

Chapter 1

Thinking Multidimensionally About Ambitious Educational Change



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Abstract As the demands for civic and economic participation increase, the result of technological, economic and social transformations, and in response to a rapidly changing world and to new challenges, many governments have turned to schools to provide students with opportunities to develop the skills necessary to thrive. This chapter traces the roots of education reforms that seek to develop a breadth of skills, to educate the whole child, reviewing the emergence of the field of comparative education as the first public education systems were created, and examining the role of the international development architecture built after world war II in advancing the global education movement. The chapter then examines the more recent efforts to develop twenty-first century skills. It then introduces the present comparative study of education reforms in Brazil, Finland, Japan, Mexico, Peru, Poland, Portugal and Russia, describing the basic tenets of each of those reforms. The chapter then examines how instruction and learning compare in these countries, using data from the latest survey of teacher practices conducted by the OECD (TALIS – The OECD teaching and learning international survey. <http://www.oecd.org/education/talis/>. Accessed 3 Dec 2019).

The core argument of the chapter is that education reforms can be framed in five alternative ways, depending on which elements of the process of educational change they highlight: cultural, psychological, professional, institutional and political. Each of these frames is explicated and used to discuss the reforms examined in this book. The analysis shows that in practice, none of the reforms adopts a comprehensive multidimensional approach that draws from these five perspectives. Institutional and political perspectives are more common, and cultural and psychological perspective less so.

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1.1 Introduction

The question of what goals should animate the efforts to educate students is as old as the first educational institutions themselves in many different societies and civilizations. Educational institutions exist to serve a variety of purposes and it is with respect to those purposes that it is possible to make decisions about how to educate. For most of human history, the purpose of educational institutions was to educate only some members of society, typically those expected to take on leadership positions of some sort - political, religious or administrative.

As the idea that schools should educate many, perhaps all, of the younger members of a society took hold and led to the creation of national systems of education in the eighteenth century in Europe, questions of purpose resurfaced with new urgency. Given the need to figure out what to teach all children and how to do it, some education leaders saw value in learning from the experience of various jurisdictions, thus beginning the field of comparative education.

John Quincy Adams, for example, a diplomat and the sixth president of the United States, published a series of observations of the schools in Prussia in his book 'Letters on Silesia' in which he described for his contemporaries in Boston how these institutions had been set up and funded. In a letter written in Berlin, dated March 7th 1801, Adams describes admiringly the success of Frederick the II, who ruled Prussia from 1740 until 1786, in instituting a system of publicly funded schools to educate all children, for the purpose of teaching them to read and introducing them to science. In his letters Adams explained how the spread of literacy increased the circulation of newspapers, which would serve as avenues of lifelong learning. Adams described how providing school masters with a public wage, enabled the creation of schools for elementary instruction of all classes of people. Further, he notes the creation of the public school drove the search for specialized preparation for schoolmasters, so they could become more effective teaching all students to read. In response to this need for specialized and effective training, Adams reports, an Augustine monk, Felbiger, devised an effective method of instruction which was disseminated at these normal schools to prepare teachers. Adams talks admiringly about Frederick the II, 'the greatest general of his age, eminent as a writer in the highest departments of literature, descending, in a manner to teach the alphabet to the children of his kingdom, bestowing his care, his persevering assiduity, his influence and his power, in diffusing plain and useful knowledge among his subjects, in opening to their minds the first and most important pages of the book of science.' (Adams 1804, pp. 371–372).

About the same time that John Quincy Adams was writing admiringly in Silesia of Frederick II's efforts to establish a public education system to educate all children, Marc Antoine Jullien, a French journalist, politician and diplomat, was writing in Paris about educational purposes and methods as public education systems were being established in Europe. Jullien studied the perspectives on the aims of education of two leading educators at the time: Johann Heinrich Pestalozzi and Joseph Lancaster (Jullien 1812). Pestalozzi created an institute in Burgdorf Switzerland

committed to offering students a rich curriculum for the purpose of fostering the development of a wide range of capacities. Jullien corresponded frequently with Pestalozzi and sent three of his children to study at one of his institutes. Joseph Lancaster, in turn, had created an approach to educate all children at low cost, the monitorial method of instruction, in a more limited range of capacities. The free elementary school Lancaster established in Southwark, England, in 1798, served as the laboratory to develop the method he would describe in his book *Improvements in Education*, published in 1803. Jullien became a promoter of the monitorial system of education Lancaster had devised. So enthused was Jullien with the promise of such systematic study of various educational approaches to inform questions of educational purpose that he proposed a systematic survey of how schools were organized in diverse jurisdictions. He subsequently organized the documentation and exchange of diverse education approaches and developed proposals for the organization of public education (Jullien 1817a, 1835, 1842). He also shared his education publications with political leaders of his time, including Thomas Jefferson (Jullien 1817b).

As public education expanded across the world, learning from the experience of others became one of the strategies of those leading such expansion. In the United States, for example, Horace Mann, the first secretary of education of Massachusetts, wrote a report based on a study tour of Germany and France's education systems in 1843 which was pivotal in his campaign to establish public education in the state (Mann 1844). Similarly, Domingo Faustino Sarmiento, the first person to propose a public education system for the emerging independent republics in South America, did so after a tour to study the education systems in Europe and a visit to Boston to meet Horace Mann to discuss his ideas for the *Common School* (Sarmiento 1849).

It was such exchanges of ideas and comparative education experiences that supported the remarkable expansion of access to education which took place over the last century, particularly after education was included in the Universal Declaration of Human Rights adopted in December of 1948 by the newly created United Nations. Article 26 of the Universal Declaration of Human Rights, the milestone of the educational expansion which took place in the twentieth century, describes that right in this way:

- (1) Everyone has the right to education. Education shall be free, at least in the elementary and fundamental stages. Elementary education shall be compulsory. Technical and professional education shall be made generally available and higher education shall be equally accessible to all on the basis of merit.
- (2) Education shall be directed to the full development of the human personality and to the strengthening of respect for human rights and fundamental freedoms. It shall promote understanding, tolerance and friendship among all nations, racial or religious groups, and shall further the activities of the United Nations for the maintenance of peace.
- (3) Parents have a prior right to choose the kind of education that shall be given to their children.

In declaring that all have the right to elementary education, the article states that education should be directed to the full development of the human personality (as Johann Heinrich Pestalozzi had proposed) and in particular to the ethical goals of 'strengthening respect for human rights and fundamental freedoms... promot[ing]

understanding, tolerance and friendship among all nations, racial or religious groups...” (United Nations 1948).

The inclusion of the right to education in the Universal Declaration, and the establishment of UNESCO, the specialized United Nations agency to promote education, science and culture, had the effect of animating and supporting governments in advancing education for all in five ways: as a laboratory of ideas, disseminating and promoting good education practices, developing education standards, building capacity, and catalyzing international co-operation. These activities resulted in considerable adoption of norms and standards and in a significant transfer of knowledge about how to educate all children, for what purposes and in what way. The resulting expansion of education was dramatic. In 1945, before the establishment of UNESCO, the world’s population stood at 2.5 billion, of which less than half had any access to school. Seven decades later, with a world population at 7.5 billion, 85% had some access to school (Roser and Ortiz-Ospina 2019).

The transfer of knowledge which spurred such massive global transformation in educational opportunity is reflected in conference proceedings and in UNESCO publications. Some of the public documents reflecting this work were produced for particular countries and world regions, others had a global audience. For example, in the late 1980s, UNESCO’s regional office for education in Latin America and the Caribbean produced, in partnership with the United Nations Economic Commission for Latin America and the Caribbean, an education manifesto which focused on the need to align education with the twin objectives of advancing economic competitiveness in economies increasingly integrated into the world economy and based on knowledge, with the objective of advancing democratization (ECLAC-UNESCO 1992).

Two efforts stand out in UNESCO’s history producing documents that would respond to important global imperatives and drive education developments globally. By the end of the 1960s, educational access had increased significantly during the previous two decades. Such expansion was bringing about new questions about what goals should drive educational expansion.

In 1968, Phillip Coombs published the landmark report ‘The World Crisis in Education. A System’s Analysis’ in which he argued that education systems were failing to adapt to the velocity of social and technological changes around them (Coombs 1968). This book, which contributed the powerful idea that education systems should be understood as *systems*, was the product of a conference at Williamsburg, Virginia, convened in 1967 at the initiative of US President Lyndon B. Johnson by Cornell University president James Perkins. The conference convened 150 government leaders, university presidents, professors, researchers and social scientists from 50 countries. Coombs, who had been the first US Assistant Secretary of State for Education and Culture and was at the time of the conference director of UNESCO’s International Institute for Educational Planning (tasked with providing technical assistance to developing nations in expanding their education systems) wrote the paper which provided the intellectual framing for the

conference. The essence of the world crisis in education that the conference was convened to address was summarized by Coombs as follows:

The nature of this crisis is suggested by the words ‘change’, ‘adaptation,’ and ‘disparity.’ Since 1945, all countries have undergone fantastically swift environmental changes, brought about by a number of concurrent world-wide revolutions—in science and technology, in economic and political affairs, in demographic and social structures. Educational systems have also grown and changed more rapidly than ever before. But they have adapted all too slowly to the faster pace of events on the move all around them. The consequent disparity—taking many forms—between educational systems and their environments is the essence of the worldwide crisis in education. (Coombs 1968, p. 4)

Reflecting this emerging concern with the relevance of education, in 1970, in response to a mandate of UNESCO’s General Conference, which convened all education ministers from member states, the organization’s director general asked Edgar Faure, a former Minister of Education of France, to head an international commission to prepare a report on the future of education. The report put forth the humanistic idea that the fundamental goal of education should be to prepare students to be lifelong learners, as the commission anticipated a future of accelerating change and of growing expectations of economic and political participation from people (Faure et al. 1972). The recent memories of the student movements of the late 1960s in France, the United States and other countries undoubtedly shaped these views. Faure had been appointed Minister of Education at the height of the French student demonstrations in 1968. The ambitious goal of preparing students for lifelong learning opened up conversations around the world about which capacities would equip people for such a task.

The ambitions articulated in the 1972 Faure report, appropriately titled ‘Learning to Be’, would not materialize any time soon for many countries as during the 1980s many countries in the developing world experienced economic crises and adjustment programs which constrained social expenditures, including in education. Because of the resulting impact on social development, the period was termed ‘the lost decade’ by several scholars and analysts (Reimers 1990; Sims and Romero 2013). At the end of that decade, in 1990, UNESCO, other international development agencies, and multiple governments, organized an ‘Education For All’ conference, designed to re-animate the global commitment to education and to relaunch investments in education. A few years later, as part of the same efforts to reanimate global enthusiasm for education, UNESCO’s director general asked former European Commission chairman Jacques Delors, to head a commission that would draft another global manifesto proposing directions for education. The result of a massive effort of global consultations spanning 3 years, the Delors Report, published in 1996, proposed an audacious vision of education anchored on the concept of ‘learning throughout life’ and on four goals for education: learning to know, to do, to be and to live together (Delors 1996). That report too sparked global conversations about the need for a broader and more ambitious set of goals to animate government’s efforts in educating all children.

A year after the Delors report was published, and as national and global conversations began to take on its recommendations to think more ambitiously about what human capacities schools should develop, the Organization for Economic Cooperation and Development launched an undertaking that would lead to greater operational clarity with regards to such capacities, the Definition and Selection of Competencies Project (known as the DeSeCo Project). The result of this expert consultation was to identify key competencies and help define overarching goals for education systems and lifelong learning (Rychen and Salganik 2001, 2003). The DeSeCo Project identified as key competencies: interacting in socially heterogeneous groups, acting autonomously and using tools interactively. It argued that each competency has an internal structure comprising various domains, for instance, the ability to cooperate encompasses: knowledge, cognitive skills, practical skills, attitudes, emotions, values and ethics and motivation related to cooperation (Rychen and Salganik 2003, p. 44).

The Delors Report and the DeSeCo Project, and similar national efforts undertaken in various countries to revisit what capacities would be necessary to participate in a rapidly changing world, influenced governments to revisit national standards and curriculum frameworks. Complementing those efforts, OECD's Program of International Student Assessment, which started concomitantly with the DeSeCo project, generated further interest on the knowledge and skills that students around the world had gained by the age of 15 (OECD 2019b).

