learning experiences) that constitute whole-person development. The aforementioned additional area Liberal Studies, introduced at senior secondary level, is an interdisciplinary subject aims to promote critical and higher-order thinking skills for the 21st century.

Each KLA has an overarching KLA curriculum guide that sets out what is expected of students across all stages, however, there is an acknowledgement that the expectations may not be appropriate for all students. Teachers are asked to exercise their professional judgement in the planning and delivery of a broad and balanced curriculum suitable for all students and to organise the curriculum in different ways to ensure fitness for purpose. The curriculum guide outlines major concepts and important principles to be acquired; it provides a broad framework upon which learning, and teaching activities can be developed. Each KLA provides a context for the development and application of generic skills (e.g. communication, collaboration skills and creativity) and subject-specific skills as well as positive values and attitudes through appropriate use of learning and teaching activities and strategies. The studies offered in each KLA may have an academic, social or practical orientation or a combination of these, depending on their purpose(s). They can be organised into subjects, modules, units, tasks or other modes of learning. The three components of the curriculum framework are integrated.



*Figure 20 - Three Interconnected Components of the Curriculum Framework*

According to the Secondary Education Curriculum Guide

*A curriculum framework provides a structure which helps schools flexibly plan and develop their own curricula based on the central curriculum to meet the varied needs of students. The major components of a curriculum framework are knowledge and concepts, generic skills, and values and attitudes relevant to each*

*KLA. The framework sets out what students should learn and develop at different key stages (The Curriculum Development Council, 2017).*

Generic skills are the fundamental skills that help students acquire, construct and apply knowledge in various contexts. They are developed in the learning and teaching of different KLAs/subjects and are transferrable from one situation to another.

| <b>Basic Skills</b>           | <b>Thinking Skills</b>   | <b>Personal and Social Skills</b> |
|-------------------------------|--------------------------|-----------------------------------|
| Communication Skills          | Critical Thinking Skills | Self-management Skills            |
| Mathematical Skills*          | Creativity               | Self-learning Skills*             |
| Information Technology Skills | Problem Solving Skills   | Collaboration Skills              |

*Figure 21-Grouping of the generic skills*

The identified values and attitudes are:

Perseverance, Respect for Others, Responsibility, National Identity, Commitment, Integrity, Care for Others.

The curriculum is designed to ensure continuity and progression of education across primary and senior secondary levels. The curriculum guide describes the interconnectedness between the Learning Targets, Curriculum Emphases and the Units. For example, see figure 22, the Curriculum Framework for science.

