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## NSW Curriculum Review

by Talina Drabsch

### 1. Introduction

On 13 May 2018, a review of the NSW school curriculum was [announced](#). The review is to ensure that the NSW curriculum “equips students to contribute to Australian society in the 21<sup>st</sup> century”.<sup>1</sup> It is widely believed that global society is rapidly changing, both socially and economically, driven by huge advances in technology. As the population heads towards an uncertain future in a time of rapid change, questions naturally arise as to how best prepare today’s children for adult life. This takes on a particular urgency and importance when it comes to matters of education. At its core, this involves questions as to the purpose of education and how 21<sup>st</sup> century learning may need to differ to schooling methods of the past. It involves constant evaluation of the effectiveness of our education system.

This paper focuses on such issues as the purpose of education and the relationship between disciplinary knowledge and soft skills in a curriculum, and highlights some of the ways various education systems throughout the world have attempted to address the challenges of 21<sup>st</sup> century learning.

### 2. Review of the NSW school curriculum

The NSW school curriculum review is considered necessary as:

while the goals and values of education remain eternal, the methods of achieving these outcomes have dramatically changed, particularly with the development of information technology over the past 30 years.<sup>2</sup>

Premier Gladys Berejiklian and then Education Minister Rob Stokes have [voiced](#) the need for a greater focus on English, mathematics and science, as well as to implement the findings of the Gonski report [Through Growth to Achievement](#). Rob Stokes also stressed the need for Australian perspectives to be included throughout the curriculum with an emphasis on Australian literature, scientific discoveries and key historical events.

The review is led by Professor Geoff Masters, CEO of the Australian Council for Educational Research (ACER), and is being touted as the first comprehensive review of the NSW school

curriculum for 30 years.<sup>3</sup> According to the [Terms of Reference](#), the NSW Curriculum Review will:

1. articulate the purposes of the school curriculum, including underpinning philosophies and principles
2. identify essential knowledge, skills and attributes as the common entitlement for every learner, ensuring parity of access to learning that is necessary for success, taking account of:
  - a. the evidence on how skills and attributes are acquired through knowledge-based disciplines
  - b. the extent of overcrowding in the curriculum
  - c. the appropriate scope for school community choices about content
3. explain how the curriculum could be redesigned and presented to better support teaching, learning, assessment and reporting, including consideration of:
  - a. the desirability of identifying priorities for learning at different stages of schooling
  - b. the appropriate level of detail in curriculum documents
  - c. the breadth and depth of study
  - d. ways of improving every learner's transition into school and across the years of schooling
  - e. ways of enhancing the options and pathways for all students to further education and work
4. identify the implications of any new approach to curriculum design for:
  - a. assessment and reporting (including NAPLAN, the Record of School Achievement and the Higher School Certificate)
  - b. pedagogical practices and teacher workload
  - c. teacher preparation and ongoing professional learning
  - d. school organisation and regulation
  - e. relevant legislation
  - f. measuring the quality and impact of schooling.

The NSW Curriculum Review will have regard to a number of national policy developments and reports on such issues as: the education of Aboriginal and Torres Strait Islander peoples; early childhood education; STEM industry-school partnerships; regional, rural and remote education; and the Australian Curriculum. It will also consider the 2018 Gonski report, [Through Growth to Achievement](#), which examined how to improve student outcomes in Australia and found that the current model of school education needs to adjust for a rapidly changing future world of work.

A draft report of the NSW Curriculum Review is due in the second quarter of 2019; with a final report to be completed by the end of 2019.

The aim of the NSW Curriculum Review is to assist school education in NSW to effectively:

- Provide an education that engages and challenges every student in learning, rewards them for effort and promotes high standards.

- Prepare each student with strong foundations of knowledge, capabilities and values to be lifelong learners, and to be flourishing and contributing citizens in a world in which rapid technological advances are contributing to unprecedented economic and social change in unpredictable ways.

### 3. Timeline

The following table presents a timeline of the major education agreements and reports relevant to school curricula from 1989 onwards.

1989	<p><a href="#"><u>Hobart Declaration on Common and Agreed National Goals for Schooling</u></a> – this was a pivotal statement which saw the State, Territory and Commonwealth Ministers of Education agree on ten national goals for schooling to provide a stronger framework for cooperation between schools, States, Territories and the Commonwealth.</p> <p>The <a href="#"><u>Excellence and Equity: NSW Curriculum Reform</u></a> white paper was published by the NSW Ministry of Education and Youth Affairs in November 1989. The paper examined the structure and content of the curriculum in NSW. The proposed reforms established Key Learning Areas with the aim of providing students with the knowledge and skills deemed necessary for active and creative participants in the 21<sup>st</sup> century. Like the current NSW curriculum review, it recognised that the “magnitude of the social, economic and technological changes taking place in Australia has unavoidable implications for education”, with a concern that the then curriculum was inadequate in this regard.<sup>4</sup></p>
1999	<p>The <a href="#"><u>Adelaide Declaration on National Goals for Schooling in the Twenty-First Century</u></a> reinforced and extended the commitments of the <i>Hobart Declaration</i> with a new set of goals and additional priority areas. Its Preamble recognised that:</p> <p style="padding-left: 40px;">Australia’s future depends upon each citizen having the necessary knowledge, understanding, skills and values for a productive and rewarding life in an educated, just and open society (...) This statement of national goals for schooling provides broad directions to guide schools and education authorities in securing these outcomes for students.</p>
2008	<p>The <a href="#"><u>Melbourne Declaration on Educational Goals for Young Australians</u></a> set out two educational goals:</p> <ol style="list-style-type: none"> <li>1. Australian schooling promotes equity and excellence.</li> <li>2. All young Australians become: successful learners; confident and creative individuals; and active and informed citizens.</li> </ol> <p>According to the <i>Melbourne Declaration</i>, the acquisition of key skills should be one of the outcomes of schooling in Australia:</p>