More recently, the OECD undertook an initiative, Education 2030, aimed at developing a consensus on competencies that schools should cultivate (OECD 2018). Similarly, the UN Sustainable Development Goals, under the goal for education, emphasize education quality with a series of ambitious specific targets such as educating for environmental sustainability and global citizenship. UNESCO has recently established an expert international commission to develop a new framework for education purposes.

The last two decades have consequently seen remarkable transformation of public education systems around the world. Governments have focused more resources and attention on education, attempted more ambitious goals for education, and undertaken numerous innovations to achieve the ambitious goals of preparing students for the twenty-first century. This enhanced education activity provides a trove of comparative experience about how governments approach the question of aligning public education systems with more ambitious goals. Learning from such comparative experience is the goal of the Global Education Innovation Initiative I lead at Harvard University. A collaborative with research institutions in several countries, we have carried out a series of studies to learn from such efforts to reform public education systems. This book presents the results of one of those studies, comprising an analysis of national education reforms in Brazil, Finland, Japan, Mexico, Poland, Portugal, Peru and Russia. Previous studies have examined national curriculum reforms and programs of teacher professional development in Chile, China, Colombia, India, Mexico, United States, and Singapore (Reimers and Chung 2016, 2018).

These countries were chosen because, together, they enroll a considerable population of school-age children, their education systems are at various stages of

institutional development, they all had attempted ambitious education reforms, and there was sufficient evidence in all of them, including evidence regarding student learning outcomes, to conduct studies with a sound empirical grounding in terms of how education reforms were implemented and in terms of the realities of instruction and student learning. In addition, the selection of countries covered by the Global Education Innovation Initiative included identifying institutional and individual partners in each country with the interest, capacity and resources to carry out the studies. As with most selection of countries to be included in a comparative study, ours is arbitrary, it is not a random selection of countries around the world, or a selection intended to be representative of reforms around the world. Our selection of convenience does attempt to include countries from diverse regions of the world and countries at various stages of education development and effectiveness. The countries we studied vary considerably in terms of per capita income, or in terms of per student expenditure. Similarly, the countries included in this study include some which had long achieved almost universal enrollment in primary and secondary, as well as others where such universal access was more recent, or even not yet realized. In terms of levels of student knowledge and skills as measured by the OECD's Programme of International Student Assessment, the countries covered in this book include those where students achieve at the highest levels in the world distribution of student achievement as well as at the lowest levels, with countries in which students perform in the middle of the world distribution of PISA scores. In the most recent administration of the PISA assessment, Finland, Poland and Japan, are among the 18 OECD countries whose students on average perform above the OECD average, whereas Brazil, Mexico, Russia, and Peru, are among the countries whose students on average perform below the OECD average (OECD 2019a, b, Table 1.1). At the same time, the countries studied include countries where student achievement increased since PISA was first implemented in 2000: Poland, Portugal, Mexico, Russia, Brazil and Peru; as well as countries where student achievement decreased: Finland and Japan (Ibid). Table 1.1 summarizes the average levels of students achievement and of change over time for the countries in the study and for the OECD on average.

Purpose and Content of This Book

In this book we study how governments in eight countries approached the transformation of public education systems to help students gain a broader range of competencies which would equip them for civic and economic participation as economies and societies become more complex. We examine the elements that were included in the design of those reforms, including changes in curriculum, student assessments, teacher and principal supports, the organization of schools, and other structures aimed at achieving new learning outcomes. We also examine what is known about the implementation of those reforms, including how they were received, what challenges they faced, and, when available, evidence on the results these reforms achieved. We hope that studying how various countries have reformed education will be useful to policy makers leading educational reforms in the future, and of interest to scholars of the process of educational change. In particular, we hope the

Table 1.1 Average levels of student achievement in PISA in 2018 and average rate of change since 2000

	Mean score in PISA 2018			Long-term trend: Average rate of change in performance, per three-year-period			Short-term change in performance (PISA 2015 to PISA 2018)		
	Reading	Mathematics	Science	Reading	Mathematics	Science	Reading	Mathematics	Science
	Mean	Mean	Mean	Score dif.	Score dif.	Score dif.	Score dif.	Score dif.	Score dif.
OECD average	487	489	489	0	-1	-2	-3	2	-2
Finland	520	507	522	-5	-9	-11	-6	-4	-9
Poland	512	516	511	5	5	2	6	11	10
Japan	504	527	529	1	0	-1	-12	-5	-9
Portugal	492	492	492	4	6	4	-6	1	-9
Russia	479	488	478	7	5	0	-16	-6	-9
Mexico	420	409	419	2	3	2	-3	1	3
Brazil	413	384	404	3	5	2	6	6	3
Peru	401	400	404	14	12	13	3	13	8

Source: OECD 2019b PISA 2018 Results (Volume I) – Table I-1 Snapshot of performance in reading, mathematics and science Pages 17–18

Values that are statistically significant are marked in bold

study of how education systems take on an ambitious set of goals, intended to make education more responsive to the demands of a changing external environment, will illuminate the dynamics of educational change and increase our understanding of educational institutions. Much of the pre-existing knowledge, largely based on the study of attempts to reform education in the United States, argues that educational institutions change very little in response to policy mandates, particularly in terms of transforming the basic grammar of schooling (Tyack and Tobin 1994; Tyack and Cuban 1995; Olson 2003). Richard Elmore’s conclusion about why most education reforms in the United States have failed to influence instruction illustrates this perspective:

a systemic incapacity of U.S. schools and the practitioners who work in them, to develop, incorporate and extend new ideas about teaching in anything but a small fraction of schools and classrooms. This incapacity, I argue, is rooted primarily in the incentive structures in which teachers and administrators work. (Elmore 1996, p. 1)

This perspective on the prospects of change in the United States is congruent with the evidence that student achievement levels in assessments such as PISA have not significantly changed in two decades, as seen in Table 1.1. Canada, another jurisdiction on which much of the published knowledge of the process of educational change is based, is also a country in which levels of student knowledge and skills as measured by PISA have remained flat over the last two decades (OECD 2019b, Table I.1). However, given that levels of student knowledge and skills, measured with the same assessments, have increased significantly in countries such as Poland, Portugal, Peru and Russia, it stands to reason that the knowledge about the process of educational change developed from the study of the US or Canadian experience might be inherently limited to account for the same process in other

jurisdictions, in a nutshell it is knowledge largely based on reforms that have failed to produce significant change in student learning outcomes.

The thesis of this introductory chapter, illustrated by the case studies presented in the chapters which follow, is that when government leaders reform education they depend on models of the education system which highlight one or several of the following dimensions: **cultural, psychological, professional, institutional, or political**. Theoretically, this multidimensional framework which I develop more fully in another recent book (Reimers 2020) serves three purposes. The first is to help examine the internal coherence of the analysis and planning of the process of change from the perspective of each of these five dimensions, if a reform follows an institutional logic, is it coherent? is it complete from the standpoint of an institutional perspective? If it follows a psychological perspective, is it coherent and complete? The second purpose this multidimensional framework serves is to offer an opportunity to comprehensively address the process of change as viewed from each of these five dimensions. Are there elements of the change process which help better understand how a reform was designed or how it was implemented through one of these perspectives than through others? The third is that thinking about the interdependence of these five dimensions can help sequence the phases in a strategy of educational change and the process of change itself, these models are complementary to each other and thinking of reform as a five-dimensional chess game can make the process of change more effective than viewing the same process through a singular lens. The chapters in this study reveal that while all these dimensions are helpful to illuminate certain aspects of the education system and of the process to change it, no reform in this study demonstrates a comprehensive approach that encompasses actions reflecting all of these five dimensions.

Examining the reforms discussed in this book through this framework reveals that, in practice, these reforms are approached through one or two of these perspectives, but seldom use all of them comprehensively. Examined from the logic of the perspectives used by the reforms, coherence is often elusive. These chapters also illustrate that the strategies followed to transform public education lacked a clear and coherent staged sequence of the process of educational change. In spite of these deficiencies, however, these cases show that governments have the power to significantly transform educational institutions, through rules, regulations and allocation of financial resources, and that they are decidedly pursuing an education that attempts to equip students with a broader set of competencies than has been the norm in the past. The cases also illustrate the globalization of reform institutions. Similar ideas animate the various efforts examined in this book, such as the desire to insert in the curriculum a series of transversal competencies focusing on socio-emotional domains. Also, similar instruments and organizations play a role supporting these efforts. For instance, the OECD and the cross-national assessments they sponsor are part of the repertoire used by reformers in most of the cases examined in this book.

It should be noted that the reforms studied in this book are at various stages of implementation, although all of the reforms studied have been on the government agenda for at least one presidential term. The reforms in Brazil and Mexico, for instance, are at more incipient stages than those in Japan or Poland. The length of

the cycles of reform reflected in this book also varies, from those that may not survive a single presidential administration (Brazil or Mexico), to those that span decades (Japan or Russia). Some of the reforms are in fact long policy cycles which include distinct stages in a long arc of reforms (Finland, Japan, Portugal and Russia).

To plan this study, the authors convened at a conference at which we developed a common approach to the national case studies based on our then emerging theories of how governments had approached educational change and on the findings of the previous two cross-national studies of the Global Education Innovation Initiative. Based on that framework they collected and analyzed the evidence presented in these chapters. The collective revisions, and collegial discussion and feedback to these drafts, enhanced the intellectual coherence of the final product.

We used a common thematic outline to conduct the studies and draft the chapters presenting the findings covering the following topics:

1. What was the purpose of the reform? what time frame was covered by the reform?
2. What is the core argument about reform supported by this case? what sources of evidence were used?
3. What Context preceded and gave rise to the reform? What this a reform part of the agenda of a new government? A response to an economic crisis? What were the educational antecedents of this reform? What were the factors which gave impetus to a reform agenda? Were there international influences of any sort? Did international evidence or ideas influence the context?
4. Description of the reform: what were the intended goals, what were the key components of this reform (change in law, budget, curriculum, assessment, etc.), what was the underlying theory of change of the reform? Who participated in the design of the reform and in its implementation?
5. In what way did the educational goals of the country's reform relate to the idea of twenty-first century skills or breadth of skills or cognitive and socio-emotional development? Which specific outcomes and skills were emphasized in the reform?
6. Which specific components of the reform are directly related with the development of twenty-first century skills in students? How are they implemented? Description of specific programs that develop twenty-first century skills. (Curriculum, assessment, school autonomy, partnerships, specific programs in schools such as project based learning or specific programs of teacher professional development)
7. What were the various stages of implementation of the reform? Who participated? How are governments (federal/local) coordinating with other stakeholders?
8. What is known about the politics of the reform? Which factors supported implementation? Which impeded it?
9. What do we know about the results of the reform achieved so far? Have they been evaluated? What are the challenges?

Chapter 2 presents Brazil's efforts to transform the curriculum. A coalition of individuals and organizations in civil society, government and universities, successfully advocated for a set of national curriculum standards. The development of those

standards took place over a five-year period, between 2013 and 2018. The low levels of performance of Brazilian students in national and international assessments of student knowledge and skills provided the motivation for this social movement. A private foundation organized this movement to develop a common core. Study trips were organized to learn from the experiences with common standards in the United States, and experts from Australia, Chile, and Canada shared the experiences in those countries with the Brazilian leaders of the reform. The standards focused on ten competencies that would cut-across the various subjects. This effort built on earlier attempt at developing common standards in the late 1990s, which provided schools with a series of documents presenting those standards for optional use, as schools have statutory autonomy over pedagogical matters. The underlying theory of change of this effort was that a national common core would allow alignment and coherence among local curricula, teacher preparation, instructional resources and student assessment. The curriculum was developed by a large committee of university professors, teachers, education administrators at the state and municipal level, and other educators and went through three rounds of consultations over several years. A draft was presented for feedback via an online consultation in which over 200,000 teachers participated. The curriculum was revised based on that feedback. Subsequent feedback rounds included a second consultation on a draft to the states and municipalities, and a third consultation in the form of a series of public hearings with stakeholder groups such as unions, associations, universities, and others. The third version of the curriculum incorporated a series of transversal competencies such as lifelong learning, critical thinking, aesthetic sensibilities, communication skills, digital literacy, entrepreneurship, self-care, empathy, citizenship and ethics. A presidential transition resulted in narrowing the focus of the standards exclusively to early childhood and primary education (up to the age of 14), postponing the standards for secondary education for another year. The scale of the country and the complex distributed nature of educational governance have been a challenge for the implementation of those standards. As a way to support state level writing of curriculum aligned to those standards, the ministry of education is financing training and offering support to curriculum writers and encouraging collaboration in curriculum development between state departments of education and municipal departments. A federally funded national textbook program was another instrument to translate the national standards into actual lesson plans, though they may not reflect the state and city designed curriculum. At present, schools of education, who oppose the standards, have not aligned teacher education to them. A resolution of the national education council mandates that assessments are aligned to the national standards.