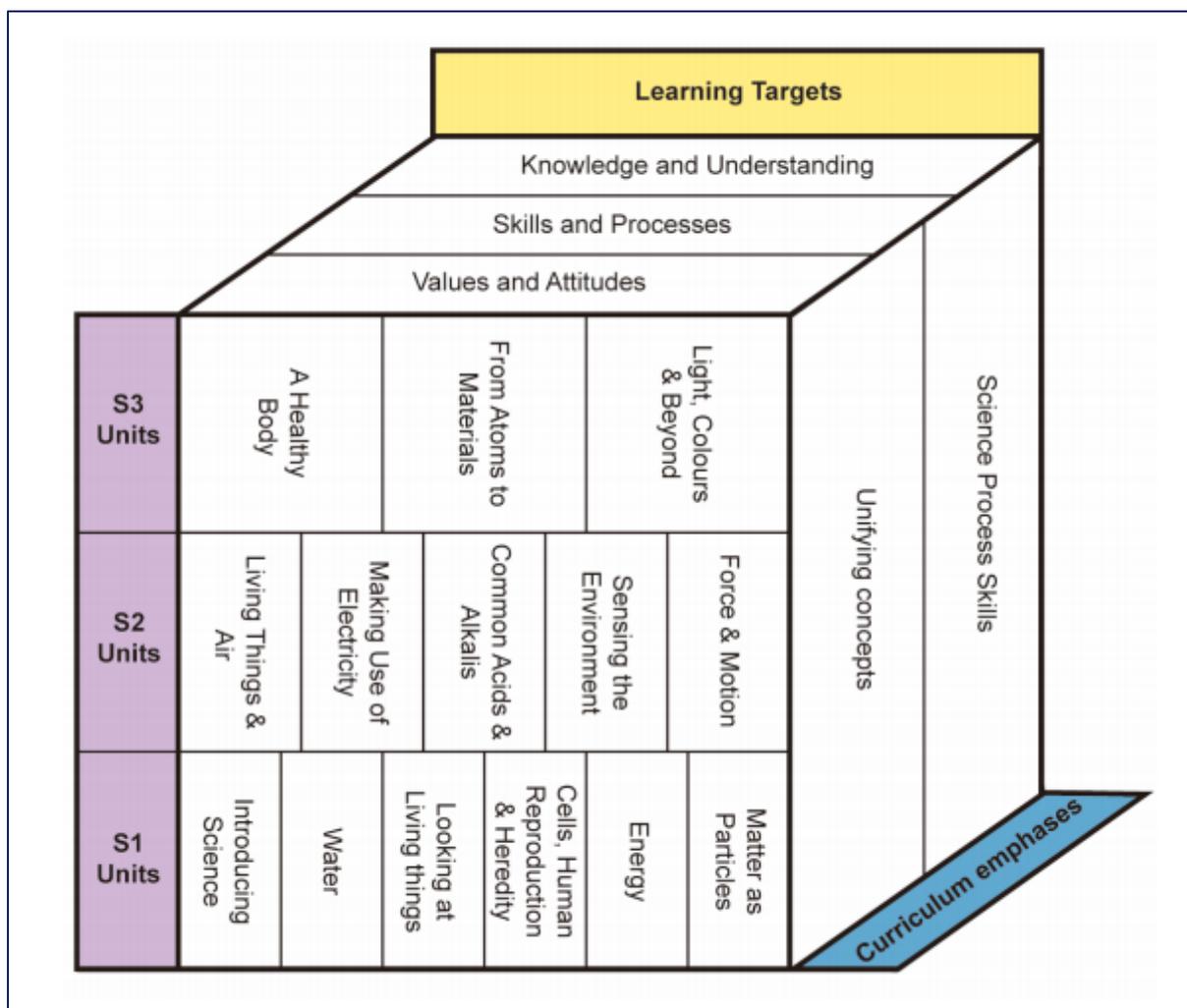


Figure 22 - Curriculum framework for science

The learning targets, under the headings *Knowledge and understanding*, *Skills and Processes* and *Values and Attitudes*, indicate how students should progress in their overall knowledge, skills, and values and attitudes in science education, as they progress through their education. The visual representation of Learning Outcomes in this manner may be more helpful for teachers to see how they integrate with each other. Generally, curricula are presented as linear documents, yet the policy rhetoric is that Learning Outcomes are complex and non-linear.

The Learning Outcomes are listed in the units and have suggested learning activities associated with them. Some units have extensions. There is flexibility for teachers to choose topics from an Extension to suit the needs and abilities of students. They are used to provide challenges for more able students or students with strong interest in science to further develop their potential.

| Students should learn   | Students should be able to  | Suggested learning and teaching activities  |
|---|---|---|
| <b>4.1 Cells - the basic units of living things</b> <ul style="list-style-type: none"> <li>Basic structure of a cell</li> </ul> | <ul style="list-style-type: none"> <li>Recognise cells as the basic unit of living things</li> <li>Distinguish between plant cells and animal cells</li> <li>Use a microscope to examine prepared slides of plant and animal tissues</li> <li>Identify the basic structures of cells, including cell wall (in plant cells), cell membrane, cytoplasm, nucleus, vacuole, chloroplasts (in plant cells)</li> <li>State the functions of the basic structures</li> </ul> | <ul style="list-style-type: none"> <li>Examine photomicrographs or prepared slides of various types of plant and animal cells</li> <li>Prepare slides of plant and animal tissues (e.g. onion and ox eye cells), examine these slides under a microscope and draw diagrams of the observed cells</li> </ul> |

Figure 23 - Learning Outcomes

There is a similar structure for the senior secondary Curriculum and Assessment Guides.

## Management of Learning Outcomes

It is important to note that Hong Kong has a strong curriculum tradition where teaching and learning starts with what is worth learning. The concept of Learning Outcomes is more defined as what students can do (as a result of learning and teaching based on curriculum intentions). To achieve a visibly coherent curriculum, there have been efforts to enhance the vertical continuity of the school curriculum between the junior secondary (JS) and senior secondary (SS) levels and the lateral coherence among different Key Learning Areas (KLAs). This has been done by using strategies such as cross-curricular project learning and collaboration amongst subjects. To manage this, teachers have flexibility in using curriculum time for broadening students' learning experiences beyond the classroom, through *life-wide* learning activities including cross-curricular career related experiences. Teachers are provided with extensive, detailed guides to help them plan and teach according to curriculum objectives, and manage the Learning Outcomes, in such a way that they take the vertical and lateral coherence into account, i.e. plan for is vertical continuity of the school curriculum between the four levels and lateral coherence among different Key Learning Areas (KLAs). As part of the school development areas, school leaders are asked to consider how their planning can support the vertical continuity and the lateral coherence of the school curriculum.

Since the implementation of curricular reform, most schools have integrated the process of P-I-E (Planning, Implementation and Evaluation) into their school development planning (figure 24). This is an iterative, five-stage planning cycle consisting of: Context Analysis; Curriculum Planning and Deploying Resources; Implementing the Curriculum; Continuous Monitoring; Review and Evaluation.