	<p>Literacy and numeracy and knowledge of key disciplines remain the cornerstone of schooling for young Australians. Schooling should also support the development of skills in areas such as social-interaction, cross-disciplinary thinking and the use of digital media, which are essential in all 21<sup>st</sup> century occupations. As well as knowledge and skills, a school's legacy to young people should include national values of democracy, equity and justice, and personal values and attributes such as honesty, resilience and respect for others.<sup>5</sup></p>
2009	<p>In January 2009, the <a href="#">National Education Agreement</a> saw the various governments in Australia commit to the development and maintenance of a national curriculum, and had as its objective that "all Australian school students acquire the knowledge and skills to participate effectively in society and employment in a globalised economy".</p>
2011	<p>The final report of the Gonski <a href="#">Review of Funding for Schooling</a> was released in December. The Review examined the school funding system in Australia and recommended a needs-based school funding model to ensure that differences in educational outcomes are not the result of differences in wealth, income, power or possessions.</p>
2014	<p>The final report of the <a href="#">Review of the Australian Curriculum</a> by Professor Kenneth Wiltshire and Dr Kevin Donnelly was published.</p> <p>Phase one of the <a href="#">Australian Curriculum</a> (English, Mathematics, Science and History) began to be implemented in years K-10 in NSW schools. The Australian Curriculum was designed to achieve the vision of the <i>Melbourne Declaration</i>.</p>
2015	<p>The <a href="#">National Aboriginal and Torres Strait Islander Education Strategy 2015</a> was endorsed by the Education Ministers in September 2015. An agreement was reached as to the principles and priorities that are to inform jurisdictional approaches to Aboriginal and Torres Strait Islander education. Amongst other things, the set of actions focused on the Australian Curriculum.</p> <p>In September 2015, the Education Ministers in Australia also endorsed the Foundation – Year 10 curriculum developed by the Australian Curriculum, Assessment and Reporting Authority.</p>
2016	<p>The report of the <a href="#">Review of the Board of Studies, Teaching and Educational Standards</a> was published in June. The review considered the role, functions, structure and membership of the Board of Studies, Teaching and Educational Standards.</p>
2017	<p>The Review to Achieve Educational Excellence in Australian Schools, chaired by David Gonski, was established in July 2017.</p> <p><a href="#">Lifting our Game: Report of the Review to Achieve Educational Excellence in Australian Schools through Early Childhood Interventions</a> was published in December 2017. The review was led by Professor Deborah Brennan and Sue Pascoe and was</p>

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	<p>tasked with considering and making recommendations on the most effective interventions in early childhood, with a focus on school readiness, improving achievement in schools and future success in employment or further education.</p>
2018	<p>The Final Report of the <a href="#">Independent Review into Regional, Rural and Remote Education</a> by Emeritus Professor Dr John Halsey was published in January 2018.</p> <p>The report <a href="#">Through Growth to Achievement: Report of the Review to Achieve Educational Excellence in Australian Schools</a> was published in March 2018.</p> <p>The final report of the STEM Partnerships Forum <a href="#">Optimising STEM Industry-School Partnerships: Inspiring Australia's Next Generation</a> was published by Education Services Australia in April 2018. The Forum was chaired by Dr Alan Finkel, Australia's Chief Scientist.</p> <p>A <a href="#">review</a> of the NSW school curriculum was announced by the NSW Government on 13 May.</p> <p>The findings of the Review to Achieve Educational Excellence in Australian Schools as well as the Independent Review of Regional, Rural and Remote Education and the final report of the STEM Partnerships Forum led to a joint agreement between the Commonwealth, State and Territory governments to lift student outcomes (the <a href="#">National School Reform Agreement</a>) which is to operate from 2019 to 2023. A bilateral agreement regarding State specific outcomes was <a href="#">signed</a> by NSW on 7 November 2018.</p> <p>On 15 November 2018, the House of Representatives Standing Committee on Employment, Education and Training commenced an <a href="#">inquiry</a> into the status of the teaching profession.</p> <p>The various Ministers for Education in Australia <a href="#">agreed</a> to review the <i>Melbourne Declaration</i> at the Education Council meeting on 14 December 2018. A forum is to be held in February 2019 to commence the consultation process.</p>
2019	<p>The interim report of the review of NSW school curriculum is due in the second quarter. The final report is due by the end of 2019.</p>

### 4. 2018 Gonski Report

The national [Review to Achieve Educational Excellence in Australian Schools](#) was established in July 2017. Chaired by David Gonski it was asked to recommend ways Australia could improve student outcomes and ensure school systems and schools truly prepare Australia's young people for an ever changing world. The Review's final report [Through Growth to Achievement](#) was delivered on 28 March 2018 (Hereafter referred to as the Gonski Report). One of the tasks of the NSW Curriculum Review in developing its recommendations is to consider the findings of the Gonski Report.

The Gonski Report argued that the current model of school education needed to change:

Like many countries, Australia still has an industrial model of school education that reflects a 20<sup>th</sup> century aspiration to deliver mass education to all children. This model is focused on trying to ensure that millions of students attain specified learning outcomes for their grade and age before moving them in lock-step to the next year of schooling. It is not designed to differentiate learning or stretch all students to ensure they achieve maximum learning growth every year, nor does it incentivise schools to innovate and continuously improve.<sup>6</sup>

This need for change in the current education system is driven by the rapidly changing future world of work faced by students:

Trends such as flexible employment models, greater technological sophistication and intensity, and globalisation will accelerate this transformation. As a result, young Australians need to be prepared for far less linear career paths than their parents... Today's Year 12 students also need a broader and different mix of skills compared to previous generations, including stronger problem-solving, communication, digital skills, and creative thinking, due to the rise in interactive, service industry jobs – which now account for almost 80 per cent of jobs in the Australian economy – and the decline in routine, manual and administrative roles.<sup>7</sup>

The Gonski Report established three priorities:

1. one year's growth in learning to be delivered for every student, every year, as opposed to helping each student reach a minimum standard;
2. every child be equipped to be a creative, connected and engaged learner in a rapidly changing world; and
3. cultivate an adaptive, innovative and continuously improving education system.

The Gonski Report identified a number of areas for reform:<sup>8</sup>

- update the design of curriculum, assessment and reporting models from yearly targets to learning progressions;
- prioritise support for teaching the skills of the future. Enrich learning through community engagement – offer broader experiences and support beyond the classroom to foster a generation of connected, engaged and creative learners, embracing more diverse learning opportunities through deeper community engagement; and
- review secondary schooling for potential reform.

In the same grade, there can be a significant difference in academic ability. By year nine, the top 10% of students in a typical secondary school are believed to be about seven years ahead of the bottom 10%.<sup>9</sup> The concept of learning progressions developed in the Gonski Report, where each child is to achieve a year's growth of learning every year, is potentially one way of improving student outcomes regardless of individual circumstance (such as disability, rural or remote location, Aboriginal and Torres Strait Islander, non-English speaking background, low socio-economic background, gifted and talented, etc). Each student would be met where they are and grow from there. This approach involves a change to tailored teaching for growth and

personalised learning for students as opposed to a year-based curriculum. Some case studies of schools exploring more personalised approaches to learning may be found later in this e-brief.