Chapter 3 analyzes Finland's reform to address twenty-first century education through revisions to the curriculum and teacher preparation. The Finnish government initiated a process of curriculum re-design following a careful analysis and debate on which competencies were necessary for the twenty-first century and building on OECD's work through the DESECO project and other relevant analyses of the twenty-first century competences and learning. The re-design was prompted by declining student performance in PISA assessments and shortcomings in

pedagogy and teacher collaboration identified by TALIS (the OECD Teaching and Learning International Survey). In a governance structure where curriculum is a shared responsibility between the national and local level and schools and teachers have ample autonomy, the approach to designing and implementing these changes was highly collaborative and participatory. Technology was used to engage a diverse, large number of participants in the curriculum revision process. A number of government-funded pilots were used to test some of the ideas generated in the participatory process.

A strength of the reform process in Finland was its highly participatory nature, involving schools of education, university faculty from various disciplines, teachers, school principals, teacher educators, the ministry of education, and teacher unions. Also distinctive was the reformers' thoughtful consideration of existing research on twenty-first century skills to help them identify a set of transversal competencies which were the basis of the curriculum redesign and the design of teacher professional learning. The reform of the basic education curriculum created explicit objectives to develop twenty-first century competencies for each of the subjects and proposed a new curricular space in which schools would develop local curriculum for interdisciplinary integration in project-based activities, which are supportive for learning of transversal competences. To support local innovation in curriculum redesign, a network was established to foster cross-school collaboration. Evaluation and research played a central role in identifying the shortcomings that the reform needed to address at multiple levels: students, classrooms, teachers, schools, cities and society, as well as in assessing implementation of the national core curriculum at the local level and identifying challenges in integrating transversal competencies into pedagogy. The reform focused on the following transversal competencies: taking care of oneself, managing daily life, multiliteracy, digital competence, working life competence, entrepreneurship, participation, building a sustainable future, learning to learn, and cultural competence. A highly participatory and collaborative process was also followed to generate a strategy to align teacher education and professional development with twenty-first century competencies. A number of pilot projects to develop those competencies were funded and evaluated by the education evaluation center.

Chapter 4 studies Japan's comprehensive set of reforms to align education with a broader set of curriculum standards, including school evaluation, the introduction of national student assessment systems, teacher education, reforms in university admissions exams, curriculum reform, greater community participation in school governance and additional supports for low performing schools.

The roots of these reforms go back to a 1984 report which recommended shifting from rote learning towards fostering autonomy. Public support for these reforms waned when Japanese students scored at low levels in PISA assessments in 2003 and 2006. Since Japan introduced additional supports for low performing schools, performance of Japanese students in the PISA assessments topped the global ranking. The changes in school governance focused on creating mechanisms which allowed greater autonomy for schools, and principals in particular. During the reforms of the 1990s, to support the implementation of the new curriculum focused

on developing student agency, higher order cognitive skills and problem-solving skills, national and municipal projects supported teacher education and created model schools for pedagogical research. The transition from knowledge acquisition to knowledge application was challenging for many schools. During the 2000s the curriculum reforms diminished the content of the curriculum in order to create a period for integrated study to provide more time for independent learning and thinking. Each school would decide how to use the period for integrated study. Academic performance of students declined with the reduction in instructional time. A new set of curriculum standards in 2010 broadened the set of competencies reflecting international policy discourse. Together with the introduction of an evaluation system, the governance reforms increased the autonomy of the board of education and schools for the implementation of the reforms.

Chapter 5 examines Mexico's comprehensive education reform, part of a series of structural reforms undertaken during the Presidential administration of 2012–2018. The reform included the creation of mechanisms to professionalize the teaching profession, the elimination of the teacher union's role in teachers' appointments, and an ambitious new curriculum focused on twenty-first century skills. While the reform did spell out which teacher capacities were essential and should be assessed, the investment in teacher development was modest relative to what was necessary to develop the capacities necessary to teach the new curriculum.

A trigger for the reform were the well-known low levels of performance and inequality in educational outcomes, documented by national and international assessments, as well as information on the pedagogical practices and teacher initial preparation of teachers documented by OECD studies of teachers' characteristics and pedagogy (OECD 2019a). The reform included five components: a new curriculum, more autonomy for schools and a clear focus on learning, teacher career pathways including a reform of teacher education, a focus on equity and inclusion, and governance supporting more participation by families. The teacher career reform has been the most controversial aspect of the reform, because it required the introduction of teacher performance assessments.

The curriculum reform has a decided focus on twenty-first century skills, and the objective of making education relevant to the needs of the twenty-first century appears centrally in all key reform documents. The curriculum standards included the following cognitive, interpersonal and intrapersonal skills: language and communication, mathematical thinking, understanding the natural and social worlds, critical thinking and problem solving, socio-emotional abilities and personal goals, team work and collaboration, citizenship and social life, creativity and artistic appreciation, health care, environmental care and digital abilities. Performance standards for each of these were developed for each of the four cycles of compulsory education: preschool, primary, secondary and high school. These goals were submitted for public consultation and were then broadly communicated to educators and other stakeholders. The ministry of education developed a competency framework aligned to those standards. The framework has three domains: academic knowledge, social and personal development (which includes socio-emotional learning) and curricular autonomy to allow for school level curriculum planning, so

as to cater to the educational needs and individual interests of students. By the time the implementation reform began, the administration had only 18 months left in office. The curriculum was broadly disseminated through online courses, though there was no specific effort to build pedagogical skills to teach the new competencies. The reform design and implementation were top down, with limited opportunities for participation from teachers and other groups including civil society organizations. One area where there was participation from civil society was in the portion of the curriculum which was designed to be ‘autonomous’, which opened opportunities for schools to develop local curriculum in partnership with civil society education organizations. The arrival of a new presidential administration undermined the implementation of the reform.

Chapter 6 examines Peru’s education reform, which reflect a comprehensive set of actions to transform the education system, including a multipronged strategy to strengthen the teaching profession. Building on an existing consensus that the country had achieved relatively high levels of access and school completion without commensurate attention to quality and equity, the reform sought to focus on learning opportunities for all students. It was able to do so because in 2003 Peru adopted a student learning assessment system in the second grade which showed student learning levels were stagnant. In addition, participation in the PISA cross-national assessment of student knowledge and skills in 2012 shocked the nation, as Peruvian students were at the bottom of the world’s distributions of scores. In response to those results, Peru launched an ambitious education reform focused on improving learning outcomes based on four pillars, which were to be pursued simultaneously and comprehensively: (a) strengthen the teaching career and improve the value of the teaching profession, (b) improve opportunities to learn for all, (c) improve school and system management and (d) close gaps in school infrastructure. Each of those pillars encompassed multiple actions.

In order to increase the value of the teaching profession, the reform passed a law that introduced meritocracy into the profession, rewarding effort and performance, and focusing the career on its effectiveness in improving learning and the students’ experience in school. It created financial incentives to support talented high school graduates to select the teaching career, it created systems of teacher assessment for entry into the profession and for career advancement, created financial incentives to reward teaching effectiveness and work in schools in disadvantaged areas, and supported teacher professional development including support for beginning teachers, and school based coaching for teachers in early childhood centers and multi-graded schools.

To improve opportunity to learn, the reform revised the curriculum, supported bilingual education for indigenous students, provided support for students with special learning needs, expanded access to early childhood education, offered professional development to elementary schools, increased the duration of the school day in secondary schools. The curriculum reform included a broad set of national consultations with many stakeholders, and a review of global best practices in curriculum reform. The new curriculum defines the competencies students are to gain at each level, and specified learning standards. School support included the

development of sample lesson plans, training workshops, mentoring and professional development communities and technology enabled coaching. An important component of the secondary school reform was the creation of new professional roles to support students, such as school psychologists, social workers, tutors and pedagogical coordinators. The ministry funded also a small number of magnet schools designed to provide students, competitively selected, access to the challenging curriculum of the International Baccalaureate Diploma.

Several institutional reforms were introduced to elevate the quality of tertiary education. The new University Law established a new regulatory institution that would establish and monitor basic quality standards and provide a license to public and private universities. A new policy included information systems, an accreditation mechanism, quality assurance program, and also offered scholarships and loans to support college access.

To improve school and system level management, the reform increased school autonomy and the number of administrative positions at the school level in order to free up principal time for instructional leadership. New criteria for the selection of principals were introduced, focused on demonstrated competency, and professional development on instructional leadership opportunities were offered to school principals. Additional management improvements were introduced in system level administrative structures, including project planning and monitoring mechanisms, including information systems and dashboards to follow up every school.

To address the infrastructure gap the reform conducted a comprehensive census of needs, increased investment, promoted public private partnerships and supported improvement programs.

Chapter 7 discusses a long period of educational change in Poland. Beginning with a comprehensive reform in 1999, with roots in the economic and political changes which began in 1989 to reduce the role of the central state and promote private markets, the education reforms were comprised of a redesigned core curriculum, focusing on higher order skills and on personal and social competencies, as well as on educational structures and governance aimed at providing more autonomy to schools and teachers and to support pedagogical innovation. The crux of the reform was the creation of a separate lower secondary school level – the culminating level of primary education. The separate lower secondary schools allowed the creation of clusters with feeder elementary schools, which enabled the hiring of subject specialists for rural areas. They also created an opportunity to hire new school principals, who came into these new structures with a mandate to innovate curriculum and pedagogy with the aims of promoting collaboration and a new school culture. The national curriculum explicitly included transversal skills such as learning, thinking, research, action, self-improvement, communication and cooperation. The curriculum emphasized attitudes aligned with honesty, credibility, responsibility, perseverance, self-esteem, respect for others, curiosity, creativity, entrepreneurship, politeness, participation, initiative, group work and civic engagement. The civic skills emphasized were literacy, mathematical reasoning, scientific thinking, communication skills, ICT skills, ability to learn, and ability to work collaboratively.

The reform expected schools to develop syllabi and select their own textbooks. While there were multiple efforts to communicate to teachers the goals of the reform and the new curriculum, given the short implementation timeline those were not matched by deliberate efforts to help teachers develop new pedagogical skills. Supporting the implementation of the new curriculum were a series of booklets conveying the key goals and concepts of the reform that were delivered to schools. Private publishers responded to the opportunities created by the new curriculum to offer new textbooks, which included pedagogical suggestions. Textbook publishers also organized professional development conferences to discuss pedagogical approaches to support the new curriculum. The reform also introduced standardized examinations at the end of each education cycle, which were aligned with the cognitive skills in the new curriculum.

The reform was designed and implemented rapidly, which undermined the capacity to develop deep expertise among teachers and principals in line with the goals of the new curriculum. The potential to select their own syllabi, for instance, was often not realized because teachers did not have sufficient time to familiarize themselves with the syllabi. These challenges, particularly in the early stages of implementation of the reform, shaped a negative public view of the reform.

In spite of the fact that students' performance in PISA showed significant improvement since the reforms were introduced, there was insufficient public support for some of the reform changes and insufficient attention to communicating the goals and means of the reform and cultivating public support. Evaluation was used to make formative improvements to the reform, for instance PISA results were used to inform a revision of the curriculum in 2008 to emphasize higher order skills. A political change in 2015 discontinued the reforms and eliminated lower secondary schools – which was opposed by most educators.