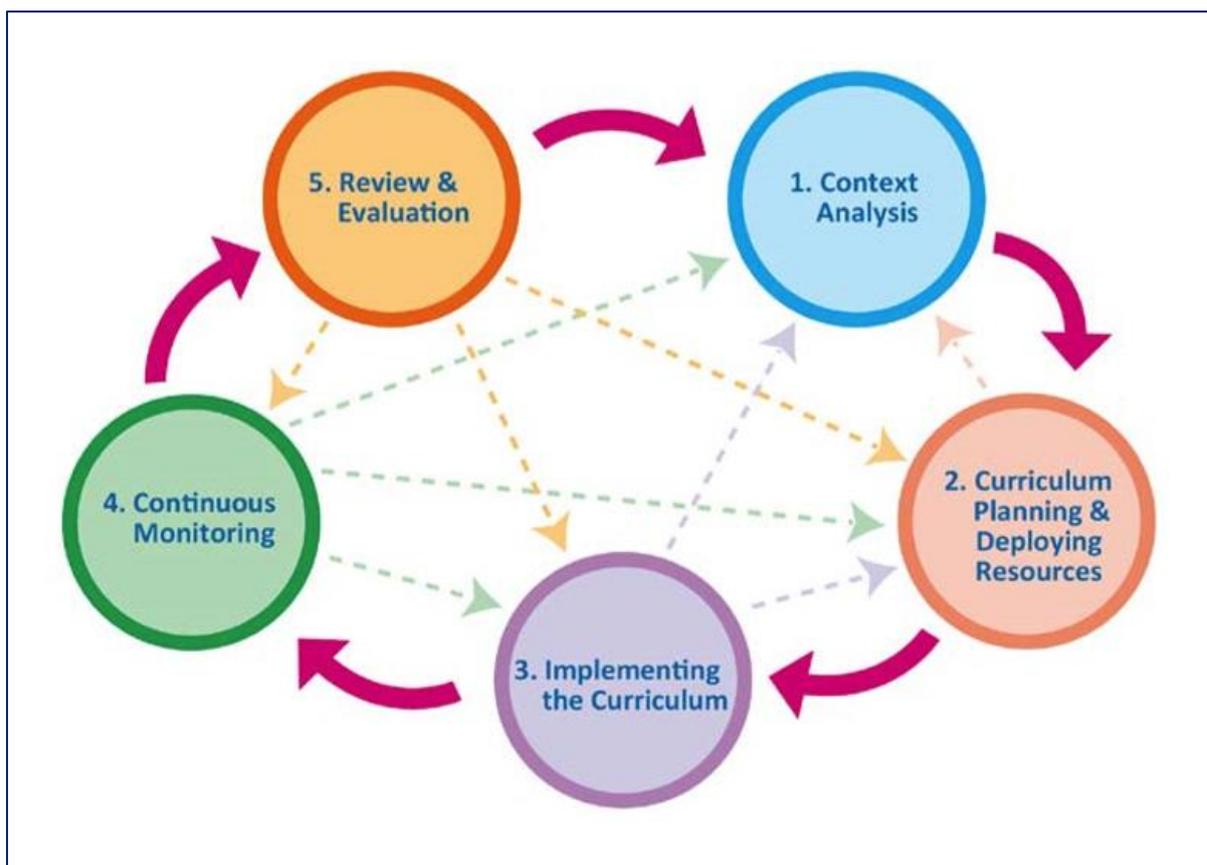


Figure 24 - Five-stage Cycle for Whole-school Curriculum Planning (Source: SECG Booklet)

## Learning Outcomes in practice

To align with the intended Learning Outcomes of the “Learning to learn” reform, which emphasised students’ acquisition of generic skills in the context of subject knowledge learning rather than teaching generic skills in a vacuum, teachers and the system had to undergo a significant change in pedagogical change as well. This change of practice has resulted in implementation issues across schools, and there is concern about the capacity for schools, teachers and students to transform their pedagogical practice and implement the curricula in the way the developers intended. Another key challenge for teachers is to avoid using the Learning Outcomes merely for designing assessment or drilling students before understanding; instead they are intended for integrating the curriculum aims to content knowledge, generic skills and values into innovative and appropriate everyday classroom pedagogical and assessment practice, in ways that enable students to apply what they have learnt in new and unfamiliar contexts.

Another major shift in practice is how assessment is used. Assessment used to be used purely for accountability and selection; now it is to be used in the process of teaching and learning in the classroom. The curriculum documents highlight that assessment of ‘both the processes (e.g.

inquiring, independent learning, use of generic skills, reflections) and the products of learning (e.g. knowledge/concepts, problem-solving capabilities) should be assessed by the assessment methods most suited to them (e.g. oral tests for oral communication, discussion for collaboration, presentation/performance for creativity, tests and examinations for knowledge)'(Hong Kong Curriculum Development Council, 2017). In comparison with the assessment practice before 2001, the shift of the new assessment reform is dramatic in terms of goals, content, method and the type of feedback for students.

In addition, a low-stakes Basic Competency Assessment (BCA) has been introduced to Primary, 4, 6, and Secondary 3 respectively in 2004, 2005, and 2006. One component called Territory-wide Assessment (TSA) is administered to all students where core competencies from the English, Chinese and Mathematics are assessed. Annual Territory-wide reports are published as part of the government's accountability and for schools' reference. Schools would receive a school report for improving learning and teaching. The Student Assessment component is an on-line assessment to facilitate teachers' daily learning and teaching. It was successful in providing quality data for assessment for learning, but less successful in changing the perceived stakes of 'assessment', and pressure from some parents or schools to continue drilling.

