



Combining curriculum and best practice teacher professional learning

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Series overview

Across the world, few education policymakers have seen curriculum as a powerful lever for reforming schools. That might seem surprising. After all, “curriculum” is what we teach, and what we teach surely matters to student learning. As leading curriculum researcher Dr David Steiner of Johns Hopkins University in Baltimore puts it: “What we teach isn’t some side bar issue in American education: it *is* American education”.¹

Yet for some years, curriculum has been overlooked as a pillar of school improvement strategy. Education reform has focussed on teacher quality, and often seen curriculum as simply a tool that teachers use. Curriculum’s role as a battleground for ideologues has also led policymakers to avoid the subject. But that is all beginning to change.

The research is increasingly clear that quality curriculum matters to student achievement. What’s more, there is emerging evidence to suggest that quality curriculum has a larger cumulative impact on student achievement than many common school improvement interventions – and at a lower cost.

Much recent research on the impact of curriculum on student learning has emerged from the US since the development of the Common Core State Standards. While the definition of curriculum remains contested (see our working definition overleaf), this research focuses on content-rich, standards aligned curriculum materials, especially textbooks. Several US states and districts, such as Louisiana, have begun to develop systems to identify and make available high-quality curriculum materials – and the approach seems to have paid off. The experience of these American states and districts reinforces some of Learning First’s research findings in high-performing systems such as Finland, Singapore, Japan, Hong Kong and British Columbia. In these places, high-quality curriculum is always part of the story.

Of course, what we teach matters. But what does this mean for educators and policymakers? How do we ensure that schools have the support they need to select or develop high-quality curriculum aligned with rigorous standards for student learning? How do we narrow the gap between the achievement standards that sit on department of education websites, and what is *actually taught* in classrooms? How can policymakers meaningfully engage with teachers, support and make the most of their instructional expertise, and encourage uptake of quality curriculum? What is there to learn from how other systems have designed and implemented standards and curriculum, and what are the implications for related policy levers, especially initial teacher education, ongoing teacher professional learning, and student assessments? Finally – and critically – how do we define high-quality curriculum in the first place?

The answers to these questions have profound implications for education policy in the Australia, the United States, and around the world. This series of reports, – a collaboration between Learning First and Johns Hopkins Institute for Education Policy – draws on international research to help inform the conversation.

This report, *Combining curriculum and best practice professional learning*, argues that quality curriculum and teacher professional learning are not policy trade-offs. It will show how quality standards and curriculum strengthen best practice teacher professional learning based on an improvement cycle. It will also show how the improvement cycle can help to narrow the gap between the documented and implemented curriculum, helping to ensure that quality curriculum is effectively implemented and that students benefit from standards and curriculum established at the system level and maintained through to the classroom.

¹ Steiner, 2017

Box 1: Defining “curriculum”

“Curriculum” is a notoriously contested term. In a recent blog post, Chester E. Finn, Jr. of the Thomas B. Fordham Institute likened the line between standards and curriculum to “the pavement on Copacabana Beach. No two people describe it in the same way”.² Such varying definitions within and among school systems muddy the waters of an already complex debate about the role of curriculum in school improvement. A shared understanding of the term “curriculum” is a helpful precursor to a collective consideration of its impact on student learning can occur.

When Australians talk about “curriculum”, they tend to be referring to the Australian Curriculum or its state derivatives – frameworks of standards, alongside content descriptions, general capabilities and cross-curriculum priorities.³ Conversely, when Americans talk about curriculum, they tend to mean textbooks or other day-to-day instructional materials. The definitions below are rooted in the American context to more usefully support international readers’ interpretation of the research set out in this report series:

Standards are expressions of the goals of student learning, typically at the state or federal level. Standards typically aim to outline what we expect students to know and be able to do at different stages of schooling, usually expressed in year levels.⁴ Examples of standards include Achievement Standards of the Australian Curriculum, and the Common Core State Standards in the United States.

Curriculum is the means to achieve the goals expressed in the standards. It is the teaching and learning program, and can include lesson plans and activities, scope and sequence documents, textbooks, computer programs and even related pedagogical advice and embedded formative assessments.

² Finn, Jr., 2017

³ For more information, see <https://www.australiancurriculum.edu.au/f-10-curriculum/structure/>

⁴ Houchens, 2017

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1 Introduction: quality curriculum and best practice professional learning are not policy trade-offs

In recent years, few education policy makers and researchers have seen curriculum as a serious lever for reform.⁵ Research has focused on teaching quality and its impact, and policy has followed suit. But new research is increasingly and emphatically showing that the quality of a curriculum matters more to student outcomes than do many school improvement interventions.⁶ So how do systems introduce effective curriculum reforms? And what do those reforms mean for policies that aim to strengthen teacher development and student learning?

This report argues that curriculum reform and teacher development are not policy trade-offs. On the contrary, without a strong curriculum, teacher development policies will have limited impact. Therefore, it is important that policymakers do not simply “follow the evidence” set out in reports like *What we teach matters*⁷ and switch their focus to curriculum. Rather, they must ensure that curriculum and professional learning – the “what” and the “how” of great teaching – work together.

This report demonstrates how teacher professional learning comes unstuck without proper curriculum development and how the two need to interact to support changes in teacher practice linked to student learning needs. It shows:

1. How and where best-practice teacher professional learning must interact with curriculum in order to have a sustained impact on teacher practice. In doing so, it highlights how rarely literature on teacher development has emphasised its interaction with curriculum.
2. How curriculum development and implementation efforts can use best-practice teacher professional learning to translate new curriculum into aligned changes in teacher practice. Curriculum reforms have limited impact when they are not coupled with professional learning that narrows the gap between the intended, implemented and attained curriculum.⁸

The report begins by briefly defining effective teacher professional learning as collaborative work that occurs in schools every day, and that enables teachers and school leaders to continuously monitor the impact of changes in teacher practice on student learning. It sets out an approach to professional learning based on an improvement cycle that reflects these key principles of effective professional learning. Approaches to teacher professional learning based on an improvement cycle exist in high-performing systems such as British Columbia, Singapore and Shanghai,⁹ and have been adopted by several states, regions and districts in Australia and the United States.¹⁰

The report then shows how teacher professional learning based on an improvement cycle supports curriculum implementation and how, in turn, this professional learning is ineffective without high-quality standards and curriculum. High-quality standards and curriculum provide the frame through which teachers can determine student learning needs, plan teaching approaches that enable student learning to progress, and evaluate the impact of their work.