Chapter 8 reviews a long period of educational change in Portugal, led by different political administrations, exhibiting somewhat different education strategies but with the common focus on improving student learning outcomes as measured in national and cross-national assessments of student knowledge and skills. The initiation of these reforms dates back to 2001, following a decade of significant educational expansion which had brought increased contention regarding the tradeoffs between access and quality of education. The 1995 TIMSS results revealed that Portuguese students achieved at the lowest levels among the group of countries participating in the assessment. The results from the first PISA study in 2000 were similar. These results animated the calls for reform and empowered those advocating for greater focus on educational quality. In 2001 the government's decision to publicize high school exit examinations per school fostered a conversation on the variation in results that schools serving similar student populations achieved. Later, a Ministerial commission was tasked to improve the curriculum in mathematics and sciences. New exams in those subjects were introduced at the end of compulsory basic education. This was followed by focused efforts to improve instruction in literacy and mathematics through voluntary activities in schools and libraries to develop motivation to read. Learning standards were introduced in those subjects. These pragmatic reforms were followed by a more comprehensive set of changes

implemented between 2011–2015, during a period of economic adjustment. These changes included the expansion of basic education from nine to twelve years, the creation of a technical and vocational track for upper secondary school, and a revision of the curriculum prioritizing the core academic subjects, first literacy and math, subsequently history, geography, sciences and English. The approach of curriculum revision was to seek greater coherence, through small incremental changes. Changes in the evaluation of textbooks produced greater alignment between the textbooks and the new curriculum standards. The reform also introduced frequent and reliable student assessments, and created an independent agency to assess student knowledge and skills. Specific measures were adopted to reduce school dropout, including supporting schools in providing extra-academic support to struggling students. School autonomy was augmented and non-monetary incentives were used to focus attention on school improvement in student learning outcomes. So far, the reforms have relied on existing experienced teachers, but the renewal with well-prepared teachers is an ongoing concern, as more than half of teachers will retire in the next 10 years. The reforms from 2005 to 2015 attempted to improve teacher selection and initial education, but these efforts were met with much contention.

Chapter 9 examines a series of education reforms which began in Russia after the opening of the Russian economy and the political reforms in the 1990s. In the early stage of those reforms there was a drive for educational innovation to foster a wider range of competencies laying the foundation for a movement of innovative teachers who drafted a ‘Manifesto for a Pedagogy of Cooperation’ which advocated for cooperation among teachers, students and parents, holistic personal and professional development, and greater school autonomy. With greater communication with education communities outside Russia, Russian educators became more knowledgeable of educational innovation in the rest of the world. In 2001, the Russian government issued a framework to modernize education which included competency-based education and a broader set of goals for the curriculum. In 2004 a new set of curriculum standards was approved, focusing on knowledge of the disciplines and holistic development of students’ personality. Those standards were progressively revised over the following five years, involving a wide range of stakeholder consultations in various regions in Russia. However, due to minimal participation from teachers and innovative educators the standards were written in fairly inaccessible language. The resulting Federal Education Standards focused on cognitive skills as well as transversal skills and personal competencies. No provisions were made to support teachers in developing the pedagogical skills to teach to those standards. It was instead expected that a number of other structural reforms would provide the opportunity for schools and regions to organize the necessary training to deliver the new curriculum. Those reforms included greater school autonomy and equalization of financing based on school enrollment, freedom for regions to select their own programs of teacher professional development in a competitive market of providers of professional development, provision of internet to schools, which afforded teachers the opportunity to find resources and collaborate with colleagues online, and increase in elective curriculum for schools, giving them more freedom to shape a portion of the curriculum. Greater curricular freedom was first tried in a

number of experimental schools and pilot municipalities and regions. Those pilots were not evaluated. Implementation of the competency-based curriculum has been hampered by the absence of an overall strategy to implement those skills, and a number of competing policy priorities and challenges to the idea of twenty-first century skills from groups advocating for disciplinary education. This resulted in conservative backlash when many parents and teachers requested to go “back to the Soviet roots” of the memorization of factual knowledge and routine cognitive operations. These public sentiments were supported by new educational policy leaders that claimed that new challenges do not need new answers.

1.2 What Does Teaching Look Like in These Countries and Is It Changing as These Reforms Are Implemented?

Drawing on the latest OECD study of teachers, the TALIS 2018 study, this section examines the instructional context in the countries examined in this book, relative to the average responses for the OECD. These data do not allow us to determine causally what impact the reforms discussed in this book had on these practices, but merely whether the practices in the countries indicated provide some evidence that instruction is indeed aligned with developing a broader set of skills for students. Since we don't know what the initial conditions were in these countries, the observed levels of those practices do not convey how much has changed in each country. Since Peru and Portugal did not participate in Talis we can't report on instructional practices in those countries.

Most teachers in the OECD countries (over 70%) see their colleagues as open to new ideas about teaching and learning and as collaborators in trying out new ideas. These figures are comparable or higher for all the countries included in this book, with the exception of Portugal, where only 65% of teachers report that their colleagues are open to innovation (OECD 2019a, Table I.2.35).

A precondition for teaching is to be able to manage a classroom. TALIS 2018 results show that while 72% of the teachers report that they receive classroom management preparation in their initial training, only 53% feel well prepared in this field, and only half of the teachers had recent professional development in this area. While 14% of all teachers surveyed report a high need for professional development in classroom management, this figure is much greater in Japan (43%). Most teachers (85%) feel that they can control disruptive behavior in classroom; yet again the figure is lower in Japan (60%). One third of the teachers report that they lose instructional time because of their inability to manage classroom discipline (OECD 2019a, Figure I.1.4).

Most teachers engage in basic classroom management practices aligned with teacher-directed instruction, telling students to follow rules, directing student attention to the class, address disruptive students, and indicate to students to listen. Additionally, most teachers report that they implement known good practices for

teaching directed instruction: summarize recent content, set goals for each lesson, convey expected learning, and explain the relationship between old and new content. The percentage of teachers who report doing this is lower in Finland than in the rest of the countries and lower in Japan for summarizing recently learned content (OECD 2019a, Table I.2.1).

Substantially fewer teachers use instructional approaches that require students to work independently, in small groups, or in challenging problems. Only a third of the teachers present students with problems for which there is no obvious solution, a much lower percentage in Japan (16%) but significantly greater in Brazil (49%), Portugal (67%) and Russia (58%). Only three in five teachers give students tasks that require critical thinking, this figure is significantly higher in Brazil (84%) and much lower in Japan (13%). Only half of the teachers have students work in small groups, decide on their own how to solve tasks, or allow students to use ICT for projects or class work. Three-fourth of the teachers use everyday examples to make visible the value of what students are learning and provide students opportunities to practice to check for understanding of concepts (OECD 2019a, Table I.2.1).

To assess student work, most teachers administer their own assessments. This figure is much lower in Japan (51%) and Russia (39%). Three in five teachers provide students with written feedback on their work, in addition to a grade, this practice is much lower in Japan (26%) and Russia (16%). Only two in five teachers let students evaluate their own progress, and four in five observe students as they work on tasks and provide immediate feedback (OECD 2019a, Table I.2.6).

As information technology becomes ubiquitous, a relevant education must provide students the capacity to use technology in work and life. More than half of the teachers have had access to Information and Communication Technologies (ICT) for teaching in their initial preparation, 56% on average in the OECD. Two in five teachers feel well prepared to use it, though this figure is much lower in Finland and Japan. Three in five have received recent professional development on this subject. One in five expresses a significant need for professional development in this domain, this percentage is 39% in the case of Japan. About half of teachers use ICT in projects or class work (OECD 2019a, Figure I.1.1).

As a result of internal and international migration, classrooms have become more culturally and linguistically diverse. On average, 18% of the teachers in the OECD teach in classrooms where at least 10% of the students have a first language which differs from the language of instruction. Only one in three teachers learned about multicultural education in their initial education, and consequently only one in four feels prepared to teach in a multicultural setting. Only one in five teachers reports recent professional development on this subject. 15% of teachers declare a high need for professional development in a multilingual setting, this figure is much higher in Brazil (44%), Mexico (46%) and Portugal (22%). Two thirds of the teachers report that they can cope with the challenges of teaching in a multilingual class, the figure is much lower in Japan (17%) (OECD 2019a, Figure I.1.2)

A feature of a twenty-first century education is greater inclusion, a commitment to educating all students, including students with special learning needs. On average, 27% of the teachers in the OECD teach classes where more than 10% of

students have special needs. Two thirds receive training for inclusion in their initial education and 44% feel well prepared to include children with special needs in their classrooms. Only 43% of the teachers have had recent professional development on this topic, and one in five expresses a high need for such training. A third of the principals express a shortage of teachers with those skills (OECD 2019a, Figure I.1.3).

Instructional practices have changed in the countries studied in this book as shown in Table 1.2. The OECD compared responses from teachers to a similar survey administered in 2013 and in 2018 on a limited range of instructional practices. While there are no significant changes on the presentation of a summary of recently learned content, there are significant changes in most other countries in referring to a problem from everyday life to explain the significant of new concepts, having students work in small groups to solve a problem, providing students projects that require more than a week to complete and allowing students to use ICT for projects or classwork. In addition, in Portugal, there was an 11.9 percentage point (pp) increase in the percent of teachers who let students practice similar tasks until it is clear each student has understood the subject matter. The greatest increases are in the percentage of teachers who allows students to use ICT for projects. There are only three significant changes in a direction away from deeper learning: in Brazil, the percentage of teachers who report that they have students work in small groups decreased by 10 percentage points, and in Japan and Mexico the percentage of teachers who provide students with assignments which require more than a week to complete declined by 3 and 3.4 percentage points, respectively.

There are also changes in how teachers assess student work, the most significant increase (except for Brazil) is in the percentage of teachers who administer their own assessments. The percentage of teachers who provide students written feedback on their work, in addition to a grade, also increased in Brazil, Finland, Japan and Mexico, but decreased in Portugal and Russia. The percentage of teachers who let student assess their own progress increased considerably in Finland (17.6 pp), and also in Japan (3.9 pp), but decreased in Brazil (3.3 pp). The percentage of teachers who observe students work on a task and provide immediate feedback increased in Brazil, Finland and Mexico, but decreased in Russia (Table 1.3).

1.3 A Multidimensional View of Educational Change

The study of governments' approaches to reforming education in these eight countries suggests that each reform strategy incorporates elements of some of five different perspectives: cultural, psychological, professional, institutional, and political, albeit with different emphases. As explained in my recent book on the process of educational change on which this section draws extensively (Reimers 2020), these are not mutually exclusive perspectives, but each of them focuses on certain elements of the change process. Conceptualizing the approaches to reform through these perspectives is helpful in three ways. First it can help examine the internal

Table 1.2 Change in teaching practices from 2013 to 2018

Percentage of teachers who report that they “frequently” or “always” use the following teaching practices in class								
Present a summary of recently learned content					Have students work in small groups to come up with a joint solution to a problem or task			
TALIS 2013	TALIS 2018	Change between 2013 and 2018		TALIS 2013	TALIS 2018	Change between 2013 and 2018		
%	%	% dif.	S.E.	%	%	% dif.	S.E.	
Brazil	79.2	81.6	2.4	(1.2)	65.6	55.6	-10.0	(1.8)
Finland	62.0	59.7	-2.3	(1.6)	36.7	42.3	5.6	(1.7)
Japan	59.8	58.6	-1.3	(1.4)	32.5	44.4	11.9	(1.9)
Mexico	62.8	65.6	2.8	(1.6)	73.4	70.9	-2.5	(1.6)
Portugal	84.8	84.4	-0.4	(1.0)	49.0	49.9	1.0	(1.3)
Russia ^a	62.8	66.4	3.5	(1.9)	43.3	42.5	-0.8	(2.1)
Refer to a problem from everyday life or work to demonstrate why new knowledge is useful					Give students projects that require at least one week to complete			
Brazil	89.4	91.3	2.0	(0.9)	38.4	43.4	5.0	(1.9)
Finland	63.7	68.2	4.5	(1.6)	14.1	22.4	8.3	(1.2)
Japan	50.9	53.9	3.0	(1.3)	14.1	11.1	-3.0	(0.9)
Mexico	84.8	89.2	4.4	(1.0)	57.1	53.8	-3.4	(1.5)
Portugal	65.6	93.1	27.5	(1.1)	21.1	32.2	11.1	(1.2)
Russia ^a	79.5	79.5	0.0	(1.5)	22.1	25.9	3.8	(1.7)
Let students practice similar tasks until I know that every student has understood the subject matter					Let students use Information and Communication Technology for projects or class work			
Brazil	74.2	75.9	1.7	(1.6)	30.3	41.6	11.3	(1.9)
Finland	50.7	50.4	-0.3	(1.5)	18.2	50.7	32.5	(1.8)
Japan	31.9	31.3	-0.6	(1.3)	9.9	17.9	7.9	(1.2)
Mexico	79.8	81.7	1.9	(1.5)	56.2	68.7	12.5	(1.8)
Portugal	60.9	72.9	11.9	(1.3)	34.4	56.8	22.5	(1.3)
Russia ^a	76.1	77.4	1.3	(1.7)	47.6	69.0	21.3	(1.9)

From OECD (2019a, Table I.2.4)

Values that are statistically significant are marked in bold

^aMoscow excluded from TALIS 2018. Estimated changes need to be interpreted with great care.

coherence of a reform strategy within each perspective, if it is part of the reform design. Secondly, it can help ask whether there are aspects of the situation which call for the use of a complementary perspective to the one that is guiding the reform strategy. Arguably, the design of a change process would be more comprehensive if it used a multidimensional perspective. Finally, a multidimensional view of change can help design the sequence of actions to be undertaken in a long arc of educational change.

