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Strong Performers and Successful Reformers: Korea

This chapter first introduces the purpose of the ***Strong Performers and Successful Reformers in Education*** series and the focus of this report on Korea. The second part describes the methodology employed for the report, including the framework for analysis and how PISA results are used in the analysis. Finally, the background of Korean education is summarised. Highlights on the education reform trajectory in Korea illustrate the shaping of the Korean education system.

A CHANGING YARDSTICK FOR EDUCATIONAL SUCCESS

Only two generations ago, the Republic of Korea was 23rd among OECD countries in terms of educational achievement. Today, Korea is among the top performers in terms of learning outcomes, ranking second in reading, fourth in mathematics and sixth in science according to the 2009 PISA assessment. Korea has also shown impressive improvements in the quality of its learning outcomes. Although Korea's average performance was high in 2000, policy makers wanted to increase the proportion of high-performing students. Within less than a decade, Korea was able to double the proportion of students demonstrating excellence in reading literacy. Facing global socio-economic change, Korea has been making continuous progress in its quantitative and qualitative educational outputs and reforming its education system to better meet the needs of 21st century societies.

Rapid globalisation and modernisation pose new and demanding challenges to individuals and societies alike. Increasingly diverse and interconnected populations, rapid technological change in the workplace and in everyday life, and the instantaneous availability of vast amounts of information are just a few of the factors contributing to these new demands. In a globalised world, people compete for jobs locally and internationally. In this integrated labour market, highly paid workers in wealthier countries are competing directly with people with much the same skills in lower-wage countries. The same is true for people with low skills. The competition between countries now revolves around the quality of their human capital.

The effect of these developments is raising wages in less-developed countries and decreasing wages in the most industrialised countries. But these developments do not affect all workers equally. Job automation is proceeding even faster than the integration of the job market. If the work is routine, it is increasingly likely to be automated, although some jobs will always be performed by humans. The effect of automation, and more generally of the progress of technological change, is to reduce the demand for people who are only capable of doing routine work, and to increase the demand for people who are capable of doing knowledge-based work. This means that a greater proportion of people will need to be educated as professionals. High-wage countries will find that they can only maintain their relative wage levels if they can develop a high proportion of knowledge workers and keep them in their work force. Increasingly, such work will require very high skill levels and will demand increasing levels of creativity and innovation.

This is not a description of one possible future, but of the economic dynamics that are now at play. In the high-wage countries of the OECD, demand for highly-skilled workers is increasing faster than supply (which OECD indicators show in rising wage premiums for highly-skilled individuals); and demand for low-skilled workers is decreasing faster than supply (which OECD indicators reveal in growing unemployment rates or declining wages for low-skilled individuals). Jobs are moving rapidly to countries that can provide the skills needed for any particular operation at the best rates. In addition, the rate of automation of jobs is steadily increasing in both high and low-wage countries.

In this context, governments need to create education systems that are accessible to everyone, not just a favoured few; are globally competitive in quality; provide people from all classes a fair chance to get the right kind of education to succeed; and achieve all this at a price that the nation can afford. The aim is no longer only to provide a basic education for all, but to provide an education that will make it possible for everyone to become "knowledge workers". Such education will need to build the very high-level of skills required to solve complex problems never seen before, to be creative, to synthesise material from a wide variety of sources, to see patterns in the information that computers cannot see, to work with others in productive ways, and to be able to both lead and to be a good team member when necessary. This is what is required in today's "flat" world – where all work that cannot be digitised, automated and outsourced can be done by the most effective and competitive individuals, enterprises or countries, regardless of their location. The implication is that the yardstick for educational success is no longer simply improvement against national standards, but against the best-performing education systems worldwide.

THE *STRONG PERFORMERS AND SUCCESSFUL REFORMERS IN EDUCATION* SERIES

This report is part of the Strong Performers and Successful Reformers series in Education. The first volume – *Strong Performers and Successful Reformers in Education: Lessons from PISA for the United States* (OECD, 2010) – highlighted insights from the education systems of a selection of top scoring and rapidly improving countries as measured by the OECD Programme for International Student Assessment (PISA). The following reports analysed the contexts, recent reform paths and performance of the education system, drawing lessons for Mexico (OECD, 2011), Greece (OECD, 2011), Japan (OECD, 2012), and the Canary Islands, Spain (OECD, 2012). The focus of these reports is on how countries are reforming their education systems not only to produce better learning outcomes, but in particular, to ensure that their students acquire the skills needed for the unpredictable labour market of the future. While these volumes relate lessons to the education reform agenda in specific countries, they may have resonance for a wide range of countries and different types of education systems aspiring for excellence in educating their young people.

ABOUT THIS REPORT

The aim of this report is to examine lessons in order for Korea to maintain its high performance and to further improve its education system. The story of Korean education over the past 60 years is one of remarkable growth and achievement. Today, the Republic of Korea is one of the top performing countries in PISA; it offers access to tertiary studies to a high proportion of its young people and it devotes a large share of its gross domestic product (GDP) to ensuring quality and innovation in education. Korea's continuous efforts to improve and reform its education system in order to contribute to the development of human resources and economic progress can inspire other OECD countries in their own policy making.