## Relationship with other curriculum components

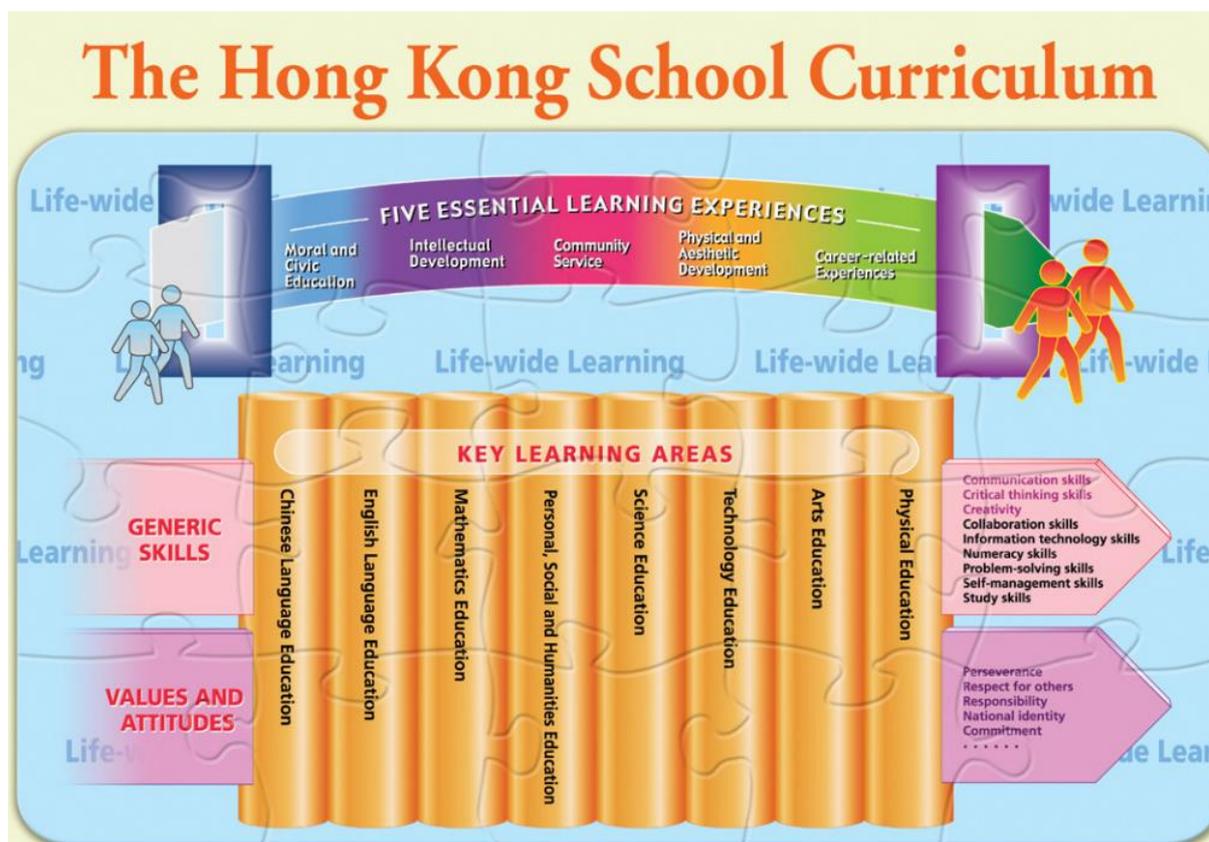
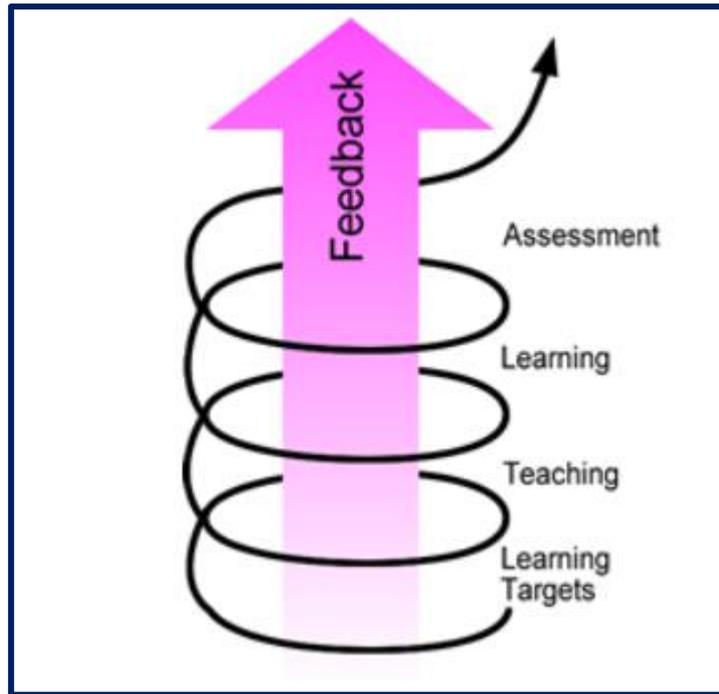


Figure 25 - Relationship between the components of the Hong Kong Curriculum 2002 for P1-6, S1-3

The curriculum components comprise a set of interlocking components including essential learning experiences, generic skills, values and attitudes and key learning areas. The framework sets out what students should know, value and be able to do at the various stages of schooling. The Learning Outcomes set out to link the development of competence and skills, values and attitudes, knowledge and understanding into a holistic learning process. The relationship between the components is designed to help teachers have flexibility in the way they handle the scope and depth of the content to meet the different needs of students, while at the same time highlight 'core elements' or essential content in the KLA.

Since the curriculum reforms the relationship between Learning Outcomes and assessment has become more complex and much less linear. Assessment is now viewed as a teaching and learning tool with feedback as a core component.



*Figure 26 - Learning, Teaching and Assessment Cycle*

Many of the Learning Outcomes cannot be assessed within the context of a written examination, particularly where they involve practical work, require special equipment and facilities (e.g. laboratories, studios, theatres and workshops), or involve extended amounts of time (e.g. to complete a research project, create a portfolio of work or compose/design/make something). However, many of these assessments can readily be undertaken through School-Based Assessment (SBA). The main rationale for SBA is to enhance the validity of the public assessment and extend it to include a variety of Learning Outcomes that cannot be assessed easily through public examinations. Marks awarded count towards students' results in the HKDSE Examination. While school-based assessment is generally welcomed by schools, many teachers and principals nonetheless have a range of concerns about its impact, including fears of abuse and cheating, extra workload for teachers, and lack of readiness to implement school-based assessment. It was thus compromised, in that only 12 subjects out of the 24 subjects leading to the HKDSE have adopted SBA.