It should be noted that public education in NSW currently does, to some extent, seek to cater to the various needs and abilities of students. There are opportunity classes in years five and six, gifted and talented streams in some high schools and various selective high schools that extend students. Every NSW public school also has a [learning and support](#) team to work with students, parents and carers, teachers and other professionals to identify students who require additional support for learning difficulties, mild intellectual disabilities, language disorders, behaviour needs and autism spectrum disorders or some mental health disorders. Schools are able to use their allocation of learning and support resources to personalise learning for the individual needs of their particular students. NSW public schools are also required to provide support for students learning [English as an additional language or dialect](#). Broad subject choice, including various levels of difficulty within subject areas, and the availability of VET subjects in the later stages of high school also cater for the diverse interests of students.

The Gonski Report acknowledged that its recommendations had far reaching implications and would necessitate changes by the Commonwealth, State and Territory governments, school systems and schools, the teaching profession, parents and carers, business and industry, and the community as a whole.<sup>10</sup> However, it admitted that any change to an alternative view of schooling would not be easy:

Shifting to an education model focused on attainment through maximising the learning growth of every student every year requires teachers to embrace changes to their planning, teaching and assessment practice. For example, they need to understand individual students' starting points; create multi-streamed, differentiated lesson plans for each class; adjust their pedagogy to the different needs of individual students based on evidence about the most effective interventions; seek and act upon feedback from students and provide more nuanced reporting on assessments of students' performance and the next steps in their learning; ensure their growth in learning is appropriate given the student's potential; and identify 'flight paths' for where the student needs to be to maximise learning growth each year.<sup>11</sup>

### 5. What is the purpose of school education?

At the core of much of the discussion around the NSW curriculum and its potential redesign is the issue of the ultimate purpose of education. Is its purpose to instil a love of learning and so create lifelong learners? Is it driven by economics and how to adequately prepare the future workforce? Is it to foster valuable and productive citizens? Is it a combination of all of these? Jenny Donovan, Executive Director of the NSW Centre for Education Statistics and Evaluation, argues:

The curriculum is meant to describe what we all agree to be the most useful knowledge and skills needed for participation as an adult citizen in our society.<sup>12</sup>

However, as Wiltshire and Donnelly highlight, 'No curriculum is ever value free and curriculum designers, whether they are aware of it or not, are building on or privileging a particular belief or philosophy about the nature

and purpose of education'.<sup>13</sup> Identifying and agreeing on the purpose of education is consequently vital.

The purpose of education in Australia is specified in a number of key documents and the following provide some examples. The [Melbourne Declaration on Educational Goals for Young Australians](#) was signed by all Education Ministers in Australia in 2008 and is clear on what it sees as the purpose/goals of education. It establishes that Australian schooling is to **promote equity and excellence and all young Australians are to become successful learners, confident and creative individuals, and active and informed citizens**. The Declaration acknowledges the context in which this is to occur, namely that:

Education equips young people with the knowledge, understanding, skills and values to take advantage of opportunity and to face the challenges of this era with confidence.

Schools play a vital role in promoting the intellectual, physical, social, emotional, moral, spiritual and aesthetic development and wellbeing of young Australians, and in ensuring the nation's ongoing economic prosperity and social cohesion. Schools share this responsibility with students, parents, carers, families, the community, business and other education and training providers.<sup>14</sup>

The NSW Department of Education's [Strategic Plan 2018-2022](#) states its purpose as **"To prepare young people for rewarding lives as engaged citizens in a complex and dynamic society"**. Its goals include:

- all young people have a strong foundation in literacy and numeracy; deep content knowledge; and confidence in their ability to learn, adapt and be responsible citizens; and
- all young people finish school well prepared for higher education, training and work.

The NSW Curriculum Review's [terms of reference](#) acknowledge that the purpose of education is to **"prepare each student with strong foundations of knowledge, capabilities and values to be lifelong learners, and to be flourishing and contributing citizens"**.<sup>15</sup>

### 6. 21<sup>st</sup> century learning: knowledge, skills and attributes

The nature of the workforce is changing and the model of education from the industrial era is subsequently thought to have lost relevance as career paths become less defined. The Gonski report argued that school education must:

prepare students for a complex and rapidly changing world. As routine manual and administrative activities are increasingly automated, more jobs will require a higher level of skill, and more school leavers will need skills that are not easily replicated by machines, such as problem-solving, interactive and social skills, and critical and creative thinking.<sup>16</sup>

According to Mark Scott, Secretary of the NSW Department of Education:<sup>17</sup>

The old model of education where you learned and then you worked has long gone. Work will be a place of lifelong learning. School is where we set the foundation for that continuous learning journey.



There is a concern as to how advances in artificial intelligence will affect education.<sup>18</sup> The Future Frontiers Analytical Report *[Preparing for the best and worst of times](#)* focuses on the impact of artificial intelligence (AI) and the issues it raises for school education, namely:

- i. how can we most usefully think about the challenges AI is creating for school education?
- ii. what are the implications of this for the qualities students need to have when they leave school? and
- iii. how can schools help develop these?<sup>19</sup>

Whilst the report acknowledged that some believe 47% of workers in the US and Australia have jobs at high risk of potential automation in the next twenty years, it stressed that the situation is far more complex:

The pace and extent of adoption of AI is, however, likely to vary significantly across sectors and economies. Factors such as technical feasibility in real-world situations, the cost of developing and deploying solutions, economic benefits and regulatory and social acceptance are all likely to influence these.... Whether new technology results in net job losses is, therefore, just as much a matter of politics and policy choices as it is of technical developments.<sup>20</sup>

If the NSW education system is to equip students to flourish in and contribute to Australian society in the 21<sup>st</sup> century, questions are raised as to what skills, attributes and knowledge are required, and whether they differ to ones already found in the curriculum. As Scott writes:

In some ways we can see clearly into the future. Literacy and numeracy skills will remain vital, for they are the foundations of learning. So too will the ability to acquire deep knowledge and mastery of areas of knowledge. Most would add there are general capabilities vital in a workplace and communities of the future: creativity, critical thinking, collaboration and communication skills among others.<sup>21</sup>