⁵See, for example, Finn, Jr., 2017; Koedel & Polikoff, 2017

⁶Steiner, Magee, & Jensen, 2018

⁷Steiner et al., 2018

⁸The *intended* curriculum is the documented curriculum, including “course outlines, official syllabi, and textbooks,” in addition to the rationale and goals for learning. The *implemented* curriculum is what is enacted by teachers in classrooms, and the *attained* curriculum is what students learn.⁸ See the Travers & Westbury, 1989.

⁹Jensen, Sonnemann, Roberts-Hull, & Hunter, 2016

¹⁰Including, for example, Queensland, Victoria, Tasmania, South Australia and the District of Columbia.

By focusing on the interactions of two key policy levers, this report shows how both curriculum and professional learning reforms suffer when not explicitly coupled. This may help to explain why many professional learning reforms have little effect on teacher practice or student learning.¹¹ The paper concludes by briefly discussing how select systems around the world have approached the development of quality curriculum and used it to anchor teacher development. It suggests a new way for systems to analyse and develop policies that combine curriculum and teacher professional learning, including considerations for the sequencing of reform.

¹¹ See, for example, TNTP, 2015a

2 Best practice teacher professional learning

The evidence is clear that teaching can have a significant positive impact on student learning.¹² To improve teaching quality, systems can focus on attracting more skilled candidates to the profession and on better developing teachers already in the system. Many high-performing systems do both, but they also tend to emphasize in-service professional learning because it has greater potential to influence the practice of the entire existing teacher workforce. Further, while teachers need to develop skills before they start teaching, they have the most time and capacity to learn about quality teaching once they are in the profession.

Professional learning is both the act of learning and of applying new knowledge and skills to improve performance on the job.¹³ Research confirms that quality professional development improves both teacher and school leader practice¹⁴ and student outcomes¹⁵. Emerging evidence also demonstrates that professional learning greatly enhances the impact of quality curriculum on student learning.¹⁶

Unfortunately, research also confirms that most teacher professional learning is ineffective and has little to no impact on student outcomes.¹⁷ This is because what is generally accepted as effective teacher professional learning is not usually what is practised.¹⁸ In many systems, much teacher professional learning is based on one-off workshops instead of in-school professional development. The courses and programs may or may not be good, but because they are not linked to real student needs and teacher practice, much of the – often large¹⁹ – investment in teacher professional learning leads to little teacher learning, and therefore almost no change to student learning.

Professional development is most effective when it occurs in the context of teachers' day-to-day work and when it enables teachers and school leaders to make changes to their professional practice that improve student learning.²⁰ What does this look like in practice? Many of the world's highest-performing school systems, including British Columbia, Ontario, Singapore and Shanghai, use an improvement cycle (or "professional inquiry cycle") to lay out the steps teachers and schools need to take to improve student learning.²¹ Table 1 below sets out how these high-performing systems structure teachers professional learning based on an improvement cycle.

¹² See, for example, Hattie, 2003

¹³ Mizell, 2010

¹⁴ Timperley, Wilson, Barrar, & Fung, 2007.

¹⁵ English & Baretta, 2006; Phillips, McNaughton, & MacDonald, 2001; Timperley & Parr, 2006; Bishop, Berryman, Cavanagh, & Teddy, 2006; Bishop, Berryman, Powell, & Teddy, 2005.

¹⁶ Taylor et al., 2015

¹⁷ TNTP, 2015b

¹⁸ Timperley et al., 2007.

¹⁹ TNTP, 2015

²⁰ Darling-Hammond, 2017; Laura M. Desimone & Garet, 2015; Jensen, Sonnemann, et al., 2016

²¹ Jensen, Sonnemann, Roberts-Hull, & Hunter, 2016

Table 1: How British Columbia, Shanghai and Singapore structure teacher professional learning based on an improvement cycle

	British Columbia Learning Communities	Shanghai Research and Lesson Groups	Singapore Professional Development Groups
Stage 1: Assess	<ol style="list-style-type: none"> 1. Scanning (evidence of student learning) 2. Focusing (setting priorities) 	<ol style="list-style-type: none"> 1. Set research question based on student learning 	<ol style="list-style-type: none"> 1. Collect and analyze data 2. Discuss focus for improvement cycle
Stage 2: Develop	<ol style="list-style-type: none"> 3. Developing a hunch 4. New learning 	<ol style="list-style-type: none"> 2. Review research evidence 3. Select teaching strategies 	<ol style="list-style-type: none"> 3. Propose new approaches
Stage 3: Evaluate	<ol style="list-style-type: none"> 5. Taking action 6. Checking (assess impact) 	<ol style="list-style-type: none"> 4. Test strategies in class; observe and discuss each other's lessons 5. Analyze evidence, identify improvements, and publish results 	<ol style="list-style-type: none"> 4. Implement new approaches and measure impact 5. Review, reflect, and present on what worked

Source: Jensen, Sonnemann, Roberts-Hull, & Hunter, 2016

Teacher professional development based on an improvement cycle resembles the scientific method. First, teachers work together to broadly assess their students' learning needs – what's going on for the students, what learning issues they are experiencing, and how teaching practices might affect them. Together, teachers select a challenge of practice, emerging from the evidence of student learning, to work on over a sustained period. They research new strategies to address it, then select one and try it out. They observe and analyse each other's lessons. Crucially, they collect evidence about the impact their strategy has on student progress.²²

By using an improvement cycle, teachers undertake an ongoing cycle of learning in order to ensure student learning. They collaborate with their colleagues to develop pedagogical content knowledge and improve teaching – and student learning – over time. School leaders can use the same improvement cycle to guide improvement planning at the school level.