Table 1.3 Change in teachers' assessment practices from 2013 to 2018

Percentage of teachers who report that they “frequently” or “always” use the following methods of assessing student learning in their class ¹						
Administer own assessment ²						
	TALIS 2013		TALIS 2018		Change between 2013 and 2018 (TALIS 2018 – TALIS 2013)	
	%	S.E.	%	S.E.	% dif.	S.E.
Brazil	93.4	(0.4)	94.1	(0.6)	0.7	(0.8)
Finland	66.2	(1.2)	85.8	(0.9)	19.5	(1.5)
Japan	29.1	(0.8)	51.2	(1.2)	22.1	(1.5)
Mexico	78.7	(0.9)	84.1	(0.9)	5.5	(1.3)
Portugal	82.5	(0.6)	97.3	(0.4)	14.8	(0.7)
Russia ^a	27.1	(1.2)	38.6	(1.2)	11.5	(1.7)
Provide written feedback on student work in addition to a mark						
Brazil	61.7	(0.9)	73.0	(1.3)	11.4	(1.6)
Finland	25.2	(1.0)	38.2	(1.2)	13.0	(1.6)
Japan	22.9	(1.0)	26.3	(1.0)	3.4	(1.4)
Mexico	73.1	(1.0)	80.5	(0.9)	7.3	(1.3)
Portugal	75.5	(0.7)	68.8	(0.9)	-6.7	(1.1)
Russia ^a	18.7	(1.1)	15.7	(1.0)	-3.0	(1.5)
Let students evaluate their own progress						
Brazil	43.1	(0.8)	39.9	(1.3)	-3.3	(1.5)
Finland	27.2	(1.2)	44.8	(1.3)	17.6	(1.8)
Japan	27.0	(1.1)	30.8	(1.0)	3.9	(1.5)
Mexico	61.5	(1.3)	59.9	(1.1)	-1.6	(1.7)
Portugal	59.2	(0.9)	61.4	(1.1)	2.2	(1.4)
Russia ^a	42.2	(1.6)	38.3	(1.4)	-3.9	(2.1)
Observe students when working on particular tasks and provide immediate feedback						
Brazil	80.9	(0.8)	84.4	(1.2)	3.5	(1.5)
Finland	76.1	(0.8)	79.0	(1.0)	2.9	(1.3)
Japan	43.0	(0.9)	41.2	(1.1)	-1.8	(1.4)
Mexico	90.8	(0.6)	92.5	(0.6)	1.7	(0.9)
Portugal	89.5	(0.5)	90.4	(0.5)	0.9	(0.8)
Russia ^a	76.4	(1.2)	68.7	(1.3)	-7.7	(1.8)

From OECD (2019a, Table I.2.9)

Values that are statistically significant are marked in bold

¹These data are reported by teachers and refer to a randomly chosen class they currently teach from their weekly timetable.

²In 2013, teachers were asked about the frequency with which they “develop and administer their own assessment”.

^aMoscow excluded from TALIS 2018. Estimated changes need to be interpreted with great care.

Because of limits to institutional capacity, resources and political capital, governments must establish a few priorities at any given time. A way to think about those priorities is as stages in a longer process of educational change, where priorities achieved in each stage set the conditions that enable other priorities to be pursued at subsequent stages. It is not necessarily the case that all reforms should address elements from each of these five perspectives, as some may be more relevant at a given time and context than others. I see these five perspectives, as described below, as illuminating elements of the process of change which are in interaction with each other:

- Cultural perspective: focuses on the broader set of external social expectations, norms and values which define what are accepted education goals and practices and imperatives for change
- Psychological perspective: reflects the theories of learning which undergird the learning and teaching process for students, teachers, administrators and parents
- Professional perspective: focuses on how roles are constructed to bring expertise to bear in instructional practice
- Institutional perspective: attends to the various structures, processes and resources that provide resiliency to the system of education, governing the interactions among the actors that form the system and providing stability and meaning to teaching and learning
- Political perspective: illustrates how the interests of various groups are negotiated and conflicts resolved during the design and implementation of a reform

Each perspective focuses on a series of constructs logically related which help explain aspects of the change process. Some practices may be usefully analyzed through more than one perspective. For example, the transformation of work, as a result of the use of technology and artificial intelligence, creates new cognitive demands, and demands in information literacy and computational thinking, among entrants in the labor market. This shift can be understood as a cultural shift, as an example of changes in the external environment that induce changes in what is expected of schools, but it is also as a political shift, particularly if the new demands of employers translate into organized efforts to influence the curriculum.

These five perspectives bear a relationship with other conceptualizations of organizational change. Organizational theorists Lee Bolman and Terry Deal, for example, argued that much of the scholarship on organizations could be categorized in four perspectives: structural, human resources, political and symbolic (Bolman and Deal 1991). The structural frame corresponds to what I have termed an institutional perspective, human resources to a professional perspective, political to the perspective of the same name, and symbolic to a cultural perspective. School effectiveness scholar Jaap Scheerens summarizes the theoretical views on organizational effectiveness in his conceptualization of school effectiveness as: economic rationality, organic systems model, human relations approach, bureaucracy and political (Scheerens 2000, pp. 23–26). There is correspondence between the organic systems model, which emphasizes adaptation of school systems to their external environment, and what I call a cultural perspective; between the human relations approach

and what I call a professional perspective, between the bureaucratic perspective and what I call an institutional perspective, and between the political perspective which I call also political. Scheeren's emphasis for each of these models differs from mine and his conceptualization lacks a psychological perspective. Professor David Olson has also contrasted institutional and psychological perspectives to study education reform arguing that it is the lack of attention to the institutional dimensions of schooling that explains the failure of many efforts to incorporate ideas from psychology into schooling (Olson 2003).

1.3.1 A Cultural Perspective on Educational Change

A cultural perspective emphasizes that educational practice is the result of shared norms, artifacts and practices which define how education is broadly understood in a society and the expectations society places on schools. This includes several inter-related domains: how educational institutions are understood to relate to other social institutions, and to social purposes and values; how society sees teachers and learners; and how instruction is understood to take place.

Schools share their role in socializing the young with other institutions such as families, religious institutions, civic organizations. Every society has expectations about what role schools should play, about the appropriate actions and boundaries for the instructional sphere and what is outside those boundaries. The key questions from this perspective are: What is the appropriate division of roles among those institutions and others in socializing the young? What social purposes and values are schools expected to advance? Are schools expected to conserve tradition or to foster change? Are they expected to reproduce the social structure or to alter it? Are they expected to prepare people to meet the demands of the existing economic structures, or to enable the creation of different economic structures? Are they expected to prepare people for roles as citizens, and if so, how are those roles understood? How are schools to change given changes in the sciences, technology and arts? These questions, stemming from the first of the three aspects of the cultural perspective on educational change, correspond to the adaptive function of schools, to how they meet societal demands for them.

Societies vary and experience periodic contention regarding these questions, especially regarding the role of schools in the development of values among students, with somewhat less contention with respect to the role of schools helping students gain knowledge and skills. But even with respect to skills, there are at least two contending camps. There are those who emphasize the value of a 'back to basics' focus on the core literacies, and those who favor a focus on a broader range of goals. As the goals of curriculum broaden, as is the case with all the reforms examined in this book, this expansion activates discussions about what is the appropriate role for schools, and what should be off limits to a public institution as it encroaches on the private domains of families or religious groups.

A core aspect of the cultural perspective on education is understanding the expected balance between the conserving and transforming role of schools. Schools balance a set of conservative norms, passing on to the young elements of culture each generation agrees should be transmitted, as well as a set of transformative norms, passing on to the young a certain dissatisfaction with the present, and the desire to imagine and eventually build a new set of norms. From this latter viewpoint, schools are spaces that can anticipate a better society in the future, not just transmitting the social institutions of the present. Societies differ in the balance they expect their schools to achieve between conserving tradition and transforming society, and a cultural perspective in reforming education is about understanding those cultural expectations and boundaries, and aligning education reforms to them. One of the earliest efforts to change the expectations about how schools should interact with social inequality was New Zealand's reform to advance equal educational opportunities to students from different social backgrounds during the 1940s, under the leadership of prime minister Peter Fraser, a former minister of education, and of Clarence Beeby as director of education (Renwick 1998). Similar goals for reform were adopted in the 1960s in the United States and in other nations around the world. The report Philip Coombs produced, and the subsequent Faure report, mentioned earlier, reflect precisely those kinds of shifts in societal expectations for education systems in order for them to keep up with the nature and speed of social, economic and technological change. Questions about this balance between reproduction and change are paramount at a time of rapid technological and social change. For example, increasing concerns about the environment and climate change are likely to generate new demands on schools, so is the development of artificial intelligence and supercomputing and the transformations they are likely to bring to social and economic organization.

The Polish and Russian reforms examined in this book are clear examples of reforms motivated by sweeping political changes, as those societies became more democratic and the accompanying expectations about the role schools should play also changed. The reforms in Portugal followed the considerable expansion in access resulting from the democratization of the country, and debates about quality reflected the increased participation and diversity of views that an increasingly democratic politics made possible. The Mexican education reform is also illustrative of this kind of adaptive response to larger political change, in this case an ongoing process of construction of democratic institutions initiated with the political transition in 2000, which brought with it a challenge to the capture of state institutions such as the education system by political institutions such as parties and unions.

A second aspect of a culture of education concerns how societies view teachers and teaching. Singapore's reverence for its teachers is well documented, in contrast to contexts where teacher appointments are governed by patronage and corruption. Finland's reform demonstrates a heightened appreciation for teachers, in that the reform is done 'with' them and not 'to them'. The Mexican reform, in contrast, a top down administrative reform, demonstrates less openness to teachers as actors in the design of the reform, although paradoxically it attempted to elevate teachers

professionalism by eliminating patronage and corruption in access to and progress in the profession.

Also included in a cultural perspective on educational change is the notion that there is a culture of education, a set of shared norms and practices that define how education is understood by a society, meanings about how instruction should be conducted. This includes ideas about how teacher- or student-centered instruction should be, time dedicated to lectures or group work, and whether teachers should collaborate with their peers or work independently. This culture of education is resilient, once crystalized into norms, artifacts and practices it changes slowly. The efforts to transform education discussed in this book are, in effect, efforts to transform the culture of education, but such change does not happen overnight. The new knowledge and ideas that teachers gain as a result of professional development, the new practices they are induced to enact through new curriculum, and new forms of student or teacher assessment all have to be negotiated with pre-existing culture and norms. In a seminal study of the history of education reform in the United States, Tyack and Cuban argue that federal government policies arrive to schools as mandates which are layered on top of previous mandates, and that successive reform efforts form ‘geological layers’ in observable instructional practices in schools (Tyack and Cuban 1995, p. 76).

A cultural perspective also underscores the need for relatively long cycles of reform. Because every reform attempts to shape the culture of education, negotiating the existing ‘geological layers’ of previous reforms, it is necessary for the reform to stay the course until policy intentions find their way to instructional practices, and stay there long enough to become the new norms and shared meanings of how instruction is done. This process of learning new meanings and practices while ‘unlearning’ pre-existing practices takes time, as it unfolds in the minds of individuals and in the negotiated social interactions among different individuals in school settings. Interrupting a reform before it has had a chance to crystalize into a system of new practices will not only result in little change, it will undermine openness to further change in the future.

The chapter examining reform efforts in Japan underscores the importance of long policy cycles, and the chapter in Finland exemplifies how a reform can build on top of previous policy cycles. In contrast, the chapters examining Brazil and Mexico’s reforms illustrate the challenges of relatively short policy cycles, interrupted by a highly politicized context in which the education system is used to serve extra-educational political purposes.