Terms such as '21<sup>st</sup> century skills', 'soft skills', 'general capabilities', and 'competencies' regularly appear in commentary about what 21<sup>st</sup> century learning must include. However, there is no clear agreement as to what these terms actually mean. Lamb et al note that "while there is a lot of discussion around the topic of key skills for the 21<sup>st</sup> century, there is little agreement yet about what the skills actually are, let alone whether they can be taught, measured or assessed".<sup>22</sup> They nonetheless have identified critical thinking, creativity, metacognition, problem solving, collaboration, motivation, self-efficacy, conscientiousness, and grit or perseverance as the 21<sup>st</sup> century skills generally receiving the most attention from policy makers, researchers and practitioners in any discussion of 21<sup>st</sup> century skills.<sup>23</sup> According to Lamb et al, nearly all OECD countries and partner economies have included a consideration of these skills in their national and subnational school education policies, including learning frameworks and curriculum standards.<sup>24</sup>

21<sup>st</sup> century skills are commonly categorised into groups. For example, the US National Research Council, which uses the language of 21<sup>st</sup> century competencies, groups them into three categories:<sup>25</sup>

1. **cognitive:** cognitive processes and strategies; knowledge; and creativity;
2. **intra-personal competencies:** intellectual openness; work ethic/conscientiousness; and positive core self-evaluation; and
3. **inter-personal competencies:** teamwork and collaboration; leadership.

Soland, Hamilton and Stecher similarly categorise 21<sup>st</sup> century competencies as:<sup>26</sup>

1. **cognitive competencies** – mastery of core academic content such as mathematics, science, language arts, foreign languages, history and geography as well as critical thinking and creativity;
2. **interpersonal competencies** – communication, collaboration, leadership and global awareness; and
3. **intrapersonal competencies** – the attitudes and behaviours that influence how students apply themselves in school, work and other settings such as growth mindset, learning how to learn, intrinsic motivation and grit.

As the [OECD Future of Education and Skills 2030](#) project (2030 project) demonstrates, NSW is one of many jurisdictions considering how to adequately prepare students for a future in a rapidly changing world. The 2030 project aims to help countries determine the knowledge, skills, attitudes and values necessary for students to thrive and shape their world, and how they can be effectively developed by instructional systems globally. The OECD Learning Compass which forms part of the 2030 project, identified the following necessary competencies that will contribute to individual and societal wellbeing in 2030.

**Table 1: Competencies included in the [OECD Learning Compass](#)**

<b>Knowledge</b>	Disciplinary
	Interdisciplinary
	Epistemic
	Procedural
<b>Skills</b>	Cognitive and meta-cognitive (critical thinking, creative thinking, learning to learn, and self-regulation)
	Social and emotional (empathy, self-efficacy and collaboration)
	Physical and practical (using new Information and Communications Technology devices)
<b>Attitudes and values</b>	Personal
	Local
	Societal
	Global

The 2030 project recognises the interplay between disciplinary understanding and soft skills, acknowledging that disciplinary knowledge is still important as it provides the “raw material from which new knowledge is developed, together with the capacity to think across the boundaries of disciplines and ‘connect the dots’”.<sup>27</sup> Epistemic and procedural knowledge is also valued. However, in order to apply knowledge in unknown and evolving circumstances, the OECD stresses that students will need cognitive and meta-cognitive skills (critical thinking, creative thinking, learning to learn, and self-regulation); social and emotional skills (empathy, self-efficacy and collaboration) and practical and physical skills (using new information and communication technology devices).

The 2030 project stresses that children entering school in 2018 must abandon the notion that resources are limitless and to be exploited. As a result, the OECD Learning Framework 2030 identifies three challenges facing societies and the need for new solutions:<sup>28</sup>

- i. environmental – climate change and the depletion of natural resources require urgent action and adaptation;
- ii. economic – scientific knowledge is creating new opportunities and solutions whilst simultaneously fuelling disruptive waves of change; financial interdependence has created global value chains and a shared economy; and
- iii. social – migration, urbanisation and increasing social and cultural diversity; growing inequalities in living standards; escalating threats of war of terrorism; populist politics.

It follows that the 2030 project recognises that common prosperity, sustainability and wellbeing need to be valued. Students need to become responsible and empowered global citizens, placing collaboration over division, and sustainability over short term gain.<sup>29</sup> It is optimistic about the potential of education to achieve this task, arguing that schools “can prepare them for jobs that have not yet been created, for technologies that have not yet been invented, to solve problems that have not yet been anticipated”.<sup>30</sup>

### 7. How to balance disciplinary knowledge and soft skills?

An issue that has emerged is the balance to be struck in any curriculum between deep disciplinary knowledge and the development of soft skills, and which should be given the most emphasis. However, as Scott highlights:

Many of the debates triggered by curriculum reform are false dichotomies. Our students will need deep knowledge and to develop soft skills using that knowledge base. They will need to work intently on their own and collaborate in teams. They should cultivate a confidence in the classics and the creative opportunities of the latest technology.<sup>31</sup>

Phil Lambert, National President of the Australian College of Educators and curriculum expert to the OECD Education 2030 initiative argues:

Countries want their young people to be literate and numerate. They also want them to be agile, compassionate and innovative. They need global thinkers that are digitally literate, resilient and reliable.<sup>32</sup>

Lamb et al have highlighted the scarcity of research that addresses the effectiveness and impact of including key skills for the 21<sup>st</sup> century within curriculum statements and frameworks.<sup>33</sup> Their research examined case studies in: Ontario and Alberta, Canada; New Zealand; Finland; California CORE Districts and North Carolina, US; and the International Baccalaureate. They found that:

The review undertaken for this report has confirmed, among other things, that many systems and schools have invested considerable effort in broadening their conceptualisation of the skills young people require for their future. At the same time, there is little evidence providing clear direction on the most effective approaches to the teaching and learning of the identified skills, as well as the best ways to approach them.<sup>34</sup>

Buchanan et al have considered the widespread assumption that the key response of education to emerging challenges and opportunities is to ensure students develop soft skills such as problem solving, communication and collaboration. They argue that “Closer scrutiny reveals (...) this popular narrative is not sufficient to guide school education today”.<sup>35</sup> The authors question whether the purpose of education systems is to develop highly flexible labour or citizens that flourish, before concluding that:

While it is clear the generic employability skills narrative has serious ethical, analytical and practical limitations, current school offerings are far from perfect.<sup>36</sup>

Buchanan et al argue that the skills needed for problem solving, collaboration and communication are best acquired in the context of mastering specific domains of expertise. However, whilst private sector businesses, government agencies, and non-profit organisations may have a role to play in improving the employability of individuals, their involvement in school education raises the issue of quality control.