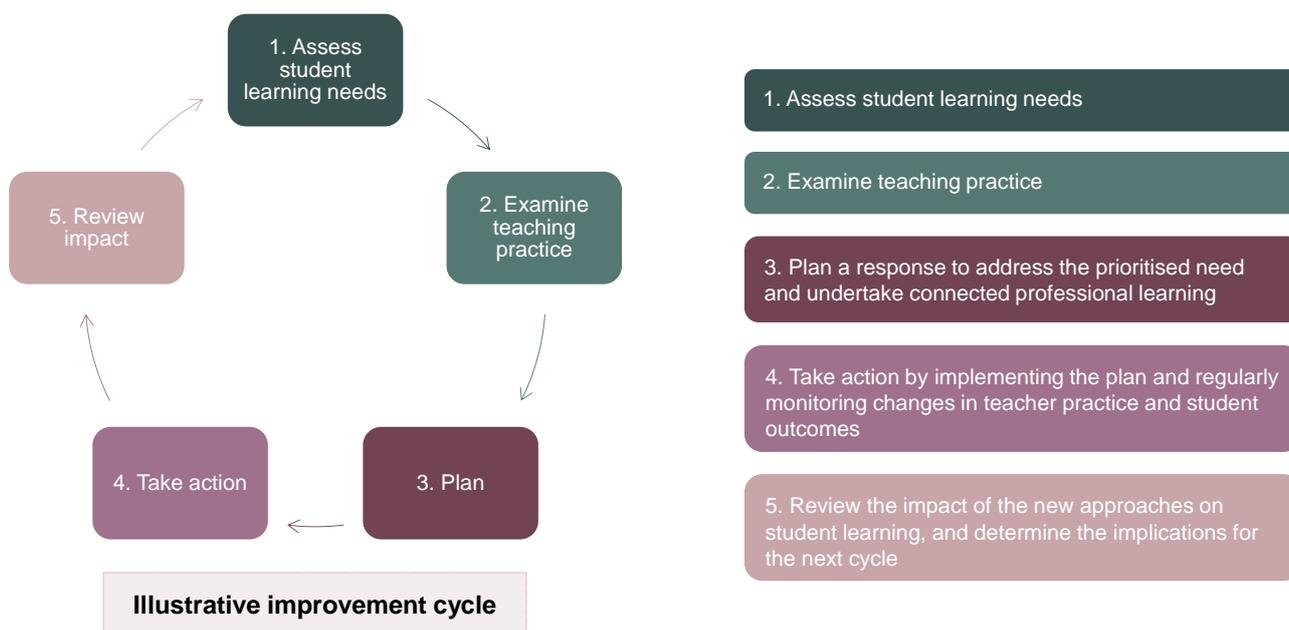
The improvement cycle looks different in different systems. Teachers in Australian states, including Queensland, Tasmania, South Australia and Victoria, use slightly different versions of improvement cycles to help structure their collaborative professional learning. Teachers in several British Columbian districts use the *Spirals of Inquiry* model,²³ while teachers in the District of Columbia in the United States use a "plan, teach, increase effectiveness" teaching cycle.²⁴ These models have all been developed by local educators to suit their specific context, but each is a process to closely monitor and improve the impact of teaching practice on student learning. Figure 1 below provides a generic, illustrative improvement cycle for the purposes of this report.

²² See, for example, Halbert & Kaser, 2013; Richard DuFour, 2004; Boudett, City, & Murnane, 2013; Griffin, 2015

²³ Halbert & Kaser, 2013

²⁴ District of Columbia Public Schools, 2012

Figure 1: Stages of the improvement cycle



The improvement cycle is not new. Based on improvement science research²⁵ and reflecting the evidence of effective professional development,²⁶ it has been implemented in many schools around the world. But it has also failed many times. On its own, it is not enough for sustained reform. Effective improvement cycles require a strategy that includes strong links between how leadership roles are structured, how resources are allocated, and how teacher capacity is developed.²⁷ Critically, improvement cycles must also link to standards and curriculum to ensure that *how* we teach is connected to *what* we teach – and to what students are learning. The next section shows how that link can be built.

²⁵ Anderson, Rungtusanatham, & Schroeder, 1994; Argyris, 1991; Forman, Stosich, & Bocala, 2017; Park, Hironaka, Carver, & Nordstrum, 2013; The Health Foundation, 2011; Totten et al., 2012

²⁶ See, for example, Blank & de las Alas, 2009; Desimone, LM, 2009; Klaas, Zwart & Meirink, 2012; Timperley, Wilson, Barrar & Fung, 2007; Yoon et al., 2007

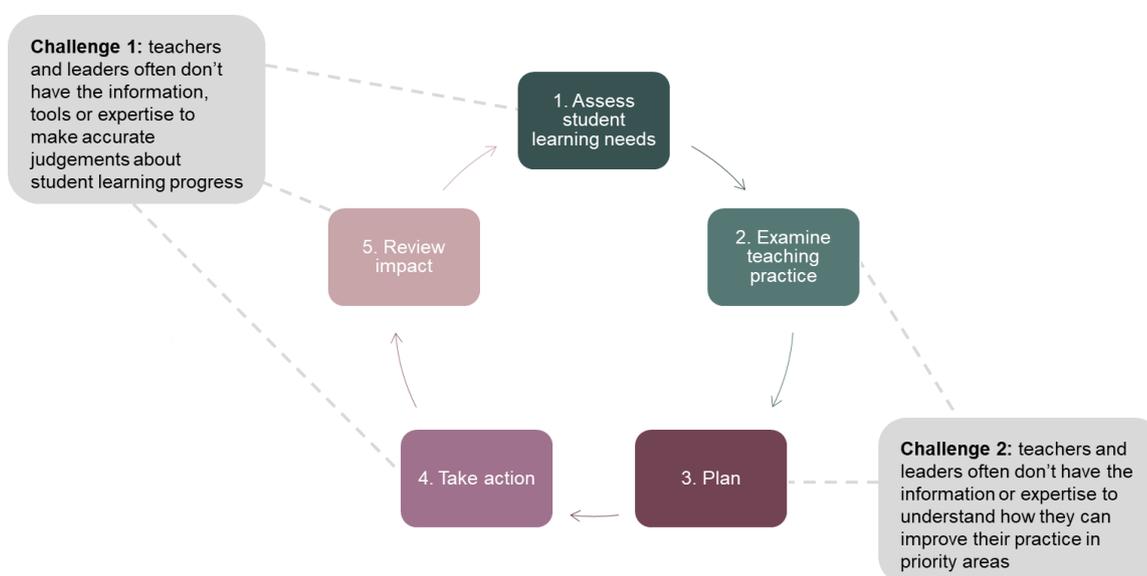
²⁷ See, for example Jensen, Sonnemann, et al., 2016

3 How standards and curriculum support best practice teacher professional learning

Effective teachers and school leaders are people who are driven to understand the impact of what they do on their students, and to use that understanding to keep improving. That is why teachers in many high-performing systems champion the improvement cycle. Implemented well, it enables and requires teachers to both better understand and improve the impact of their practice on student learning.