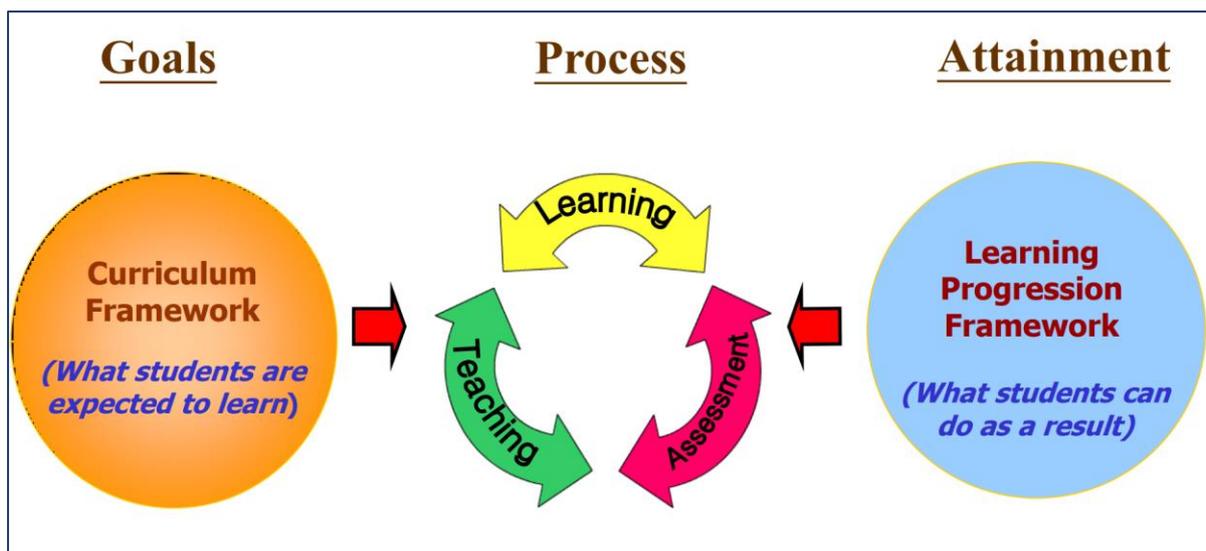


Figure 27 - relationship between curriculum components

Learning progression frameworks represent the growth of learners on a developmental continuum, as they work towards the Learning Targets and Objectives of the curriculum. It is made up of Learning Outcomes organised under skills and divided into eight levels of attainment. The progression frameworks are designed to help teachers to understand and articulate learners' performance and to plan strategically how to enhance learning, teaching and assessment.

One of the features of reform is to devolve responsibility for day to day management and organisation of curricular structures to schools. To ensure the coherent alignment of all curriculum components has meant that not only has there had to be reforms in pedagogy, but there have also been operational reforms, for example, there has been a new focus on technology in the classroom in recent years, which has resulted in an overhaul of schools' technological infrastructures, information technology training for teachers, and the development of an e-learning initiative. As well as school-based management, there are also new initiatives around monitoring and quality assurance. In 2003, a new School Self-Evaluation (SSE) and External School Review (ESR) were introduced as new accountability for school-based management and curriculum reform.

In the early stages of the reform, there was emerging evidence of negative impacts of what has been termed 'bottleneck syndrome'. This syndrome was potentially damaging to teachers' well-being and working conditions, and there are reports of burn-out and being overburdened with unnecessary work. This resulted in the declining status of the teaching profession, the attrition of competent teachers from the system, and deteriorating quality of teaching and learning (Y. C. Cheng, 2007)

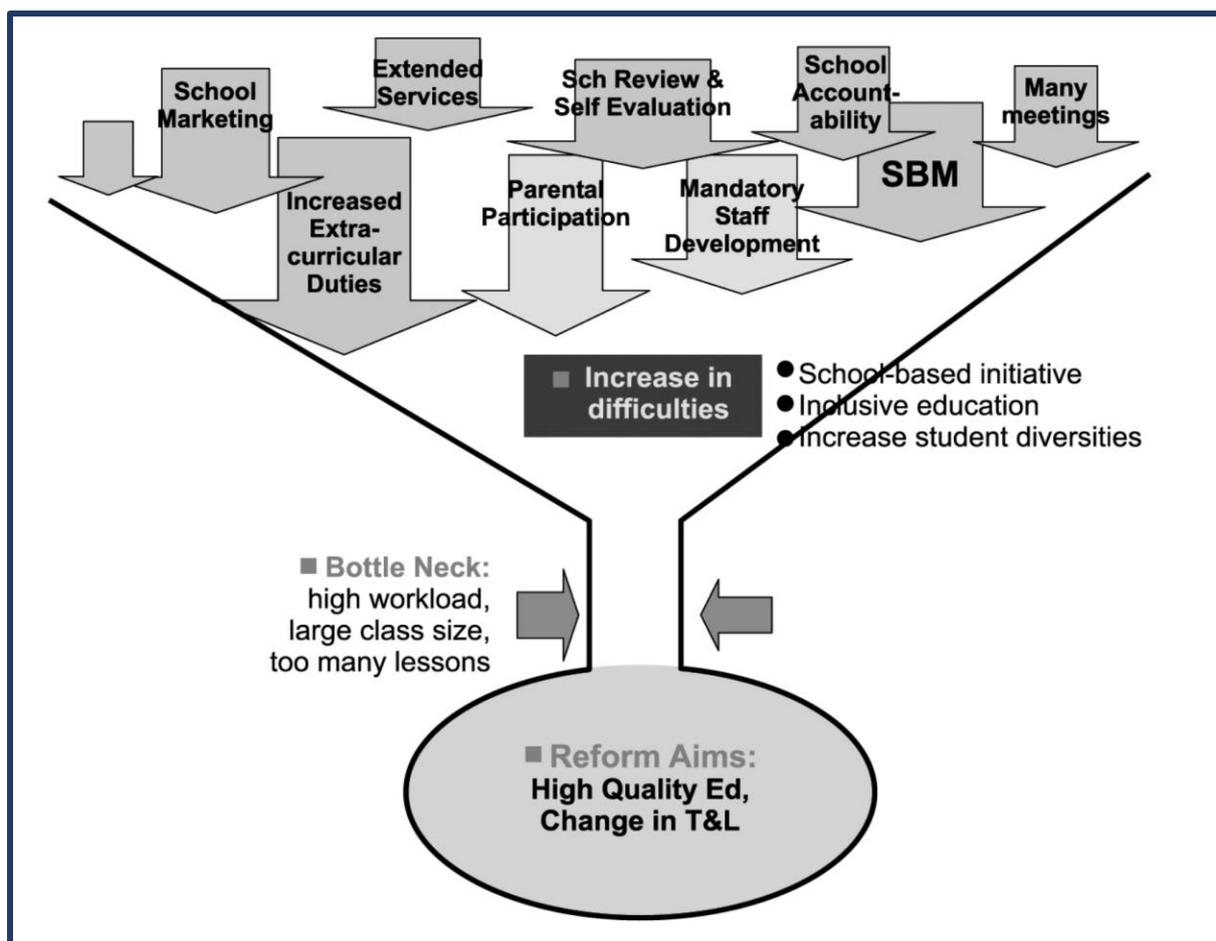


Figure 28 - Reform syndrome in Hong Kong: bottle-neck effect (Y. C. Cheng, 2008)

The initiatives themselves jam or block at the 'bottle-neck', and hinder the implementation of other new reforms (Figure 28). The more reforms initiated, the more hindrance jammed at the "bottle-neck" and the more pressure on teachers and schools.