1.3.2 A Psychological Perspective on Educational Change

A psychological perspective highlights the process of teaching and learning for students and for teachers and others supporting instruction, emphasizing scientifically based knowledge about how people learn. The core questions from a psychological point of view are: What should students learn?, In what sequence?, How can they be

supported in learning it?, What and how should teachers teach?, and how they can be supported in professional development so they can teach effectively?

Since the early stages in the development of psychology as an independent science, many have argued that the scientific study of human functioning and development could help improve education. One of the early proponents of that thesis was Swiss psychologist Edouard Claparede, who proposed an experimental approach to education and created an institute to develop a science of education, the Rousseau Institute. The first directors, Pierre Bovet and his successor Jean Piaget, co-founded in 1925, with Claparede, the International Bureau of Education, the first center of comparative education research. Once UNESCO was created, the IBE became part of the organization, serving as the entity that would translate educational scientific knowledge into programs and practices that the organization would incorporate in its efforts to support educational development around the world.

While it would seem evident that scientific knowledge about how learning and instruction take place is necessary for a reform to be ultimately effective in helping students develop the intended competencies, and that operational definitions and measurements of the desired competencies could help inform curriculum and pedagogy, the history of the relationship between psychology and education is a fractured one. David Olson, in examining such relationship, argues that it is insufficient attention to the institutional nature of schools from psychologists that accounts for the fissure:

A too sharp distinction between persons and institutions makes much good science irrelevant to the understanding of schooling, whereas conflating the two hides the effects of the schooling from our view, reducing it to just one more factor in personal and social development. (Olson 2003, xi)

The choice of which competencies should be included in the curriculum standards straddles the cultural perspective and the psychological perspective in that choosing which competencies to cultivate reflects normative choices resulting from cultural understandings about what is necessary, as well as psychological knowledge about what is possible and helpful to individuals. An example of how psychology can characterize different educational objectives are Benjamin Bloom's taxonomies for knowledge-based, skills-based and affective educational goals. Bloom, an educational psychologist, argued that such goals could be construed as hierarchies reflecting increasing level of cognitive functioning. Knowledge, for example, encompasses knowledge, comprehension, application, analysis, synthesis and evaluation (Bloom 1956).

The various levels of assessment of student knowledge and skills reflected in the PISA assessments of literacy, mathematics and science, reflect also a hierarchy of cognitive functioning. In the 1980s, Howard Gardner proposed a theory of multiple intelligences suggesting that human potential could be characterized along eight domains, and not as the more restricted domain which intelligence tests measured: linguistic, logical-mathematical, spatial, bodily-kinesthetic, musical, interpersonal, intrapersonal and naturalist (Gardner 1983).

The DeSeCo project engaged an expert group drawing on the contributions of psychology to our understanding of competencies, knowledge and skills. The synthesis developed by Pellegrino and Hilton (2012), presented below, is essentially a summary of psychological research.

1. Cognitive Skills

1.1 Processing and cognitive strategies

- Critical Thinking
- Problem Solving
- Analysis
- Logical Reasoning
- Interpretation
- Decision Making
- Executive Functioning

1.2 Knowledge

- Literacy and communication skills
- Active listening skills
- Knowledge of the disciplines
- Ability to use evidence and assess biases in information
- Digital Literacy

1.3 Creativity

- Creativity
- Innovation

2. Interpersonal Skills

2.1 Collaborative group skills

- Communication
- Collaboration
- Team Work
- Cooperation
- Coordination
- Empathy, Perspective Taking
- Trust
- Service Orientation
- Conflict Resolution
- Negotiation

2.2 Leadership

- Leadership
- Responsibility
- Assertive Communication
- Self-Presentation
- Social Influence

3. Intra-personal Skills

3.1 Intellectual openness

- Flexibility
- Adaptability
- Artistic and Cultural Appreciation
- Personal and Social Responsibility
- Intercultural competency
- Appreciation for diversity
- Adaptability
- Capacity for lifelong learning
- Intellectual interest and curiosity

3.2 Work ethic/responsibility

- Initiative
- Self-direction
- Responsibility
- Perseverance
- Productivity
- Persistence
- Self-Regulation
- Meta-cognitive skills, anticipate future, reflexive skills
- Professionalism
- Ethics
- Integrity
- Citizenship
- Work Orientation

3.3 Self-efficacy

- Self-regulation (self-monitoring and self-assessment)
- Physical and mental health

In addition to illuminating which competencies should be developed in schools, a psychological perspective also sheds light on the process through which teachers can help students gain such competencies. This is the role of a theory of learning and of an associated theory of teaching. Findings from cognitive science related to learning can help inform how to structure instruction so it is most effective. An example of the relevance of cognitive science to educators is provided in this recent synthesis structured around six key questions about learning (Deans for Impact 2015):

1. How do students understand new ideas?

- (a) Students learn new ideas by reference to ideas they already know.
- (b) To learn students must transfer information from working memory to long term memory. Students have limited memory capacities that can be overwhelmed by tasks that are cognitively too demanding. Understanding new ideas can be impeded if students are confronted with too much information at once.

- (c) Cognitive development does not progress through a fixed sequence of age-related stages. The mastery of new concepts happens in fits and starts.
2. How do students learn and retain new information?
 - (a) Information is often withdrawn from memory just as it went in. We usually want students to remember what information means and why it is important, so they should think about meaning when they encounter to-be-remembered material.
 - (b) Practice is essential to learning new facts, but not all practice is equivalent.
 3. How do students solve problems?
 - (a) Each subject area has some sets of facts that, if committed to long-term memory, aids problem-solving by freeing working memory resources and illuminating contexts in which existing knowledge and skills can be applied. The size and content of this set varies by subject matter.
 - (b) Effective feedback is often essential to acquiring new knowledge and skills.
 4. How does learning transfer to new situations in or outside of classrooms?
 - (a) The transfer of knowledge or skills to a novel problem requires both knowledge of the problem's context and a deep understanding of the problem's underlying structure.
 - (b) We understand new ideas via examples, but its often hard to see the unifying underlying concepts in different examples.
 5. What motivates students to learn?
 - (a) Beliefs about intelligence are important predictors of student behavior in school.
 - (b) Self-determined motivation (a consequence of values or pure interest) leads to better long-term outcomes than controlled motivation (a consequence or reward/punishment or perceptions of self-worth)
 - (c) The ability to monitor their own thinking can help students identify what they do and do not know, but people are often unable to accurately judge their own learning and understanding.
 - (d) Students will be more motivated and successful in academic environments when they believe that they belong and are accepted in those environments.
 6. What are common misconceptions about how students think and learn?
 - (a) Students do not have different 'learning styles'.
 - (b) Humans do not use only 10% of their brains.
 - (c) People are not preferentially 'right-brained' or 'left-brained' in the use of their brains.
 - (d) Novices and experts cannot think in all the same ways.
 - (e) Cognitive development does not progress via a fixed progression of age-related stages. (Deans for Impact 2015)

How did the various reforms we studied operationalize the competencies necessary for civic and economic participation in the twenty-first century and what provisions did they make to help teachers gain the capacities to develop such competencies among students? While all the cases examined in this book reflect an expansion of the goals of the curriculum, the different countries differ in terms of the specific capacities which are included in the new standards and curriculum frameworks and in how the reforms incorporated existing research in this domain. For example, the reforms in Finland and Mexico reflect the most ambitious expansion of curricular goals, in line with contemporary work on key competencies or twenty-first century skills. The reforms in Poland and Russia reflect an emphasis on higher order cognitive skills. The reform in Portugal illustrates a 'back to basics' approach, ensuring that students learn the basic literacies. The reform in Japan reflects an emphasis on

higher order skills with some attention to socio-emotional skills. The reform in Brazil reflects an emphasis on higher order skills with a layer of cross-cutting competencies added in the latest stages of the reform. The Peruvian reform relied on a competency-based curriculum which emphasized higher order thinking, self-management and social skills. Among the reforms examined in this book, Finland, Mexico, and Peru most clearly appear to draw on psychological theory to define which competencies should be the focus of the new curriculum.

In most cases international organizations, such as UNESCO and the OECD, through projects such as DeSeCo, which defined those competencies, or PISA which assessed student knowledge and skills, played a role in focusing the conversation on student learning outcomes, and in inducing an examination of education standards. For example, the Finnish and Japanese reforms relied on OECD's work through the DeSeCo project and PISA to broaden the goals of the curriculum. Brazil, Mexico, Poland, Portugal and Russia also utilized the results of PISA to motivate the need for higher education standards.

Finland used a very thoughtful process of curriculum revision which began with a clear analysis of transversal competencies which were integrated into subjects, as well as in establishing a dedicated space for project-based curriculum. In this process of curriculum revision they followed a very collaborative and participatory process, incorporating expert knowledge from international organizations such as the DeSeCo project, as well as knowledge generated by the research and evaluation department of the Ministry of Education and by schools of education in their Universities. In spite of the thoughtful process, there were challenges in integrating transversal competencies into teaching in Finland, which underscores the complexity of the task. The same was true in Japan.

Mexico also developed very comprehensive curriculum goals relying on recent international knowledge such as the synthesis by Pellegrino and Hilton (2012), but did so relatively late in the timeline of the reform and with less professional participation of experts and teachers than Finland, which limited the opportunities to build teacher support and to help build teacher capacity.

In contrast, other countries, such as Brazil, seem to have evolved their definition of curriculum standards from higher order cognitive skills to subsequently adding a series of transversal competencies, with no visible connection to the best known work in this field and with no apparent grounding in local research and evaluation efforts. Peru also had a clearly laid out set of competencies for each education level, with no evidence of grounding in cognitive science.

In the cases of Japan, Poland, Portugal and Russia it is not apparent that cognitive science was used to inform the definition of the goals of the reforms.

Besides drawing on cognitive science to identify educational objectives, it is surprising that most of the reforms examined in this book do not appear to have explicitly drawn on cognitive science to design the curriculum, pedagogy or teacher education elements of the reform, even though there are clear curricular and pedagogical implications of such knowledge, as explained earlier.

Countries varied in how much attention they devoted to teacher professional development but even in the countries which provided more support, such as Finland

and Peru, it is unclear that cognitive science informed this work. Much of the emphasis of what was done in professional development seems to have focused on communicating the goals and philosophy of the reform, rather than on helping teachers gain the competency to enact pedagogies which could help their students develop the desired competencies. Finland provided much attention to teacher professional development and used pilots to test some of the ideas generated about how to build teacher capacity. They relied on networks of schools as a way to support professional development opportunities for students to gradually gain the competencies for novel pedagogical practices. Peru's strategy included numerous forms of teacher professional development, most of them school-based. In Brazil the strategy to help teachers develop the capacities to teach this expanded range of competencies was severely complicated by the absence of participation from schools of education in the reform process and by the very complex and decentralized nature of educational governance. In Mexico, approaches to teacher professional development focused primarily on communicating the curriculum goals, and took place at the very end of the administration which began the reform. In Poland, professional development focused on communicating curriculum goals, and pedagogical practice was addressed only by the private publishers as part of the process of marketing the new textbooks which had been developed to support the implementation of the new curriculum. In Japan, Portugal and Russia professional development opportunities were seriously absent from the reform strategy.

1.3.3 A Professional Perspective on Educational Change

A professional perspective focuses on structuring the roles of education practitioners so that practice can be informed by expert knowledge, and in turn, this expert knowledge can serve as a driver of change. A basic tenet of the psychological perspective is that the science of learning and teaching can provide knowledge about how best to support instruction. The professional perspective, in contrast, focuses on the structure of roles and institutions which integrate such expert knowledge with practice. There are two ways a professional perspective can be reflected in a reform, the first is that the reform may seek to strengthen education as a profession, the second, it may engage professionals, including teachers, principals, and teacher educators in the design of the reform treating them as subjects rather than objects of the reform (Villegas-Reimers 2003). A reform may strengthen education as a profession through rules about who can teach, under what conditions, with how much autonomy, criteria for teacher professional preparation, accreditation norms for who can prepare teachers, norms to guide the appointment and the support of the development of teacher careers. All those are instruments designed to align professional practice with the deployment of expert-based knowledge.

A professional perspective can lead to norming practice for existing roles, as when focusing attention on the extent to which instruction is guided by expert knowledge, or it may lead to creating new roles that reflect expertise, as when

focusing attention on the need for new professionals such as school counselors or special education teachers.

The key questions from this perspective are, given a new set of curriculum objectives and expected pedagogies: What are the capacities necessary to teach this curriculum? What is the gap between the current level of capacities and the capacities which are necessary? The identification of this gap is then the foundation to create conditions, establish norms and support the professional development necessary to close the gap.