Finally, Bolstad et al emphasise that what is changing is the way in which knowledge gained from disciplines is utilised:

The Knowledge Age discourse does *not* suggest that disciplinary knowledge no longer matters. However, the reasons it matters are now very different. In a 21<sup>st</sup> century curriculum, traditional knowledge is the raw material for new knowledge creation (...) In the Knowledge Age, this kind of systems or metalevel knowledge and the ability to move between disciplines is more important than just knowing the detailed facts of those disciplines. Thus 21<sup>st</sup> century learners need to be able to do more than just reproduce knowledge. They must be able to actively interact with it: to understand, critique, manipulate, create and transform it.<sup>37</sup>

### 8. The inclusion of skills and competencies: some examples

A number of educational frameworks incorporating 21<sup>st</sup> century skills and competencies have been developed. Some examples include:<sup>38</sup>

- **Partnership for 21<sup>st</sup> century learning (P21)** – A US framework included in most reviews of existing frameworks. Students are expected to master nine key subjects, learn about five interdisciplinary themes and develop three categories of skills. [C21 Canada](#) has compiled a helpful [table](#) comparing some of the existing 21<sup>st</sup> century learning frameworks including P21.

- **Assessment and teaching of 21<sup>st</sup> century skills** – this framework (discussed in detail below) was developed by a group formed by the technology companies Cisco, Intel and Microsoft.

The following section considers how some of these ‘soft skills’ have been incorporated into the Australian curriculum.

### Australian Curriculum

The [Australian Curriculum](#) sets the expectations for what students should be taught, regardless of their location in Australia. As of 2014, all States and Territories have implemented the Foundation to Year 10 Australian Curriculum. The Curriculum includes eight learning areas: English, Mathematics, Science, Humanities and Social Sciences, The Arts, Technologies, Health and Physical Education, and Languages. Three cross-curriculum priorities are also included – Aboriginal and Torres Strait Islander Histories; Asia and Australia’s Engagement with Asia; and Sustainability. Finally, the concept of ‘[general capabilities](#)’ is used to encompass knowledge, skills, behaviours and dispositions. Together with the learning areas and cross-curriculum priorities, the general capabilities help realise the goals of the 2008 Melbourne Declaration. The following seven general capabilities are specified to equip students to live and work successfully in the 21<sup>st</sup> century:

1. literacy;
2. numeracy;
3. information and communication technology capability;
4. critical and creative thinking;
5. personal and social capability;
6. ethical understanding; and
7. intercultural understanding.

Teachers are to teach and assess general capabilities to the extent they are incorporated within learning area content. Jennifer Buckingham, Senior Research Fellow at the Centre for Independent Studies, has argued that whilst these general capabilities are valuable there may be difficulties with how they are taught and assessed:

The general capabilities listed in the Australian curriculum – digital capability, critical and creative thinking, personal and social capability, intercultural understanding, and ethical understanding – are inarguably valuable for the world of work and for life more broadly. The crucial questions are whether they are really generic skills that can be conceptually sequenced on developmental progressions, and if they can be taught and assessed separate from content knowledge. The evidence at the moment suggests the answer to both questions is no.<sup>39</sup>

The Gonski Report recommended that the status of general capabilities be raised within curriculum delivery “by using learning progressions to support clear and structured approaches to their teaching, assessment, reporting and integration with learning areas”.<sup>40</sup>

## Assessment and Teaching of 21<sup>st</sup> Century Skills: Cisco, Intel and Microsoft

Cisco, Intel and Microsoft have argued that traditional school curriculum does not fully prepare students to live and work in an information age society. They accordingly announced plans in January 2008 to sponsor:

a research collaboration to accelerate global education reform by mobilizing the international educational, political and business communities to help transform the teaching, learning and measurement of 21<sup>st</sup> century skills.<sup>41</sup>

The [Assessment and Teaching of 21<sup>st</sup> Century Skills](#) (ATC21S) project had its headquarters at the University of Melbourne and was sponsored by Cisco, Intel and Microsoft. The project also operated in Finland, Singapore, USA, Costa Rica and the Netherlands.

ACT21S published a number of [White Papers](#) and identified the ten 21<sup>st</sup> century skills listed in table 2.

**Table 2: ACT21S 21<sup>st</sup> century skills**

<b>Ways of thinking</b>	Creativity and innovation
	Critical thinking, problem-solving, decision-making
	Learning to learn/metacognition (knowledge about cognitive processes)
<b>Tools for working</b>	Information literacy
	Information and communication technology literacy
<b>Ways of working</b>	Communication
	Collaboration (teamwork)
<b>Ways of living in the world</b>	Citizenship – local and global
	Life and career
	Personal and social responsibility – including cultural awareness and competence

Source: ATC21S, [21<sup>st</sup> Century Skills](#) [website accessed 12 February 2019]

## 9. Improving the education system

The OECD Programme for International Student Assessment (PISA) is an international assessment conducted every three years that measures the ability of 15 year olds to apply skills in reading, mathematics and science to real life problems and situations. In 2015, Australia placed 16<sup>th</sup> for reading, 25<sup>th</sup> for mathematics and 14<sup>th</sup> for science.<sup>42</sup> Whilst more countries participated in the PISA testing in 2015 compared to 2003, Australia's results declined between 2003 and 2015 in absolute terms as well as the whole distribution slipping to lower levels. This decline was most notable in mathematics.<sup>43</sup> The Gonski Report argued that:

The slippage is national and widespread. Its extent indicates that Australian education has failed a generation of Australian school children by not enabling them to reach their full learning potential.<sup>44</sup>

The 2015 PISA results also revealed that results in Australia differed according to socio-economic and Indigenous status. According to [ACER Research](#), the Australian results revealed the equivalent of a three year gap between the highest and lowest socio-economic quartiles for reading, mathematics and science. There was a 2.5 year difference between Indigenous and non-Indigenous students.<sup>45</sup>

However, some commentators, including then NSW Education Minister, Rob Stokes, have warned of an overemphasis on the PISA results:

Anaesthetised by the data around us – and hypnotised by the neo-liberal fixation with quantification – we place inordinate emphasis on tests such as PISA and NAPLAN that reduce a student’s educational journey to a number, and a school system to a line in a league table (...) A reliance on quantitative measures renders PISA tests susceptible to manipulation and facilitates comparisons between countries that are fundamentally incomparable.<sup>46</sup>

Stokes offers Finland, traditionally near the top of PISA rankings, as an example of the need to consider all factors when looking at PISA results. He counters that more than 50% of high school students in Finland are considered ineligible to sit PISA tests. As a result, non-Finnish background speakers, students studying trade based subjects and those from indigenous backgrounds are restricted from sitting the PISA exam.<sup>47</sup>

Discussions of how the education system could be more effective encompass many topics including themes of curriculum redesign, teaching standards, teacher training and personalised learning. There are currently debates over whether the NSW curriculum is overcrowded and what, if anything, should be done to declutter it.<sup>48</sup> Others view the curriculum as overly prescriptive and so limiting innovation in teaching.<sup>49</sup>

According to Goss, there are three overarching challenges to a more effective education system in Australia:<sup>50</sup>

1. better teaching of core academic skills and content so all students achieve a high standard of proficiency in literacy and numeracy;
2. changing some of what we teach and how we teach it, especially skills and capabilities like critical thinking, collaboration, resilience, initiative and self-direction; and
3. reducing the disparities between educational haves and have nots.