This work is not easy. Teachers and leaders in the school systems we work in often find they do not have the information, tools, or expertise they need to develop a shared understanding of the impact of their practice or to make the necessary changes to improve it. Figure 2 sets out two key challenges schools commonly face in their improvement work.

Figure 2: Two critical challenges that schools commonly experience in their improvement work



Quality standards and curriculum can help teachers and school leaders overcome these common challenges in two key ways:

1. By supporting them to develop a better shared understanding of student learning progress. This, in turn, supports their capacity to effectively prioritize student learning needs and monitor the impact of their professional practice on student learning, and
2. By providing the information they need to develop their content knowledge and pedagogical content knowledge and improve their professional practice in priority areas.

The sections below describe in detail each of these challenges, and how quality standards and curriculum can help to address them.

Overcoming Challenge 1: How standards and curriculum help develop a better shared understanding of student learning progress

Teachers who engage effectively in professional learning based on an improvement cycle take several steps to develop a deeper understanding of their impact on student learning. They:

- Collect and analyze evidence of learning based on what students can do, say, make or write²⁸
- Prioritize one or two student learning areas to focus on and set goals in these areas
- Monitor and evaluate the impact of their teaching on student learning in the priority areas.

Few teachers have the support, resources or skills to do this well all the time. Some may have underdeveloped assessment literacy. Others might work in schools with no coordinated curriculum or assessment strategy, or with too much “student learning data” from a wide variety of disconnected sources. In these environments, even skilled teachers can struggle to answer the questions, “What is going on for our learners? What are their most pressing learning needs?” Teachers need to know where to find or how to generate the relevant data, how to set appropriate learning goals, and how to analyze the data to understand how student learning is progressing.²⁹ And, somehow, they need to find the time.

Quality standards and curriculum can help to address these challenges in three crucial ways. First, high-quality, objective benchmarks of what students should know and be able to do at each stage of learning help to reinforce high expectations for all learners. An external benchmark in the form of standards helps teachers and school leaders to discuss student learning, to align their professional judgements, and to hold each other to account for evidence of students’ progress against the standards. Without this external benchmark, teachers and leaders with low assessment literacy, or with limited experience or support, will struggle to identify student learning issues and progress, thereby making the improvement cycle much less effective.

Second, high-quality, standards-aligned curriculum, including lesson plans and formative assessments, can give teachers and leaders detailed insights into how student learning is progressing. When teachers have access to expertly designed and curated curriculum, and when they understand how they have been developed and how it aligns with the standards, they can focus their time and effort on teaching. These kinds of curriculum relieve teachers of some of their preparatory burden, allowing them to focus on teaching, and on making changes in practice that are aligned with the standards. Assessment materials that are “quality assured” or “vetted” by system experts are especially important, because they give teachers confidence that the materials they are using are, in fact, standards-aligned.³⁰ Box 2 below provides an example of what this can look like from Queensland, Australia.

Box 2: Bringing a new curriculum to the classroom

In 2012 the first learning areas of the Australian Curriculum were made available online. For the first time, all Australian state education systems were provided with a consistent expectation for teaching and learning. The achievement standards of the Australian curriculum articulate a clear expectation for learning at each year of schooling.

The introduction of the Australian Curriculum represented a significant change in the intended curriculum in Queensland. Rather than duplicating the work of interpreting the curriculum into teaching and learning programs at each school across the state, the decision was made within the state school system to centrally provide units of work called Curriculum to Classroom (C2C).

C2C provides a quality assured program of assessment for each of the learning areas of the Australian Curriculum. It provides:

- A suite of assessment tasks clearly mapped to the achievement standards

²⁸ Griffin, 2015. By considering changes in what student do, say, make or write, teachers “can infer change in what they understand, know, feel or think.” Care & Griffin, 2009

²⁹ Griffin, 2015

³⁰ Studies have shown substantial misalignment in some curricula that, for example, claim to be aligned to the Common Core State Standards. See, for example, Polikoff, 2015

- Guides to making judgments which allow teachers to analyze student work and determine whether it is at, below or above the expected standard
- Modelled responses which give indicative student responses and allow a practical understanding of the standard
- A sub-set of content descriptions which define what must be taught in order for students to successfully complete assessment tasks
- Lesson guides and plans to support teaching and learning.

C2C is provided as a resource which school leaders and teachers can access online via a secure system to support an understanding of quality curriculum at classroom level. School leaders are invited to adopt or adapt the materials to suit their context.

These centrally developed and distributed resources provide a standard for quality curriculum. They indicate clearly what is expected of teaching and learning in state schools in Queensland.

Third, standards provide a framework for prioritization; they help teachers decide which student learning needs are most pressing. Most school systems require their leaders to articulate priorities for learning and improvement, but school and district leaders cannot do so without clear guidance about *what* needs to be taught and *how we will know* when students have learned it. Without a collective understanding of how students should progress in their learning over their school years, school and system priorities are likely to be little more than ad hoc teaching practice writ large, the prioritization of learning goals and vaguely connected pedagogical practices based on personal preference, political imperative, or fad. Student learning needs should inform education priorities at all levels of the system. They should be identified with reference to external and objective standards for learning.