Before the reform, the workload of Hong Kong teachers was already very high; they typically teach more than 30 lessons (normally 40 minutes each) each week. Also, the number of students in each class is in the range of 35-40. These large class sizes were set at a time when provision was teacher-led and didactic and they are not sustainable in a teaching environment where teachers are expected to take care of students' individual differences and needs in learning. The educational reforms did not factor in these large class sizes, and their impact on the changes in teaching and learning in a shift from teacher-centred towards student-centred approaches. The existing high workload and large class sizes became the structural part of the 'bottle-neck' (figure 28), which impacted on the ability of teachers to adapt their practice and use the Learning Outcomes as intended.

Various subsequent initiatives to address these issues include improvements in support strategies for teachers based on continuous feedback from schools, such as on-site school-based support,

university-school partnership projects, in-service courses, extra funding to give space to teachers, additional teachers for schools with lower achievers and special needs, and after-school support. There were gradual changes in practices in school-based curriculum adaptation, learning and teaching, and assessment, and enhancing the learning continuum from classroom to outside classroom in line with the direction of the reform.

## Learning Outcomes and school culture

There is evidence that the strong performative culture, the competitive education system and the examination-oriented culture appear to influence the pedagogical practices of school administrators and teachers (Zhan et al., 2016). A further study found that the public examination is the most significant consideration in choosing electives in senior science curricula, despite the existence of School Based Assessment as part of students' final grade. Indeed, the government's rationale for broadening students' learning experiences and catering for individual differences by offering electives within science subjects might be difficult to achieve (Yeung, Lee, & Lam, 2012). However, the HKDSE and new university admission requirement is meant to reduce early streaming into arts, science, technical, commercial streams by encouraging students to choose elective subjects from different KLA. In consecutive post-HKDSE surveys on students, the majority of students indicated that they were able to study their chosen elective subjects.

Fostering curriculum innovation calls for innovative assessment. Even though school-based assessment, which emphasises learning through process rather than drilling for examinations, has been introduced, its legitimacy is questionable if teachers lack the necessary assessment literacy to administer it effectively. There is evidence that teachers are moderating SBA grades according to students' performance in the public examination (Chan & Bray, 2014).

The education reforms in Hong Kong were two pronged. One was aimed at reforming the administrative, managerial and governmental aspects of schools, the other targeting curriculum, teaching, learning and assessment. The school administration reform is intended to facilitate the curriculum reform by giving more professional autonomy to schools to cater to the needs of their students and suit the school context. Research suggests improvement in collaborative culture, curriculum leadership at middle management level (CDC, 2013, 2015)

# Discussion

## Themes

The case studies selected for this review offer a number of common themes, that are useful to consider when developing and enacting Learning Outcomes in Ireland. In summary, these are:

- In all cases, the importance of teachers and other practitioners, as the central actors in any curriculum reform, is manifest. Teacher professional agency is necessary if curriculum reform is to be successful; if it is to go beyond simply the specification of a new intended curriculum, and become an enacted curriculum in schools.
- The case studies all illustrate the need for high-quality professional learning and support for practitioners. This includes opportunities for substantive teacher professional education, and spaces for collegial dialogue with the aim of improving teachers' professional knowledge and enabling sense-making required to understand how reforms are similar too and different from existing policy and practice.
- Some case studies illustrate the value of changes to provision, for example changing parts of the school timetable to allow more scope for learning that is integrated/inter-disciplinary and/or authentic (e.g. reflecting community concerns, vocational education needs).
- The case studies strongly indicate the importance of clear and consistent policy messages – alignment between different curriculum components and with other education policies. For example, tensions in policy between curriculum and accountability practices can lead to washback and/or the emergence of perverse incentives, which can hold in place practices that are antithetical to the aims of curriculum reforms (e.g. drilling, teaching to the test). Accountability and high-stakes assessment can significantly derail a curriculum reform
- Some of the cases suggest that a failure to engage constructively with teachers (for example through contrived collegiality or tokenistic rather than genuine co-construction of curriculum) can foment resistance to, or disillusionment with reform. Similarly, reforms that drastically increase teacher workload can have similar effects.

In drawing conclusions from these cases, there is a caveat to note. In all of the cases studies, there is a need to offer balancing views. On the one hand, there is the [political] rhetoric that tends to be used to justify policy in official documents and commentaries written by those involved in promulgating the reforms. On the other hands, there is the often more critical independent literature, for example research papers. In many of the case studies, the latter literature is not as comprehensive as it might

be, and it is therefore tempting to draw conclusions from the former literature set. The authors of this review have sought to mitigate this, for example by seeking independent peer-review of an earlier draft of the report (including by country-specific experts).

National curriculum frameworks worldwide have been redeveloped to include student development of key 21<sup>st</sup> Century Skills and dispositions (Shaheen, 2010). To implement these changes, many national systems have found it necessary to introduce a range of education policy initiatives and reforms aimed at recalibrating what Elmore terms the “core of educational practice”, and, “how teachers understand the nature of knowledge and the student’s role in learning, and how these ideas about knowledge and learning are manifested in teaching and classwork”(Elmore, 1996 page 2 ).