Goss categorises reform strategies into three types – better inputs, better outcomes, and better learning processes.<sup>51</sup>

**Table 3: Three approaches to reform: Goss**

Area of focus	Reform strategies
<b>Better inputs</b>	Raising the calibre of new teachers by lifting entry standards, adding graduation requirements such as literacy and numeracy tests, or introducing programs such as Teach for Australia that aim

to attract talented young people who might not ordinarily consider teaching as a career.

Increasing the effectiveness of new teachers by making initial teacher education a Masters-level course, or increasing the focus on practical experience.

Using integrated teaching frameworks to increase the use of high-impact teaching practices.

Strengthening teacher evaluation and performance development, for example through teacher observation.

Redesigning the curriculum, to clarify the expectations in core academic areas or incorporate general capabilities.

Investing in educational technology.

**Better outcomes**

Standards, testing and accountability frameworks that use rewards and punishments to try to lift student performance on defined standards.

Autonomy and accountability, where schools are given more freedom to make their own decisions, and held to account for their outcomes.

Various efforts to enhance school competition by: diversifying supply-side choice by using charter schools; strengthening demand-side choice by offering school vouchers that lower the cost of attending non-government schools; or increasing transparency in the hope that parents will make better choices, for example through the creation of the My School website.

**Learning processes**

Professional learning communities (PLCs) to foster collaborative learning among teachers, based on the evidence that adults learn best from peers.

Disciplined, iterative learning processes, such as spirals of inquiry, design thinking, and agile implementation.

Network collaboration or communities of practice, similar to PLCs, but sharing knowledge, expertise and resources across schools rather than within them.

**10. Alternative approaches: some Australian examples**

The following case studies offer some examples of alternative approaches to education being explored within public education in Australia. They are notable for offering a more personalised style of learning.

**Lindfield Learning Village**

[Lindfield Learning Village](#) is a public school that opened in Sydney in 2019, with 350 students from Kindergarten to Year 10. It offers a non-traditional approach to schooling. There are no formal year groups with students progressing according to their ability. This allows for the acceleration of students as well as providing remediation and support for those who need it.



Students are individually assessed at different times rather than through class exams. Subjects are not necessarily taught in isolation but rather in a cross disciplinary approach meeting outcomes across multiple learning areas. There are no specific lessons on maths, science and English as the learning of these areas is incorporated in project-based classes and real life problem solving scenarios.<sup>52</sup> Students “engage in meaningful and authentic multidisciplinary tasks which challenge them to explore issues and themes of importance to the community and the world”.<sup>53</sup> Each student is to have an individual learning pathway based on data collection of their needs and achievement which is monitored by a teacher/learning mentor and the student. The model is to be rolled out elsewhere if it is successful.<sup>54</sup>

### Big Picture Education Australia

[Big Picture Education Australia](#) is a non-profit company concerned with the transformation of education and explores how the way in which we work, think, communicate and live is being altered by technological developments. It believes personalised, passion-based learning is key to preparing students for a successful future and that creativity, curiosity and independence should be nurtured. Big Picture currently operates in 40 schools in Australia – some have converted the whole school to this approach, others have academies within schools, and some students take ‘Big Picture’ as an elective. The following schools in NSW are currently exploring and implementing Big Picture design:

- Liverpool Boys High School;
- Tomaree High School;
- Brewarrina Central School;
- Cooks Hill Campus;
- Five Islands Secondary College;
- Hunter Sports High;
- The Canoblas Rural Technology High School;
- Morisset High School; and
- James Fallon High School.

Its ‘Learning Design’ program includes:

- **Passions** – each student has a personalised learning plan designed around their passions and interests, with links to the curriculum;
- **Advisory** – students learn in small groups of 17 known as an advisory where there is a culture of belonging, support and respect;
- **Projects** – students work on a variety of projects in areas of personal interest that they design and manage and do certificate courses from further education providers;
- **Community** – students do community service or complete an internship with an expert mentor to gain insight into a field of interest;
- **Exhibition** – students collect evidence of their learning in a portfolio and regularly present their work at a public exhibition. This is the basis of their assessment throughout school; and

- **Graduation portfolio** – allows students to showcase skills, knowledge and short course qualifications to prospective employers, colleges, universities and investors.

The [Australian Curriculum Assessment and Reporting Authority](#) (ACARA) has determined that Big Picture meets the required achievement standards.<sup>55</sup> Big Picture schools appear to have the ability to cater for a range of student needs. The Gonski report commented that:

Big Picture students have high attendance rates and improved results, and it achieves this across a diverse range of schools and students – catering for previously disengaged students and those who are academically able.<sup>56</sup>

According to Professor John Fischetti, dean of education at the University of Newcastle:

Big Picture is exciting because it's meeting kids where they are – at the upper and lower ends of academic success. It isn't for kids who are disengaged because they're disadvantaged: it's for kids who are disengaged from schooling as it exists across the academic spectrum. It's raising the floor and the ceiling.<sup>57</sup>

However, Jennifer Buckingham of the Centre for Independent Studies, has highlighted that evidence of whether or not students do better in a Big Picture or mainstream school currently relies on self-reporting.<sup>58</sup>

### Templestowe College

[Templestowe College](#) is a State school in Victoria that focuses on student empowerment and student centred learning. Younger students go into an entry class of 25 students when they commence at the College and remain in this class for the first 12 months. Students spend two thirds of their time together working on an integrated curriculum that focuses on the practising and development of independent learning skills, problem solving, active collaboration, leadership, teamwork and presentation skills. They also choose two subjects from 150 electives. Students then move into the Flexible Learning Environment where they have a detailed Individualised Learning Plan that specifies their goals for the next five years. They choose six subjects per semester and can combine music practice, part time work at the school, running their own business, or working on a Personalised Learning Project. The Individualised Learning Plan has to be approved by parents and the principal. There are no year levels and classes generally contain a variety of ages as a result. The majority of students work towards a VCE qualification. Around 75% of students who would be in year nine in a traditional school are currently studying a VCE subject. Some work towards a Victorian Certificate of Applied Learning qualification or an Alternative University Entrance Pathway. Students in their final year are called Graduates and participate in a number of programs in addition to the normal subject load to help prepare them for life after school.