Overcoming Challenge 2: How standards and curriculum help teachers and leaders improve their practice

Approaches to teacher professional learning based on improvement cycles require teachers to plan evidence-based actions to improve their practice – and then to actually improve it. They face significant barriers to doing this well, including:

- Having no time to engage with research on effective practice
- Not finding enough information to help them to address their specific challenges of practice
- Encountering too much information, most of which is not helpful.³¹

The impact of these barriers is reflected in research on improvement cycles, which shows that they do not have a widespread, positive influence on student learning.³² Yet the literature also has numerous examples of improvement cycles that overcome these barriers and improve teacher and leader practice and student outcomes.³³ Our research on the successful and unsuccessful attempts to implement improvement cycles in other systems reveals the factor that makes the big difference: connecting teachers and leaders with relevant expertise to help them overcome the obstacles that will prevent them from improving their practice. School systems can connect teachers and leaders with such expertise in several different ways. They can ensure that schools have access to coaches or other experts with relevant subject knowledge. They can provide targeted capability-building programs in key areas, and they can provide quality curriculum. In practice, these approaches should be tightly intertwined: coaches and capability building programs should

³¹ Adapted from Sharples, 2013

³² Ronfeldt, Farmer, McQueen, & Grissom, 2015; West, Morton, & Herlihy, 2016

³³ Carlson, Borman, & Robinson, 2011; Gallimore, Ermeling, Saunders, & Goldenberg, 2009; van Geel, Keuning, Visscher, & Fox, 2016

focus on developing teachers' and leaders' capability to understand and improve the impact of their practice on student learning *of the curriculum*.

Further, while many systems have rightly provided experts and coaches (especially in specific subject areas) to help teachers, it is not possible to have this kind of external expertise on hand all the time. High-quality curriculum materials can provide schools with a constant resource and support when external expertise cannot be accessed. Rigorous standards and curriculum can help to build teacher understanding of student learning progression, and provide a baseline and framework for teacher-led research and discussion with experts and coaches.

4 How best practice teacher professional learning supports curriculum implementation

Major curriculum reform should have huge implications for teacher professional practice, yet it often does not seem to have the impact it should on teaching or on learning.³⁴ As school and system leaders know, one reason why curriculum reform may not be affecting student outcomes is the gap between the *intended* and *implemented* curriculum. Investments in quality curriculum will not mean a thing unless that curriculum is implemented in classrooms. How, then, should school systems help to ensure that quality curriculum and standards are effectively implemented for students' benefit? The improvement cycle provides a roadmap.

Enacting the curriculum on a daily basis is difficult for teachers who lack the incentive or time to engage with it, the content knowledge to understand it, or the pedagogical content knowledge to teach it in a way that engages students and supports their learning.³⁵ American system leaders know the struggle teachers are facing: 88 per cent of district leaders surveyed by the Center on Education Policy, for example, indicated that “providing high-quality professional development and other support to ensure that teachers are able to implement the Common Core State Standards instructional activities” is a key challenge.³⁶

An improvement cycle approach to professional learning helps teachers to implement the curriculum. It focuses their collaborative efforts on both the “what” and the “how” (including the “how will I know?”) of teaching. It requires teachers to consider the impact of their classroom practice in a discrete area of student learning and of the curriculum. One reason why the intended curriculum in many systems does not influence teacher practice is because it typically only articulates “what” they must teach – not “how” they might teach it. Teachers need to determine what to teach, how to teach it, and how they will know if their students have learnt it, before they can start to make meaningful changes to their practice.

This is where an improvement cycle approach can help. Implemented well, it connects curriculum, student learning and teacher professional learning. It gives teachers the time and support to engage deeply with the standards and curriculum that are most relevant to their students' learning. It also gives teachers permission to engage deeply with parts of the curriculum associated with a specific student learning challenge. Finally, it empowers them to choose the focus of their professional learning.

Empowering teachers in this way requires a fundamental cultural and professional shift, but it is key to the long-term effectiveness of teacher professional learning. Several high-performing systems, including British Columbia and Japan, have used an improvement cycle approach in order to implement curriculum reforms in schools. Brief case studies of these systems are included below.

British Columbia

In the late 1990s, the British Columbia Ministry of Education decided that more detailed curriculum aligned with the established standards could help to improve student outcomes. The Ministry organised a group of experienced teachers to develop performance standards that illustrated what students should be able to do at four different levels leading up to proficiency in the achievement standard at each grade level.³⁷

³⁴ The impact of curriculum reform on student outcomes is difficult to measure for several reasons. See, for example, Polikoff, 2017 for a discussion of some of the research difficulties associated with measuring the impact of the Common Core State Standards on student outcomes.

³⁵ Jensen, Roberts-Hull, Magee, & Ginnivan, 2016

³⁶ Center on Education Policy, 2014. 46% of surveyed district leaders described it as a “major challenge”, 42% described it as a “minor challenge”, 10% of district leaders said it was “not a challenge” and 2% said it was “too soon to tell”.

³⁷ British Columbia has subsequently introduced an updated curriculum, but still use the same performance standards.

The performance standards focused on reading, writing, numeracy, and social responsibility. They provided examples of student work at each performance standard to help teachers deepen their understanding of student learning progression aligned with achievement standards. This scaffolding supported teachers to create curriculum – such as student assignments, assessment tasks and scoring rubrics that support and assess student learning progression – that are aligned with the achievement standards of the province. Figure 2 shows an excerpt of British Columbia’s performance standards.

Figure 2: Excerpt of British Columbia Performance Standards

MEETS EXPECTATIONS (MINIMAL LEVEL)

Teacher's Observations

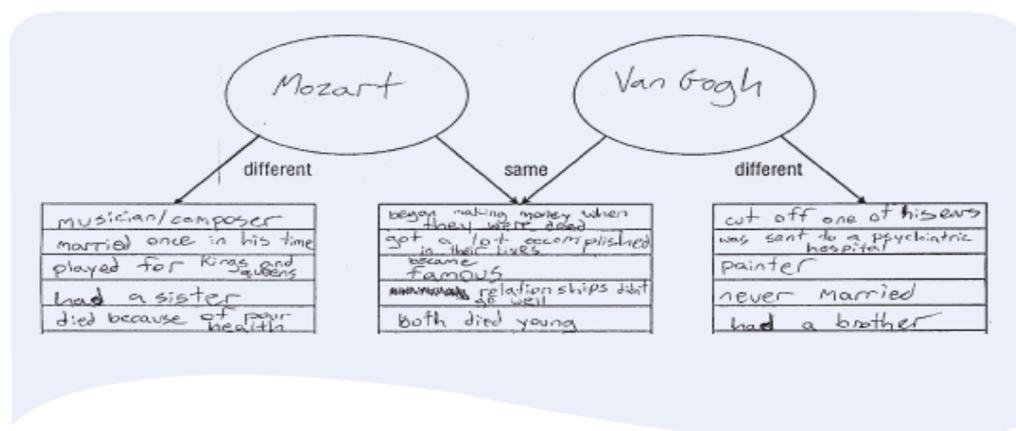
This student read and worked independently, but responses tend to be vague and lack detail.