A tenet of this perspective is that it is essential to help teachers develop the professional mindsets and skills that enable them to deal with the many unexpected challenges they will face over their careers. Also important in this perspective is to provide education professionals with the necessary autonomy and voice to practice professionally, including engaging their expertise in the design and implementation of a reform. A subset of those ideas sees schools as learning organizations, which have the adaptive capacities to continuously professionalize teachers and leaders as they address emerging and unanticipated challenges. A school as a learning organization is defined by several characteristics: 1) a shared vision centered on learning of all students, 2) continued learning opportunities for all staff, 3) team learning and collaboration among staff, 4) a culture of inquiry, innovation and exploration, 5) embedded systems for collecting and exchanging knowledge and learning, 6) learning with and from the external environment and 7) modelling and growing learning leadership (Kools and Stoll 2017).

This perspective is reflected in the concept of ‘professional capital’ developed by Andy Hargreaves and Michael Fullan:

Good teaching for all learners requires teachers to be highly committed, thoroughly prepared, continuously developed, properly paid, well networked with each other to maximize their own improvement, and able to make effective judgements using all their capabilities and experience. (Hargreaves and Fullan 2012, p. 3)

A professional perspective values not only the expertise and professional knowledge of practitioners, but more generally expert knowledge. Hence research and evaluation are important elements in this view, as are instructional resources developed to reflect expertise.

In this book, the reforms advanced in Mexico and Peru had a clear intent to professionalize teaching, shifting the criteria for teaching appointments and promotion away from obtaining the political support of the teachers union and towards demonstrated merit and competency aligned with professional criteria. Peru also provided financial and professional support to teachers, as part of the most comprehensive set of actions designed to enhance the teaching profession. Mexico also gave a preeminent role in the reform to the National Institute of Educational Evaluation, tasking them with the evaluation of teacher proficiency. While the reforms in Mexico and Peru reflected a professional perspective in that they sought to strengthen the professionalism of teaching, the Finnish reform reflected a professional perspective in that it involved teachers and other experts in the design and implementation of the reform. Finland also depended extensively on evaluation to guide the reform.

Portugal made evaluation and assessment cornerstones of the reform process, creating a National Institute of Educational Evaluation as part of the reform.

To ground a reform in a professional perspective, it is necessary to continually ascertain the level of professionalization of teachers and other educators. An approach to ascertain the level of professionalism of teachers in an education system was offered many decades ago in New Zealand by Clarence Beeby, the education psychologist who led the reforms to advance equality of educational opportunity in the 1940s.

Beeby argued that an education system is characterized by the level of skill and professionalization of its teachers. Beeby theorized that education systems developed through a series of four stages, and that each stage was defined by the level of professionalism of teachers. The first stage, which he called 'the Dame school', had teachers which were largely untrained and poorly educated. The second stage, which he termed 'Formalism', was characterized by trained, but still ill-educated, teachers. The third stage, which he called 'Transition', featured teachers who were trained and better educated. The fourth stage, called 'Meaning', featured teachers who were well educated and well trained. Stages differed in the characteristics of the institutions of education. In the Dame school stage, education was unorganized, the focus was on very narrow subject content, with very low standards, as memorization was the main goal. In contrast, in the stage of Meaning, the focus was on meaning and understanding, with a wider curriculum offering more varied content and methods. Additionally, individual differences were recognized, pedagogy relied more on active learning emphasizing problem solving and creativity, and the goals were to develop cognitive skills as well as emotional and aesthetic dispositions (Beeby 1966, p. 72).

Recognizing the level of professionalism of teachers in an education system is helpful for identifying what particular approaches may be necessary to support them. For example, in a context in which teachers have been socialized to see their work primarily as transmitting content in a particular discipline, significant investments in professional development will be necessary for them to be able to lead instruction focused on project-based learning in collaboration with colleagues. Similarly, teachers with serious gaps in content knowledge will need more support to address those gaps than those who have been well prepared in the subjects they are to teach. In addition, in any given system there is likely variation in levels of teacher professionalism, so professional development must be differentiated to respond to such variation.

Understanding the level of professionalism of education in a given system is also helpful from an institutional perspective, which will be discussed later in this chapter. Other structural elements of the 'system' of education should be aligned to the level of professionalization of teachers. For example, greater school autonomy to design curriculum is desirable in schools where teachers are highly qualified, but not in schools where teachers have serious knowledge and skills gaps. Similarly, educational governance matters greatly to the quality and coherence of implementation of reforms. For example, the case of Brazil discussed in this book illustrates how the distributed nature of educational governance and varied capacity among the

national, state and municipal levels of education represented a monumental challenge for the implementation of a standardized national curriculum. In the absence of explicit and significant supports to compensate for such differences in institutional capacity and readiness, this will likely result in very different implementation and results across municipalities.

The reforms examined in this book show very different patterns in their attention to teachers as professionals, arguably because the profession in each case was at different stages. Finland appears to be the system in which teachers were most highly professionalized. Thus, the Finnish approach to advance the expansion of curricular goals relied primarily on a professional perspective. In contrast, Brazil, Poland, Portugal and Russia seem to have done little to align the professionalism of their teachers to the new curriculum objectives. Mexico and Peru advanced a series of actions designed to strengthen teacher professionalism, starting from a context where teaching was not highly professionalized.

1.3.4 An Institutional Perspective on Educational Change

An institutional perspective focuses on the educational structures, norms, regulations, incentives, and organizational design which provide stability and meaning to the work of teaching and learning and to all social interactions designed to support it (Scott 2004, 2008). These structures operate at various nested levels: the classroom in the school, the school in the district, the district in the state, and the state in the nation. The following definition of an education system provided by the Global Partnership for Education illustrates this perspective:

Collections of institutions, actions and processes that affect the educational status of citizens in the short and long run. Education systems are made up of a large number of actors (teachers, parents, politicians, bureaucrats, civil society organizations) interacting with each other in different institutions (schools, ministry departments) for different reasons (developing curricula, monitoring school performance, managing teachers). All these interactions are governed by rules, beliefs and behavioral norms that affect how actors react and adapt to changes in the system. (Global Partnership for Education 2019, xvii)

Arguably, the institutions of education operate also at a supra-national level, given the various international processes intended to shape education, what I have called the ‘global education movement’. Stanford Professor John Meyer, for example, has argued that globalization and world systems and ideas such as human rights and the institutions to advance them have influenced national education systems, principally through curriculum (Meyer 2014). The key focus from this perspective is identifying the key elements and processes which define the system that supports instruction and determining how to achieve internal coherence and alignment among these various elements which constitute a reform. An education ‘system’ is structured by elements such as curriculum regulations, instructional resources, school structure and buildings, governance, staff, assessments and funding. From this perspective, education is a system, a bureaucracy, where organizational design

and incentives can support the necessary instruction and learning, so it is important that these elements are coherent and well aligned for optimal results. A curriculum fostering breadth of skills will do little to change the instructional core if it is not accompanied by adequate professional development and by student assessment systems which focus on those skills. Several scholars of education reform have argued that the failure of many education reforms is grounded in the inability of education reformers to understand schools as social institutions (Tyack and Tobin 1994; Tyack and Cuban 1995, p. 209; Olson 2003, p. 12).

A recent review of research on education reform in the United States found that instructional reform was more likely to succeed as a ‘niche’ or sub-system effort, while system-wide reform at scale often failed. The authors conclude that the reforms that succeed in scaling did so because these reforms did not “require deep change in practice and extensive capacity building. They were adopted and implemented rapidly and widely in part because they could work within existing educational organization and culture. The unsuccessful cases of such reform typically did require deeper change in practice and more extensive capacity building, and so could not be scaled up easily or quickly.” (Mehta and Cohen 2017, pp. 646–647). The authors of the study identify five characteristics of education reforms which straddle an institutional and a political perspective:

Our analysis suggests that there are at least five characteristics of successful educational reforms. First, some offered solutions to problems that the people who worked in or around education knew that they had and wanted to solve; they met felt needs for the people who would implement them. Second, some offered solutions that illuminated a real problem that educators had not been aware of, or couldn’t figure out how to solve, but they embraced the reform once they saw or believed that it would help; these reforms illuminated a problem of practice and offered a solution. Third, some reforms succeeded because they satisfied demands that arose from the political, economic or social circumstances of schooling; these reforms worked because there was strong popular pressure on and/or in educational organizations or governments to accomplish some educational purpose. Fourth, in each of these cases, reforms also either offered the educational tools, materials, and practical guidance educators needed to put the reform into practice, or they helped educators to capitalize on existing tools, materials and guidance. Less difficult reforms required less capacity building while more ambitious reforms required more. Fifth, in a locally controlled and democratically governed system of schooling, successful reforms have been roughly consistent with the values of the educators, parents, and students they affected, though this worked differently in system wide than niche versions. (Mehta and Cohen 2017, p. 646)

The studies of ‘best practices’ or ‘high performing systems’ typically reflect this institutional perspective, focusing on practices, processes, structures and norms which can help students perform at high levels. For example, an OECD report drawing lessons for the United States from countries where students performed at high levels in PISA identified the following characteristics of high performing systems:

1. A commitment to education and a belief that all students can achieve at high levels.
2. Ambitious, focused and coherent education standards driving the system, aligned with instructional systems.
3. Supporting capacity in schools.

4. A work organization in which teachers can use their potential in terms of how the system is managed, accountability and knowledge management.
5. Institutionalizing improved instructional practice.
6. Aligning incentive structures and engaging stakeholders.
7. Complementing external accountability approaches with internal accountability to colleagues and parents.
8. Investing resources where they have the greatest impact.
9. Balancing local responsibility with capable central offices with the authority and legitimacy to act.
10. Workplace training to support school to work transitions.
11. Coherence of policies and practices, aligning policies across all elements of the system and ensuring coherence of policies over sustained periods of time.
12. Ensuring openness of the system to the external environment to support continuous improvement (OECD 2011).

The Grattan Institute, a public policy think tank in Australia, produced a report identifying the following common characteristics of high performing systems in East Asia:

1. High equity
2. Effective learning and teaching
3. Connecting policy to classroom learning
4. Focus on best practices
5. Emphasis on induction and mentoring
6. Developing teacher groups for research and classroom observation.
7. Have career structures for teachers (Jensen 2012).

Similarly, the National Conference of State Legislatures in the United States, drawing on this comparative study of high-performing education systems, developed a seven-step protocol to build a world-class education system: build an inclusive team and set priorities, study and learn from top performers, create a shared statewide vision, benchmark policies, get started on one piece, work through “messiness,” and invest the time (National Council of State Legislatures 2016). The report identified four elements of a world-class education system:

- Children come to school ready to learn, and extra support is given to struggling students so that all have the opportunity to achieve high standards.
- A world-class teaching profession supports a world-class instructional system, where every student has access to highly effective teachers and is expected to succeed.
- A highly effective, intellectually rigorous system of career and technical education is available to those preferring an applied education.
- Individual reforms are connected and aligned as parts of a clearly planned and carefully designed comprehensive system.” (National Council of State Legislatures 2016, p. 10).

Similarly, the National Center on Education and the Economy in the United States synthesized nine building blocks for world-class education systems, drawing on a comparative study of high-performing education systems (National Council of State Legislatures 2016):

1. Provide strong support for children and their families before students arrive at school
2. Provide more resources for at-risk students than for others
3. Develop world-class, highly coherent instructional systems
4. Create clear gateways for students through the system, set to global standards, with no dead ends
5. Assure an abundant supply of highly qualified teachers
6. Redesign schools to be places in which teachers will be treated as professionals, with incentives and support to continuously improve their professional practice and the performance of their students
7. Create an effective system of career and technical education and training
8. Create a leadership development system that develops leaders at all levels to manage such systems effectively
9. Institute a governance system that has the authority and legitimacy to develop coherent, powerful policies and is capable of implementing them at scale (National Council of State Legislatures 2016, pp. 7–13).

Education specialists at the World Bank have developed a conceptual framework to facilitate cross-national education comparisons and benchmarking: the Systems Approach for Better Education Results (SABER). The framework documents policies and practices with respect to four quality and system support domains: student assessment, teachers, information and communication technologies and school health and school feeding; and in four governance and finance areas: school finance, school autonomy and accountability, education and management information systems and engaging the private sector (World Bank 2019).