### 11. International examples

In recent years, a number of countries and international organisations have been reviewing school curriculum. The OECD Future of Education and Skills 2030 project were discussed earlier. Japan has introduced its zest for life reform, Finland has prioritised seven competencies in its new curriculum,

Singapore has developed its central 21<sup>st</sup> century competencies framework, and Canadian provinces have changed their curriculum.<sup>59</sup> The following examples showcase some of the different international frameworks.

### C21 Canada

[C21 Canada](#) is a national, non-profit organisation advocating for 21<sup>st</sup> century models of learning in education. The goal of C21 Canada is to “support the accelerated and effective instructional integration of 21<sup>st</sup> century skills and competencies, teaching practices and learning technologies into Canada’s education systems”.<sup>60</sup> According to Canadians for 21<sup>st</sup> Century Learning and Innovation, “The primary focus of Canadian education is to position learners for fulfilment and success in the modern world”.<sup>61</sup> It predicts that highly creative and innovative people will be the drivers of the 21<sup>st</sup> century, with mastery of literacy, numeracy and 21<sup>st</sup> century competencies a prerequisite for success.<sup>62</sup>

The 21<sup>st</sup> Century competencies adopted by C21 Canada as the focus of the Canadian 21<sup>st</sup> Century Learning Framework include:

- creativity, innovation and entrepreneurship;
- critical thinking;
- collaboration;
- communication;
- character;
- culture and ethical citizenship; and
- computer and digital technologies.

Information and communication technology is viewed as a key enabler in achieving all of the competencies.

C21 Canada argues that whilst 21<sup>st</sup> Century competencies may seem familiar, they are far more important in this era than before:<sup>63</sup>

The OECD, European Union, UNESCO and numerous other think tanks and authors conclude that new realities demand people with different competencies than those considered appropriate for success in the agrarian and industrial era. Multi-literate, creative and innovative people are now seen as the drivers of the 21<sup>st</sup> Century and the prerequisites to economic success, social progress and personal empowerment.<sup>64</sup>

The priorities identified for action in public education include:<sup>65</sup>

- learning outcomes and associated activities must be relevant to engage the 21<sup>st</sup> Century digital learner;
- the number of learning outcomes must be reduced substantially to increase instructional time and allow for depth of understanding;
- learning outcomes must be rationalised across subject areas to reduce redundancy while strengthening cross-curricular relationships;
- higher levels of learner performance in literacy and numeracy performance must be achieved;

- 21<sup>st</sup> century competencies must be infused throughout all learning outcomes;
- assessment regimes must be complementary to 21<sup>st</sup> century learning outcomes and pedagogical practices;
- digital technology must be harnessed to ensure data generation is dynamic and timely, and able to be mined effectively and efficiently to allow timely adjustments and interventions; and
- roles within education systems must be rationalised and clarified to enhance efficiency of program delivery.

### Finland

According to Lamb et al, Finland was one of the early adopters of key skills (referred to as [transversal competencies](#)) for the 21<sup>st</sup> century.<sup>66</sup> The current national curriculum was adopted in 2014 and has been implemented since 2016. The seven core transversal competencies for primary education are:

1. thinking and learning to learn;
2. cultural literacy, communication and expression;
3. managing daily life, taking care of oneself and others;
4. multi-literacy;
5. ICT skills;
6. entrepreneurial and work life skills; and
7. participation and building a sustainable future.

### United States

There is no national curriculum in the US. Each State has responsibility for the majority of educational decisions and policy.<sup>67</sup> Two examples from the US are included here – the Met School, Rhode Island, which has received substantial publicity and acclaim and which serves as the basis for Big Picture Learning. The second example is that of North Carolina, where the Board of Education has embraced the P21 Framework for 21<sup>st</sup> century learning.

#### The Met School, Rhode Island

The [Met School](#) consists of six small public high schools in Rhode Island, US. It is also the flagship school for Big Picture Learning. It adopts a personalised approach to learning which they believe empowers their students to “take charge of their learning, to become responsible citizens and life-long learners”.<sup>68</sup> A personalised curriculum is built around the interests of the student in a consultative process between advisors, mentors, parents and students. The program also seeks to build connections with professionals in the community that can provide real-life examples of those interests resulting in projects that form the basis of the student’s learning plan. The school builds strong relationships with parents, family, the community, business, government and other educational institutions.

Distinctive factors of this model of schooling include:

- **learning in the real world** – students work with a mentor, an expert in the field of the student’s interest on authentic projects that involve deep investigations and meet the needs of both the student and the mentor. This is seen as helping the student to develop 21<sup>st</sup> century skills, build adult relationships, and provide the beginnings of a professional network;
- **personalisation** – the school has a philosophy of one student at a time;
- **authentic assessment** – assessment criteria are individualised to the student and the real world standards of a project. Assessments include public exhibitions, weekly check-in meetings with advisors, weekly journals, yearly presentation portfolios and transcripts;
- **school organisation** – students work in one-on-one and small group learning environments;
- **advisory structure** – the Met has a small number of students, ideally 16, with most students staying with the same advisor for four years. The advisor is to know the student and the student’s family well through home visits and individual meetings;
- **school culture** – a culture of trust, respect and equality applies between students and adults;
- **parent/family engagement/adult support** – families are enrolled in the school and are proactively engaged through home visits, by participation in Learning Plan meetings and exhibitions and by serving as resources for the school; and
- **post-secondary planning** – the Met works to make college an opportunity for all students. Students must take college entrance exams and apply to college or a post-secondary school program with students followed and supported even as alumni.

This style of schooling was developed in the 1990s when a principal and assistant principal (Dennis Littky and Elliot Washor) were asked to design and implement a school for the 21<sup>st</sup> century. The Met commenced in 1996 as the first [Big Picture Learning](#) school. Littky and Washor subsequently received support and grants from the Bill and Melinda Gates Foundation to create and implement Met schools nationally with the Foundation [announcing](#) in 2001 that the Met was its favourite high school in America. There are now more than 65 Big Picture schools across 16 states and more than 80 schools internationally. It is the model for Big Picture Education Australia.