- ◆ responses are generally accurate but somewhat vague (e.g., “took lessons”)
- ◆ identifies most main ideas, but has difficulty restating them in own words
- ◆ uses logical categories to make notes; includes too much information

	Met	Near	Not Met	Exceeded
STRAPSHOT				
STRATEGIES				
COMPREHENSION				
ANALYSIS				

NOTE:

The note-taking part of this student’s work is not available.



Source: Ministry of Education, British Columbia, n.d.

Despite this hard work, teachers did not immediately start using the new performance standards. As system leaders know, development is not the same as implementation. What helped British Columbia teachers to understand and implement the standards was use of an improvement cycle.

In 2000 the Ministry funded the Network of Performance Based Schools (now known as the Networks of Innovation and Inquiry), led by Dr. Linda Kaser and Dr. Judy Halbert, to support teacher understanding and use of the new performance standards. Teachers who joined the NOII used Kaser and Halbert’s “Spiral of Inquiry” method to assess student learning using the performance standards, to plan improvement, to implement new pedagogical practices, and to re-assess student learning progression to gauge whether the new practices worked.³⁸

NOII was an important forum for teachers grappling with the implications of the performance standards. As one teacher explains:

³⁸ Jensen, Sonnemann, et al., 2016

I was a first-year teacher when the performance standards were introduced. When my principal asked me a question about what the reading performance standards would mean for my teaching, I couldn't answer it. I had never seen the performance standards before and I did not know what they were or how to use them. When I joined NOII I began to develop an understanding of the performance standards and how to use them in the classroom. I learned that performance standards are how teachers plan for student learning. The performance standards would have just stayed on my shelf if they hadn't been brought into the inquiry process through NOII.³⁹

The Spiral of Inquiry helped teachers to understand how to use the performance standards to support student learning. Almost 20 years later, the performance standards are widely used in the province, and many teachers who have taken part in improvement cycle approaches such as NOII have developed a deep understanding of how student learning progresses.⁴⁰ These experienced teachers no longer necessarily even refer explicitly to the performance standards; instead, they have simply become the basis of the teachers' understanding of student learning progression, and the focus of their collaborative work with their peers. This system-wide learning has provided the foundation for the next wave of curriculum reforms that are now being implemented.⁴¹

Japan

In Japan, a school-based improvement cycle process known as lesson study is commonly used to support implementation of the Japanese national curriculum, called Courses of Study. The process involves groups of teachers using an improvement cycle to deeply analyse lessons and to assess the impact of teacher practice on student learning. Each school involved in lesson study establishes a research theme – a broad, shared learning-teaching goal that goes beyond a topic or grade level and reflects an “entry point” for achieving that goal:

For example, teachers seek to improve their students' ability to give a viable argument and to critique the reasoning of others. Their entry point is teaching students to use journals to record their own ideas and the ideas of others. A complete statement of the theme should be short enough to be memorable, such as: “For students to be able to clearly explain their thinking and consider the ideas of others through the support of their own journals.”⁴²

Working in teams, teachers begin by carefully reading the relevant research, and examining available curricula and instructional materials. This process of *kyouzai kenkyuu*, or “study of materials for teaching,” includes an examination of the relevant achievement standards and an “investigation of the intended learning trajectory related to the topic from lower to higher grades.”⁴³ In other words, teachers work together to understand what students are expected to know and be able to do at each grade level.

Teachers draw on this research to design a lesson that is focused on teaching a concept or skill, especially one students might be struggling to grasp, while also addressing the broader research theme. One teacher teaches this “research lesson” while other team members observe. A post-lesson discussion focuses on how students responded to the lesson and how their learning progressed.⁴⁴

The goal of lesson study is not to create the perfect lesson but to create school cultures and professional practices that continually evaluate and develop teaching anchored in student learning of the curriculum. Japan has successfully used lesson study to make several major curriculum changes, such as the inclusion of solar energy in the science curriculum and substantial increases in mathematics content.⁴⁵ School-based lesson study is complemented by district and national lesson study, which focus on

³⁹ LF interview with British Columbia system leaders, April 2017

⁴⁰ LF interviews with teachers and system leaders in British Columbia, April 2017