## Conclusions

While there is widespread support within transnational policy circles for a shift away from prescriptive specification of content towards a more generic, skill-based approach articulated as Learning Outcomes, there are also risks inherent in this approach, and the approach has attracted some criticism, notably in relation to knowledge (Young & Muller, 2010; Priestley & Sinnema, 2014). These critiques have some validity; as systems have shifted from content-led curricula to student-centred frameworks, schools, in the absence of detailed specification about what to teach, do not address the question of what knowledge is of most worth – or to reframe this question, what knowledge does an educated young person need to acquire in order to become a critically engaged and effective member of a complex modern democratic society. The result of a failure to address knowledge questions is often curricular fragmentation and a curriculum that contains significant knowledge gaps. Using generic or skills-focussed Learning Outcomes for curricular planning needs to be accompanied by a systematic approach to mapping the whole curriculum with knowledge questions in mind. This entails transcending simplistic knowledge-skills dichotomies and planning for a good curricular balance in relation to propositional or substantive knowledge (knowing that), and procedural knowledge (knowing how).

Of course, there are cultural and pedagogical complexities associated with implementing this scale of change within education systems where teachers have been accustomed to having content specified, and where there are long-established conventions of mainstream schooling that reward the acquisition of disciplinary knowledge and performance in external examinations. There are also the questions of how to assess Learning Outcomes that are focussed on values, attitudes and skills, and what purpose that assessment serves, not only at the individual level but also at a school accountability level.

The global reform is partly in response to globalisation, including pressure to enhance economic competitiveness and citizenship (Yates & Young, 2010). Evident from the case studies in this document, each jurisdiction has a unique set of social, political and cultural domains and schools and teachers have different system memory; however, despite the historical differences across jurisdictions, many researchers agree that while national control of curricula remains with governments, classroom control of the contexts in which those curricula are delivered has been devolved to teachers (Biesta & Priestley, 2013; Oates, 2011). This cultural change involves a significant change in both personal and professional beliefs of teachers (Young, 2014; Sinnema & Aitken, 2013; Priestley, Biesta, & Robinson, 2015; Yates & Young, 2010). Instead of formulaic transmission of canonical knowledge to meet examination syllabus requirements, teachers are expected to use constructivist forms of pedagogy in order to go beyond simply acquiring knowledge of facts; to enable students to develop deeper understandings, to make connections between different knowledge domains, and to be able to apply knowledge. To do this, teachers not only have to increase their Pedagogical Content Knowledge, but in many cases disciplinary knowledge as well in order to engage students in developing deep understanding and powerful knowledge (Biesta, 2014). Part of the process involves teacher sense-making in relation to new policy, something that successful systems like Finland have largely achieved in relation to their curriculum reforms (Pyhältö et al., 2018); such processes enable teachers to construct meaning in relation to new curricular concepts, and to differentiate between these and existing practices; importantly they enable teachers to enhance their theories of knowledge and practice, in turn providing the potential for more expansive engagement with new curricula.

Ireland has followed international trends in relation to Learning Outcomes. As far back as 2003, in their document *Directions for Development* the NCCA set out their goals for curricular reform.

*..... ensuring that the experience [of curriculum reform] provides all students with a foundation for taking advantage of future life chances and work and further education opportunities in a knowledge society. They contribute to an equitable distribution of the benefits of education to all students. They underline the contribution of education to the twin aims of social cohesion and continued economic development (NCCA, 2003)*

Learning Outcomes, can be written in many different ways and it is not a given that they add value as expected. In exploring the case studies, we have set out to explore the challenges as well as the opportunities involved when defining and enacting Learning Outcomes. What is clear, is the importance of the nature and extent of the implementation, and how the various players in the implementation have a shared understanding of the relationship between Learning Outcomes and teaching, learning and assessment. In particular Learning Outcomes cannot stand alone; they will only

be successful if treated in a holistic way, as a guiding part of a much bigger picture. Teachers often look for a list of evidence that shows that a particular learning outcome has been achieved. The danger of doing this is that it reduces the Outcome to a sub-set of tick-box items.

In the five case studies there are examples of Learning Outcomes, written in different ways and serving different purposes. Very high-level outcomes such as 'Big Ideas', 21<sup>st</sup> Century Skills, Fundamental Concepts, Core Competencies apply across all learning areas and learning levels, and describe the knowledge, skills, attitudes and behaviours that will assist students to live and work successfully in the 21st century. Learning areas have more specific Learning Outcomes, and these are generally explicitly linked to the high level Learning Outcomes, with the intention of providing coherence and context – although the potential for problems with coherence and progression is very real as specific outcomes are derived from generic statements.

Although applied to very different education systems, the case studies have notable consistencies. The first is that in each case, the national curriculum is seen as a lever for reform. The range and scope of what is valued in education has been broadened considerably, and Learning Outcomes are designed to make the curriculum accessible to as wide a range of students as possible. This is evident both in the substantive content of the Learning Outcomes and the implied pedagogies. New curricula recognise the increased participation of a diverse range of learners, and 21<sup>st</sup> curricula are future focussed. It is apparent that, in each case, curricula were developed to equip students with adaptive knowledge, understanding and skills to prepare them for life after school, even though, as critics such as Young and Muller (2010) have noted, these curricula (while often emphasising the importance of knowledge) rarely specify what that knowledge is, nor do they specify how schools should engage with knowledge questions. Another notable consistency is a focus on achieving whole-curriculum coherence. There is a move away from individual subject syllabuses towards curriculum frameworks in which Learning Areas sit. Each of the jurisdictions has reduced content by 'de-cluttering' and removing fragmented, disconnected content, replacing it with broad, generic Learning Outcomes that are visibly linked to the purposes of education. Nevertheless, while the intention is to provide guidance for teachers to design learning experiences to suit multiple and varied classroom situations, we also note again the issue relating to knowledge.