### North Carolina

The [North Carolina State Board of Education](#) has adopted a policy to include the P21 Framework for 21<sup>st</sup> century learning with the mission of every public school student graduating “ready for post-secondary education and work, and prepared to be a globally engaged and productive citizen”. The [Framework](#) includes the following student outcomes:

- **Mastery of core subjects** (English, reading or language arts, world languages, arts, mathematics, economics, science, geography, history, government and civic) **and 21<sup>st</sup> century themes** (global

awareness; financial, economic, business and entrepreneurial literacy; civic literacy; and health literacy).

- **Learning and innovation skills:** creativity and innovation; critical thinking and problem solving; and communication and collaboration.
- **Information, media and technology skills:** information literacy; media literacy; and ICT literacy.
- **Life and career skills:** flexibility and adaptability; initiative and self-direction; social and cross-cultural skills; productivity and accountability; and leadership and responsibility.

### Japan

The Japanese Government has been discussing enculturation, contextualisation and elaboration of 21<sup>st</sup> century competencies through the implementation of new curriculum guidelines and the reform of national level university entrance exams. It has embraced the 'zest for life' education concept since 1998, which aims for the holistic development of students - academically, morally and physically. 'Zest for life' also includes the concept of 21<sup>st</sup> century competencies. Its general principles are:<sup>69</sup>

- **Solid academic prowess:** To acquire the basics and fundamentals; to cultivate introspection, the desire to learn and think, independent decision-making and action, as well as the talent and ability for problem-solving.
- **Health and fitness:** Health and fitness for living a vigorous life.
- **To be rich in humanity:** To cultivate self-discipline in balance with consideration for others and a sense for inspiration, in harmony with the spirit of cooperation.

### Wales

A [new curriculum](#) is currently being developed for schools in Wales. The final version is to be available in January 2020 with it being implemented by 2022. The new curriculum will have a greater emphasis on equipping students for life. It will build their ability to learn new skills and apply subject knowledge more positively and creatively aiding adaptation in a changing world. It recognises that schools and teachers need more flexibility. The new curriculum is designed to make learning more experience based, the assessment of progress more developmental, and teachers are to have the flexibility to deliver in more creative ways that suit their individual students. A digital competence framework will introduce digital skills across the curriculum.

The purpose of the new curriculum is to support children and young people to be:

- ambitious, capable learners, ready to learn throughout their lives;
- enterprising, creative contributors, ready to play a full part in life and work;
- ethical, informed citizens of Wales and the world; and

- healthy, confident individuals, ready to lead fulfilling lives as valuable members of society.

There are six areas of learning and experience:

- expressive arts;
- health and wellbeing;
- humanities, including compulsory religious education to 16 years;
- languages, literacy and communication, including compulsory Welsh to 16 years and modern foreign languages;
- mathematics and numeracy; and
- science and technology.

In addition there are three cross-curricular responsibilities: literacy, numeracy and digital competence.

### Singapore

Singapore was the top ranking country in the OECD 2015 PISA testing for reading literacy, mathematics and science. The Singapore Ministry of Education has developed a framework for [21<sup>st</sup> century competencies](#) and student outcomes in order to prepare students to face the challenges and seize the opportunities brought about by globalisation, changing demographics and technological advancements. These competencies are to underpin Singaporean education, with schools and parents working together to help students develop in this way.

The following chart by the Ministry of Education illustrates its Framework for 21<sup>st</sup> Century Competencies and Student Outcomes.



As a result, a person who has been schooled in Singapore is to:

- have a good sense of self-awareness;
- have a sound moral compass;
- have the necessary skills and knowledge to take on the challenges of the future;
- be responsible to their family, community and nation;
- appreciate the beauty of the world around them;
- possess a healthy mind and body; and
- have a zest for life.

Subject areas in Singapore include: arts; character and citizenship education; humanities; English language and literature; mother tongue languages; physical education; and sciences. ACARA has conducted a comparative study of the Australian and Singaporean curricula which was published in 2018.

### International Baccalaureate

The International Baccalaureate (IB) does not refer to the curriculum of a particular education system but is a program that been implemented in various schools around the world. Its mission is to:

develop inquiring, knowledgeable and caring young people who help to create a better and more peaceful world through intercultural understanding and respect (...) encourage students across the world to become active, compassionate and lifelong learners who understand that other people, with their differences, can also be right.<sup>70</sup>

Lamb et al have reviewed various international curricula to identify the skills considered key for the 21<sup>st</sup> century, and how they are taught and assessed. Their review included the IB because of “the unique structure of IB curricula and the place of skills in different subjects across the range of curricula”.<sup>71</sup>

The Learner Profile for the IB consists of 10 attributes that all students are to develop, namely:

1. inquirers;
2. knowledgeable;
3. thinkers;
4. communicators;
5. principled;
6. open-minded;
7. caring;
8. risk-takers;
9. balanced; and
10. reflective.



Students completing the Diploma Programme (students aged 16 to 19) complete three core elements:

- i. theory of knowledge – students reflect on the nature of knowledge and how we know what we claim to know;
- ii. the extended essay – an independent, self-directed piece of research, culminating in a 4000 word paper; and
- iii. creativity, activity, service – students complete a project related to these three concepts.

In addition, six subject groups constitute the remainder of the curriculum:

- studies in language and literature;
- language acquisition;
- individuals and societies;
- sciences;
- mathematics; and
- the arts.

As an alternative to the Higher School Certificate, 18 private schools in NSW currently [offer](#) the IB Diploma program for years 11 and 12. NSW is the only State in Australia that does not allow the IB in public schools, yet it continues to grow in popularity in private schools.<sup>72</sup>

## 12. Conclusion

The NSW curriculum review presents a generational opportunity to consider how the school education system in NSW can most effectively prepare its students to be lifelong learners that flourish and contribute as citizens in the 21<sup>st</sup> century and beyond. The significant social, economic and technological changes of the last thirty years will likely have a substantial impact on what is deemed to be essential to the curriculum and the most effective teaching methods. There is debate about which knowledge, skills and attributes will be most valuable and how the curriculum could best incorporate them, as well as whether the education system needs to move to a more personalised form of learning, with the challenges that presents. The relative effectiveness of an education system also involves considering much more than this. Issues such as teacher training methods and professional standards and the appropriate level of effective funding have not been discussed in this paper. It remains to be seen what the NSW curriculum review panel will deem as the best way to equip students to contribute to Australian society in the 21<sup>st</sup> century.

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