⁴¹ For more information, see Magee & Jensen, 2018

⁴² Takahashi & McDougal, 2016

⁴³ Takahashi & McDougal, 2016

⁴⁴ Takahashi & McDougal, 2016

⁴⁵ Lewis & Takahashi, 2013

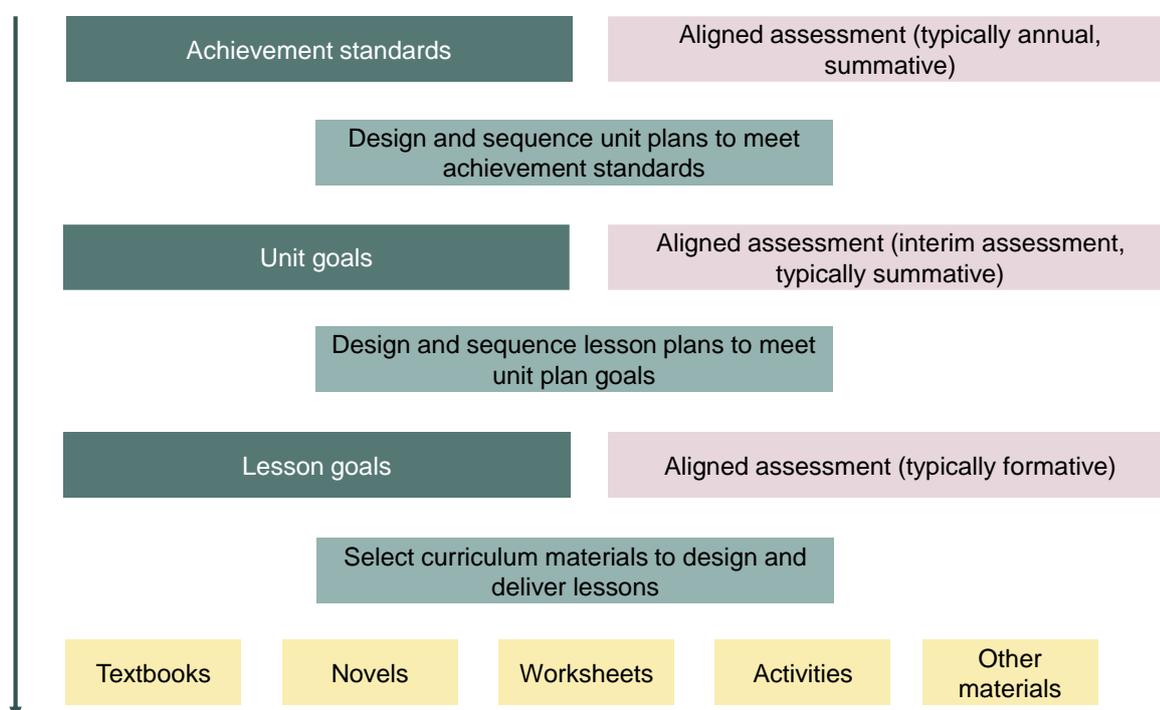
exemplary lessons related to especially challenging and important material. These forms of lesson study also enable teachers and research institutions to build networks across schools, strengthening coherence and spreading best practices throughout the system. This form of the improvement cycle has been a powerful vehicle for reform in Japan.

5 International approaches to the development of quality curriculum

Systems can choose what kind of curriculum they provide to address the challenges laid out in this report. The curriculum support provided to schools, however, looks different depending on the system. Some systems provide detailed, quality-assured curriculum materials, such as textbooks, to help teachers design and deliver lessons. These lessons, in turn, are aligned with rigorous achievement standards that reflect expectations of what students should know and be able to do. Other systems are less prescriptive but ensure that teachers have access to learning progressions or other scaffolding to enable them to develop their own standards-aligned curriculum.

There is no one-size-fits-all approach to the development of quality curriculum. The best approach for each individual system will depend on several system-specific variables, including trends in student outcomes, workforce capability, system capacity to connect schools with relevant expertise, political context, the success of past attempts at curricular reform, and accountability structures and how they influence behaviour. Policymakers should, however, be clear about the implications of their decisions for teacher practice. Figure 3 below outlines the steps required to align curriculum with standards. If school systems are not taking these steps and making quality curriculum available to teachers to adopt or adapt, then they are requiring teachers and school leaders to take these steps on their own. If schools are expected to develop their own high-quality, standards-aligned curriculum, systems should ensure they have the time, support and expertise to do so.

Figure 3: Aligning curriculum to standards



Examples from British Columbia, Queensland, Japan, and Singapore illustrate four different approaches to curriculum development that enable effective implementation through connected professional learning.

British Columbia, Canada

The Canadian province of British Columbia (BC) has historically provided rigorous, province-wide 'learning standards' (achievement standards), but not detailed advice on unit or lesson goals. BC has recently undertaken a major curriculum reform in order to "transform its education system to one that better engages students in their own learning and fosters the skills and competencies students will need to succeed" in the modern world.⁴⁶ In practice, this has meant removing some detail from the previous curriculum in order to make it less prescriptive for teachers.⁴⁷ The new curriculum still provides rigorous standards for what students should know, understand, and be able to do, but they are "less rigid, less detailed, and less focused on minor facts."⁴⁸ The new curriculum for each subject and year level is only about a page long, and contains several "Big Ideas" (representing what students will understand), as well as learning standards under the headings "curricular competencies" (what students will be able to do) and "content" (what students will know).⁴⁹

Teachers are expected to develop their own standards-aligned curriculum, including day-to-day lesson plans and student assessments. They are supported in this process by the Ministry's performance standards, which the Ministry developed in partnership with teachers. These performance standards are still widely used, even though they are aligned with a previous version of the BC curriculum. The standards "describe the professional judgments of a significant number of BC educators about standards and expectations" for reading, writing, numeracy, social responsibility and healthy living.⁵⁰ Because they are agreed upon across the province, the learning tasks and assessment rubrics that teachers create from them reflect a common understanding of student learning progression.

Queensland, Australia

In Queensland every state school has access to detailed curriculum documentation, including lesson plans and assessments, via C2C. State-wide policy sets an expectation for every school to develop curriculum planning at three levels – whole school, year level and unit level.⁵¹ C2C provides a clear model for what curriculum planning should look like at each of these levels.

Planning at each level of C2C is directly linked to the Australian Curriculum through the mapping of Australian Curriculum standards to curriculum tasks which students complete to demonstrate their learning. School leaders are invited to adopt C2C planning at all three levels or to adapt C2C planning within the model provided.

The C2C assessment plan includes assessment tasks appropriate to each year level which provide students the opportunity to demonstrate learning aligned to the standards of the Australian Curriculum. Each learning area has a small suite of curriculum tasks which collectively allow students to demonstrate the whole of the standard. Levels of achievement are awarded based on the learning students demonstrate within these tasks.

Teachers are supported to understand expectation of teaching and learning through the provision of standards-aligned curriculum and marking rubrics, called guides to making judgement. Guides to making judgement define what student learning looks like when it is at, above and below the relevant standard.

⁴⁶ British Columbia Ministry of Education, n.d. Full transition to the new K-9 curriculum began in September 2016. 10-12 draft curriculum available, full transition will occur in September 2018. For more information, see Magee & Jensen, 2018

⁴⁷ British Columbia Ministry of Education, 2015f

⁴⁸ British Columbia Ministry of Education, 2015

⁴⁹ British Columbia Ministry of Education, n.d. For more information about curriculum reform in British Columbia, see Magee & Jensen, 2018

⁵⁰ British Columbia Ministry of Education nd

⁵¹ Queensland Department of Education, 2018

They give students, teachers and school leaders alike confidence that they understand exactly what it looks like when student learning meets the standards.

In Queensland, teachers are expected to work together to “moderate” assessments, or calibrate what constitutes a grade of A, B, and so forth. These collective marking processes deepen understanding about the use of guides to making judgments and the expected standards of student learning.