The policy statements from each of the jurisdictions are highly aspirational and they all set out very clear purposes of education and a clear rationale of how the curriculum serves those purposes. In looking deeper into the implementation challenges in each case, simply aspiring in the curriculum does not automatically translate into classroom experiences. Learning Outcomes link potentially powerful knowledge to values, attitudes and competencies, but these links have to be operationalised by

teachers working in schools. Lessons from the case studies show the importance of clear process and well-resourced support for this to occur. There is a key role for extensive professional dialogue to identify and make sense of those links and how they manifest into teaching. All of the actors in education reform must develop understanding of all aspects of the reform – pedagogical, cultural and political. The professional dialogue of reform needs to be ongoing and iterative, with policy makers and teachers continually learning from what works and from what doesn't work.

It is important not to underestimate the challenge for teachers. A major challenge lies with the cultural and pedagogical complexities of implementing educational innovations within long-established conventions of mainstream schooling. The shift to curricular models that emphasise local flexibility in curriculum-making, positioning teachers as autonomous developers of the curriculum, should take into account the fact that teachers have worked in recent times with prescriptive teacher proof curricula (input regulation), and heavy-duty accountability mechanisms (output regulation) (Kuiper & Berkvens, 2013; Kneyber & Evers, 2015). Such working is likely to result in socialisation into particular practices that may not be applicable to new curricula, and which is difficult to change overnight. Linked to this is a capacity issue – teachers may simply have limited capacity for curriculum making, having been rarely asked to engage in school-based curriculum development, and not having developed the conceptual schemata necessary to work in different ways. In many cases changes in teaching practices represent significant changes in both personal and professional beliefs. All of the above strongly indicates the need for substantive and systematic sense-making as a precursor to large scale curriculum reform.

What has emerged from the case studies is that careful consideration must be given to the type of professional development and support on an ongoing basis necessary for teachers to fully understand the changes and, in some ways, to own them. Simply agreeing with reform – what Priestley and Minty (2013) termed first order engagement – is not enough to change practice; teachers need deep understanding of the curriculum as a holistic multidimensional entity – second order engagement. Experience from the case study jurisdictions suggests that teachers need to be supported and resourced to engage in ongoing, meaningful curriculum development processes based around both conceptual development and learning new approaches to teaching, and have opportunities to collaborate with colleagues to discuss making judgements about what constitutes evidence of learning. In this way they can develop their capacity and the confidence to make detailed decisions about content and methods suitable for each individual learning experience, rather than having to rely on generic samples that have been developed by others for a different situation. The over-elaboration of Learning Outcomes with specific examples of practice can have the unintended consequence of them becoming tick-boxes for assessment or simply of completion. Broad, generic Learning Outcomes

which effectively set out the purposes of education, stating clearly what skills, capacities and dispositions one might expect young people to have developed by the end of each stage of education, with a limited set of complementary generic outcomes for each subject domain will provide teachers with the room that they need to make the curriculum their own. Research suggests that over specification of Learning Outcomes also encourages the strategic, box-ticking approaches described above (Priestley & Minty, 2013). The danger is that teaching ends up as fragmented content back-fitted into Learning Outcomes, rather than development of powerful knowledge being used as context for achieving outcomes.

Powerful knowledge can emerge if planning for teaching, learning and assessment starts with consideration of the high-level purposes of education set out in the generic outcomes, and knowledge questions (i.e. how does one select knowledge to ensure curriculum coherence and progression?) are carefully considered. Guidance and examples of practice are more useful if they focus on the high-level purposes of education as well as on detailed subject specific exemplars. Such guidance can provide scaffolding for professional decision-making, allowing for both local needs to be met as well as ensuring coherence across the system as all the actors at each level are focussed on the high-level outcomes. Elaborations or support material need to be carefully formulated so that they support direct engagement with the 'big ideas' and messages and the purposes of education.

Many teachers have been immersed in a culture where the acquisition of subject specific knowledge is the key measure by which their students are judged, and their own success is measured. The case studies highlight the importance of using Learning Outcomes in a holistic way as guides to creating learning environments that are constructive flexible and student-centred. If they are used as lists of items to be taught, it will be difficult to successfully introduce substantial and sustainable pedagogical improvements, despite a strong policy commitment to doing so. Interpretation and use of Learning Outcomes in different situations develops best when teachers share examples of student performance and debate their separate judgements of demonstration of particular Learning Outcomes.

Each of the jurisdictions exhibit a high level of curriculum coherence both vertically through learning levels and laterally across learning areas. In some cases (e.g. Singapore) one curriculum document spans all of education from primary to upper second level. Kindergarten or early years are generally separate documents. The advantage of this level of coherence is a complete set of interrelated ideas with explicit connections. Rolling review of curriculum is a feature of many recently reformed systems. This continual and iterative process helps to maintain coherence and sustains the dialogue with teachers and the system about the intentions of the curriculum.

We have seen throughout the case studies some evidence about how little impact curriculum change can have on teaching practice, despite accompanying professional development and support and extensive elaborations of Learning Outcomes. One of the difficulties is when teachers perceive curricular elements as being similar to existing elements, when they are in fact quite different; the tendency can then be to use the language of the new policy to label existing practices (see Biesta, Priestley & Robinson, 2017). What is evident from the case studies is that collaboration between policy makers, practitioners and education researchers to produce authentic examples of Learning Outcomes in practice goes some way towards illustrating changing pedagogies and the relationships between the subject Learning Outcomes and the desired outcomes of education. Structured – and supported – sense making by practitioners is a vital component in this process.

# Acknowledgments

The authors wish to thank the five independent academics who provided critical comments on an earlier draft of the report.

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