All the reforms examined in this book addressed the following elements of the ‘system’ which undergirds educational culture and practice, albeit to varied extents: teacher professional development, student and school assessments and school autonomy. Additionally, all of these reforms recognize the importance of some level of local curricular adaptation and development, and given this requires skills which may not be available in schools, the need for school-level support.

The variation across reforms in attention to teacher professional development has already been mentioned. It is noticeable in particular how little attention initial teacher education received in any of the reforms. Some of these reforms used textbooks and instructional materials strategically to influence the instructional core. This was very clearly the case in Mexico, Peru, Poland, Portugal and Japan, but not in Brazil, Finland or Russia.

Many of these reforms used textbooks and instructional resources documenting the new curriculum as strategic resources to support instruction aligned with the new curriculum. Poland distributed booklets with the new curriculum and opened to private publishers the opportunity to design new textbooks. Peru offered

technology-based supports to implement the new secondary curriculum. Mexico provided teachers with books containing the new curriculum. Japan also used instructional resources to support the expanded goals of the curriculum. Brazil produced new textbooks aligned with the federally design component of the curriculum. Portugal changed the rules to approve textbooks and sought greater alignment between those and the new curriculum. Russia did not use instructional resources as a strategy to support the new curriculum.

All of these reforms depended on evaluation systems to motivate and guide new instructional practices. While countries similarly used test results to document low levels of achievement and educational disparities, they differed in the extent to which they also deployed evidence-based knowledge to develop curriculum, professional development programs and other supports to transform instructional practice. Finland stands out as an exemplar for how it utilized the national evaluation center and cross-national assessments, such as PISA, to guide the reform. Student assessments also motivated reform, and in some cases sustained them, in Brazil, Japan, Mexico, Peru, Poland, Portugal and Russia. However, the reliance on assessment systems by all these reforms created tension between the more ambitious objectives of the curriculum and the narrower focus of the assessment systems. Russia and Poland introduced high-stakes national exams that made the curriculum changes secondary in the eyes of teachers and principals.

Mexico was arguably the most ambitious structural reform of the institutions of education, embedded in a set of larger structural reforms, which included changes to the constitutional text and legal framework. The Polish reform also depended greatly on the creation of new structures - the lower secondary schools - to support instructional change. The Peruvian reform was also clearly a comprehensive reform of institutions of the education system. Other reforms, such as Finland, created new structures, such as a new course or space in the curriculum, that would allow students to work on projects where they could integrate knowledge from various disciplines.

1.3.5 A Political Perspective on Educational Change

A political perspective recognizes that education affects the interests of many different groups, and that those interests vary within and across groups, and may be in conflict. As examples of variation within groups, students and parents are key stakeholders of the education system, the presumed beneficiaries of education, but not all students or parents have the same interests with respect to a reform. For example, the parents of students with disabilities might value reforms that promote inclusive education more than those who don't have the same needs, the parents of children who speak indigenous languages may value policies of bilingual education differently than the parents of children who speak the dominant language, the parents of low income children may value compensatory education policies differently than more socioeconomically advantaged parents. Interests may also vary among groups.

For example, teachers' interests in education may not fully coincide with those of students. The same is true of teacher organizations, politicians, and business groups that provide services to schools or hire school graduates. Pivotal in a political perspective of education is how education politics relate to national politics. Education organizations vary in the degree to which they are coupled to national political parties and politics.

Whereas institutional and professional perspectives either assume congruence among the interests of various stakeholders of education reform or prioritize the interests of one group of stakeholders over others, a political perspective recognizes the potential for conflicting interests among stakeholders and sees reform as a way to resolve those conflicts. The key questions in this perspective are: How to ascertain the position of various stakeholder groups with respect to a reform? How to move all stakeholders to be more supportive of the reform, while demobilizing those groups who oppose it?

Some argue that political interests are so powerful in shaping educational institutions and practice, that they can override the educational interests of students. Based on a study of the academic achievement of 60,000 students from low income families in 1015 private and public schools in the United States, and on a series of case studies of turnaround schools, Chubb and Moe argue that public education does not serve disadvantaged groups, that overall public schools fail to provide students opportunities to develop the competencies the economy demands, and that private schools exhibit superior performance because they are accountable to parents (Chubb and Moe 1990).

A recent World Bank report on education argues that it is often politics which explains the lack of alignment between the key elements in an education system, and that a successful reform strategy requires mobilizing stakeholders so that they support the alignment of those elements with learning. The report explains that the key stakeholders with influence over learners, teachers, school inputs and management who often pull the system away from learning include politicians, civil society organizations, peers and communities, the judiciary, the private sector, bureaucrats, international actors and other actors. In order to make the system work for learning, these actors need to be aligned (World Bank 2018, p. 21):

But education systems can have other goals than can hamper efforts to improve learning. For example, politicians sometimes view education systems as a tool for rewarding their supporters with civil service jobs, or for impressing voters with school construction programs that are visible but not strategically planned. These goals can be misaligned with learning, leaving schools with building they cannot use and teachers who are not proficient. Where these goals compete with other goals, the result is that the overall education system and its actors are not aligned toward learning. (World Bank 2018, p. 175)

All of the reforms studied in this book were embedded in a political context which provided impetus for the reform, none of them were simply the result of incremental improvement in the system. In some cases, these reforms followed political transitions (Poland, Portugal and Russia) or a larger political agenda of an incumbent government (Mexico). In others, they reflected growing participation of civil society in education (Brazil). The emergence of conflicting interests as a challenge for the reform was most salient in Brazil, Mexico and Poland. In Peru

reformers intentionally sought to create political support for the reform by identifying and aligning the interests of various powerful stakeholder groups. For instance the teachers union's support was obtained with the various programs of teacher incentives and a communication strategy which emphasized that teachers were partners in the reform.

1.4 Developing a Reform Strategy and a Sequence

As mentioned, these five perspectives are complementary, rather than mutually exclusive. The process of educational change can be more fully understood through a multidimensional view that takes these five perspectives into account. For instance, the definition of the standards of the curriculum is a process that straddles a cultural and psychological perspective. All standards have a clear normative orientation, reflecting cultural understandings of what schools should teach. They can also be based on a theory of student development, learning and teaching. The various taxonomies of competencies and learning outcomes discussed in this chapter have not just psychological but also epistemological meaning, because psychology alone cannot answer the question of the structure of school knowledge. In turn, embedding expert knowledge about how students learn into standards and norms that guide professional practice is the purview of a professional perspective. Creating the systemic conditions that coherently support professional practice is the domain of an institutional perspective. And finally, building the necessary support for the standards, instruction, professional practice and institutional conditions requires aligning political interests and stakeholders.

The cases examined in this book illustrate that each reform reflects reliance on some of these five perspectives more than on others. An institutional perspective dominates across all reforms, as they embrace the idea of a 'system' and focus on key elements of the system. A political perspective is also apparent in how these reforms responded to political negotiations and changes in each context. The least visible frameworks in the design of these reform strategies are cultural, psychological and professional. This reflects both the situational nature of each reform, as well as the predilections, approaches and blind spots of those leading them. For example, the Mexican reform is clearly an institutional and political reform. It emphasizes changing structures, in part as a way to change political relationships and shift power over the governance of education from the teachers union to the national government. The reform is embedded in a set of other larger structural reforms designed to modernize the Mexican state and increase economic competitiveness. It is for this reason that the reform begins with legal changes that transform the rules of teacher selection and promotion, and that efforts to develop the professional skills of teachers appear much later in the process. The Brazilian and Polish reforms are also institutional and political, as they create new structures and curriculum. In Brazil the reform is supported by civil society groups advocating for educational change. Whereas in Poland, the reforms are supported by an overarching process of

political and economic liberalization, as well as support from teachers, school leaders, and local governments. Significant political changes since did not alter the trajectory of the reform until elections in 2015.

The reforms in Peru, Portugal and Russia are clearly institutional, as they focus on changing norms, structures and processes to influence instruction. In contrast, the Finnish reform is a decidedly professional reform, focusing exclusively on curriculum and on engaging and enhancing the expert knowledge and skills of educators. There are no structural changes in the reform, and there appear to be no political conflicts generated by the reform.

Each of these reforms takes place in a unique context, and it would not be appropriate to expect that using similar approaches would produce the same results in different contexts. For instance, there were clear structural challenges in Mexico, where the teachers union had the power to sell teacher positions and influence promotions in ways that were better aligned with serving the political interests of the union than the educational interests of students or the professional interests of teachers. In that context, it is understandable that an institutional perspective was an essential first step to establish the foundation on which other reforms could subsequently build. Finland did not face similar challenges and instead the reform took place in a context in which the teaching force was substantially professionalized. In such a setting, a professional perspective is fitting. Portugal implemented ambitious goals, such as expanding compulsory education by three years in a context of financial exigency, so it is understandable that they chose to adopt a 'back to basics' approach and concentrate on basic literacies and providing extra support to struggling students.

In the long cycle of policy implementation necessary for deep educational change to transform the culture of education, it is to be expected that strategy would prioritize different dimensions at different stages of a reform. The first order of business in any reform should address the elements highlighted in a cultural perspective, producing some consensus on what it is that schools are expected to do. This social consensus creates the space within which the reform is to operate. There are interesting variations in how the reforms studied in this book addressed this question of fit between the education system and broad societal expectations. Brazil's case stands out as a reform that began with the mobilization of groups of civil society to demand a new curriculum. This coalition provided the space and continuity for the reform to continue across various different government administrations. Portugal, also, is a context in which public debate and growing mobilization successfully placed the topic of quality on the education agenda.

Japan, in contrast, reflects a long cycle of policy reform with much continuity across various administrations as a result of consensus of political elites. Finland's reform illustrates a reform which builds on previous cycles of improvement. Poland and Russia exemplify fairly long cycles of policy change, but also substantial discontinuity and disruption because of political volatility. Mexico's reform is initiated as a result of a political pact designed to produce a shift in educational governance.

Initial conditions clearly influence the strategy adopted in each case. In Mexico, the priority is to create minimum norms to professionalize teaching, with attention

to curriculum later and to professional development much later. In contrast, in Finland, the new curriculum is the first order of business, with attention to professional development almost immediate. In Poland, Portugal and Russia, the priority is to modernize the education system, attending first to governance structures. In Poland, the change of the structure and the reform of the curriculum were implemented simultaneously with the new structure of local administration of schools.

Another way in which initial conditions influenced the strategy chosen by governments concerns the level of professionalism of teachers, as mentioned earlier, and of performance of the system. Finland and Japan were recognized as high performing systems when they began their reform, whereas Brazil, Mexico, Peru, Poland, Portugal and Russia were not.

The reforms in this book do not appear to have designed a clear sequential strategy to guide the process of change at the outset. Instead, they appear to have hoped for continuity and longevity, rather than planned it.

In summary, over the last two decades governments around the world have embarked on ambitious efforts to transform public education. They have done so to better prepare students to meet the demands of the present, and of the future, in a world that is changing rapidly and where the future is increasingly uncertain. These reforms have drawn on ideas about an expanded range of competencies, as well as how they are to be developed over time. International organizations such as UNESCO and the OECD have played an important role in stimulating reform through the dissemination of global policy frameworks such as the Delors report and collaborations such as the DeSeCo project. The results of the PISA assessment have played an important role in focusing the attention of governments on student knowledge and skills in key domains, and in identifying gaps in levels of knowledge across countries and among social groups within countries.

In undertaking these reforms, governments have followed strategies which reflect either a cultural, psychological, professional, institutional or political understanding of the process of change, often depending on more than one perspective, but seldom with a fully multidimensional view of the process. In some ways these reforms have seen the process of change through one eye, sometimes two, but seldom accessing the kaleidoscopic perspective that the five frames discussed in this chapter would have provided.

To fully change the culture of education, long policy cycles are necessary, such as those that have existed in Finland, Japan, Poland and Russia, and may also exist in Brazil and Peru, but probably not in Mexico. The longevity of the reforms studied in this book, however, seems to have been fortuitous, rather than the result of intentional design, and in some cases (Mexico and Portugal) it has been elusive.

The global education movement that was started with the creation of the public school is alive and well, as the world changes, it aims towards more ambitious goals in those wonderful inventions called schools. As it does, the most significant silent revolution experienced by humanity, the creation of an institution that would help us shape the future, continues, sometimes with great success in equipping students with levels of knowledge and skills their forebearers would have only imagined.

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