Japan

The Japanese position their school curriculum as a national standard to ensure equality of educational opportunity for all students.⁵² The curriculum, known as the Courses of Study, is a minimum standard for kindergarten to upper secondary that aims to “maintain a uniform level of school education throughout Japan.”⁵³

The Courses of Study are carefully calibrated to ensure they are developmentally appropriate and continually build on key skills and knowledge in each subject area.⁵⁴ Teachers use the relevant Course of Study documentation to design their own lessons and assessments of student learning.⁵⁵

Each Course of Study is categorized by subject area, and contains overall objectives for the subject as well as specific objectives and content for each grade level. For example, the Course of Study for Grade 3 science specifies “Matter/Energy” and “Life/the Earth” as two key content areas, and articulates what students should know about each. A section on “Handling the Content” provides advice on lesson design. For example, to convey information relevant to points of content the Grade 3 Science Course of Study specifies that “pupils must raise insects and grow plants” and “only summer annual dicotyledonous plants should be used.”⁵⁶

Japanese prefectural boards (similar in size to US Districts) of education are responsible for selecting curriculum materials aligned with the Courses of Study, although only after the national Ministry of Education has first vetted and approved all possible choices.⁵⁷ The prefectural boards of education make these instructional materials, including textbooks and teaching manuals, available to all schools, but teachers are not required to use them. They may refer to these instructional materials for an unfamiliar topic, but they might not use them at all in areas in which they are confident.⁵⁸

Singapore

The Singaporean Ministry of Education develops the national curriculum. The subject syllabi into which the curriculum is divided are comprehensive, typically containing subject objectives, learning outcomes, and guidance on pedagogical approaches and assessment tasks and criteria.⁵⁹ The curriculum also includes the holistic “Desired Outcomes of Education,” which are “attributes that educators aspire for every Singaporean to have by the completion of his formal education” and which provide a measure of the health of the school system.⁶⁰

The subject syllabi provide teachers with a wealth of detailed information on all elements of the curriculum, from achievement standards to suggested learning activities. Yet it is up to schools and teachers to

⁵² Nakayasu, 2016

⁵³ Nakayasu, 2016, p. 136

⁵⁴ National Center on Education and the Economy, 2017a

⁵⁵ National Center on Education and the Economy, 2017a

⁵⁶ Ministry of Education, Culture, Sports, Science and Technology: Japan, n.d., p. 4

⁵⁷ Ota, 2000

⁵⁸ LF Interview at Ageo Primary School in Saitama, November 2015

⁵⁹ See, for example, Singapore Ministry of Education, 2008

⁶⁰ Singapore Ministry of Education, n.d.; National Center on Education and the Economy, 2017b

customize lesson plans to suit the needs of their students. For example, schools make local decisions about the curriculum materials, such as textbooks, they wish to use for each subject. The Ministry of Education maintains a list of approved textbooks for Principals, Heads of Department, Year Level Heads and Subject Heads, and the Ministry strongly encourages schools to select textbooks from this list.⁶¹ This list is subject to strict quality control, so schools have confidence that the materials they select are aligned with the national curriculum.

The emphasis on teacher autonomy in lesson design has increased since 2005 with the launch of the “Teach Less, Learn More” policy. Its overarching principle was to guide teachers away from rote learning and repetitive tests. Instead, schools would have more “white space” in the curriculum and “the room to introduce their own programs, inject more quality into teaching, reflect more and have more time to prepare lessons.”⁶² Yet teachers were not expected to navigate this change alone. A Ministry Toolkit for Engaged Teaching and Learning guided schools on pedagogical approaches, learning experiences, classroom environments, assessment practices and content to support student engagement in learning.⁶³

In 2008 the Ministry also introduced the Teach Less, Learn More “Ignite” fund, which provided financial incentives for curriculum customization, differentiated instruction, and student inquiry. By the end of 2010, about three quarters of schools had taken up these Ministry resources to support curriculum innovations relevant to students’ learning needs.

⁶¹ Singapore Ministry of Education, 2016

⁶² Ng, 2017, p. 93

⁶³ Ng, 2017

6 Conclusion: how curriculum focuses teacher learning on student learning

Effective education strategy requires a clear vision and then practical steps for how to achieve it. Yet many strategies are too high-level and fail to affect classrooms. This report shows how viewing policies in isolation can prevent meaningful improvement, while being explicit about the links between curriculum development and teacher professional learning can lead to continuous improvements in teaching and learning.

Effective teacher professional learning incorporates both an improvement-cycle approach and high-quality standards and curriculum. It enables teams of teachers to assess student learning needs, to choose and new teaching approaches to address a challenge of practice, to evaluate what happens, and to improve their teaching based on what they learn. These steps reflect the best available evidence about how adults learn and how teachers continuously improve, but these steps will never be effective unless teacher professional learning is grounded in the curriculum. If not, then improvement cycles will fail. If so, teacher professional learning has the potential to make a major impact on teachers' daily practice and student learning.

This is easier said than done. A loose connection between the improvement cycle and general learning issues (like “literacy” and “numeracy”) will not work. Only rigorous standards and curriculum will connect teacher professional learning to student learning and thereby increase its impact in classrooms. They help teachers to understand systemic expectations for student learning progression by demonstrating what students should know, understand, and be able to do at each stage of learning. They establish a collective understanding of student learning progression and lay the foundation for teachers to collaborate in the development of instruction to meet identified student learning needs.

School systems must be clear about the steps people must go through (in an improvement cycle) to continuously improve their practice. For this to occur, systems must also be clear on *what* needs to be taught, *how* it should be taught, and *how teachers will know* when students will learn it. They must understand what is required to align curriculum to standards and maintain the systemic vision for student learning down to the classroom level. This does not mean that systems should dictate to schools everything that will happen in a classroom. It does mean that systems must either develop high-quality curriculum for teachers to adopt or adapt as required, or ensure schools have the substantial resources required to do this themselves. Failing to do so is a critical mistake that undermines school improvement reforms – including the significant investments in teacher professional learning.

For many years, systems have struggled both with curriculum reforms that are poorly implemented and with professional learning that is disconnected from classrooms. By focusing on the interaction between the curriculum and professional learning, we can use both to ensure that student learning continues to improve.

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