Nevertheless, while Korea's education system has seen very substantial improvement, there is always potential for further growth and better outcomes. There are a number of areas within the school and pre-school education system where quality, equity, and coherence can be developed further and can contribute to sustaining economic growth and social cohesion. Policies in these areas, such as Early Childhood Education and Care (ECEC) and supplementary education, will focus on student learning and wellbeing as their main priorities.

At the request of the Korean Ministry of Education, this volume builds on the results from PISA 2009 and the analysis from relevant OECD publications. This report also examines the issue of supplementary education and its policy implications in Korea and other East Asian countries. This analysis provides insight for Korea and other high performing countries on how to maximise the coexistence of formal and supplementary education while mitigating the negative effect of supplementary education on education systems.

The remainder of this chapter describes the framework of analysis for this report, the PISA measures used, the methodology for developing the country chapters, and the context of Korean education reform.

Chapter 2 sets the stage by analysing Korea's performance in PISA 2009 in detail, and contrasting its relative strengths and weaknesses with those of other countries. Chapter 3 introduces the issue of supplementary education and explains how different dimensions of this type of education influence learning in Korea and other East Asian countries.

Chapters 4, 5, 6 and 7 present a detailed analysis of selected high-performing education systems – namely China (Shanghai and Hong Kong), Singapore, Canada (Ontario) and Finland. These chapters outline the main issues of the country's education system and provide examples and lessons relevant to Korea. These elements vary across the education systems described, but generally include standards, examination systems, instructional systems, school finance, teacher quality, accountability and student motivation. Each chapter concludes by drawing wider lessons, highlighting the strengths of each system. Chapter 4 analyses the two distinct examples of education reform in China, specifically the cases of Shanghai and Hong Kong-China. Chapter 5 sheds light on the rapid improvement of Singapore followed by its strong performance. Chapter 6 outlines reforms in Ontario, Canada, that led to high achievement in a diverse context. Chapter 7 addresses the case of slow and steady reform for consistently high results in Finland.

The final chapter brings together the threads of the preceding chapters to present policy lessons to maintain Korea's strengths and to address challenges for future reform. The lessons drawn for Korea might also be of interest for other countries facing similar challenges.

METHODOLOGY

This section outlines the research methods employed for this volume. This volume builds on the framework for analysis applied in the first volume (OECD, 2010). The chapters on selected high-performing countries – Chapters 4, 5, 6, and 7 –, are based on chapters published in the first volume, with slight adjustments. Chapters 2, 3 and 8, which examine the case of Korea, were developed specifically for this report based on desk reviews. The following explains in detail: *i)* the framework for analysis of the *Strong Performers and Successful Reformers in Education* series; *ii)* introduction to PISA; *iii)* research methods employed for the country chapters; and iv) research methods employed for the chapter on lessons for Korea.

FRAMEWORK FOR ANALYSIS

This report builds on the framework for analysis applied in the first volume (OECD, 2010a), which suggests a continuum of approaches to education reform linked, in part, to a country's economic advancement. Developing countries with few resources to invest in education are likely to invest more heavily in the education of a small elite to lead the country's industries and government operations. As economies become more industrialised, citizens and policy makers tend to converge around a different philosophy: that the best way to compete in the global economy is to provide all citizens with the type and quality of education formerly

provided only to the elite. To provide high-quality education to the broader population, education systems must recruit teachers from the top of the higher education pool.

More recently, policy efforts have emerged to develop education systems that are intended to inculcate students with a range of higher-order capacities that encompass the notions of expert thinking and complex communication skills. Each education system and cultural context has developed unique ways to achieve this, such as nurturing student creativity, critical thinking, and networking skills that are considered important to knowledge-based economies and innovation. Governments have used many approaches, but policies and practices intended to develop in students the skills needed for the unpredictable labour market of the future tend to fall into three categories (Figure 1.1).

Over time, governments, education systems and schools develop a unique blend of these mechanisms to help students acquire

■ Figure 1.1 ■

Which policies and practices can help students develop skills for future labour markets?

1
Indirect mechanisms to create greater space for multiple methods of learning, understanding, and interpretation of concepts, whether by providing more free time to students or reducing rigidity in their learning environments.
2
Incentive mechanisms for reducing the use of rote learning, encouraging teachers, students, schools, and systems to move away from a focus on factual recall and high-stakes testing toward an emphasis on learning to learn.
3
Direct mechanisms that have an explicit focus on pedagogical practices to promote problem solving, integrative learning and collaboration.

the habits of the mind for performing well in the knowledge economy. Nations that try to emphasise one mechanism over another are likely to face challenges. In this framework, there is no ideal balance, so policy makers will see the need for coherence in the policies and relative investment of resources.

WHAT IS PISA AND WHAT CAN WE LEARN FROM IT?

Parents, students, teachers and those who run education systems are looking for sound information on how well their education systems prepare students for life. To answer this question, most countries monitor their own students' learning outcomes. Comparative international assessments can extend and enrich the national picture by providing a larger context within which to interpret national performance. Countries inevitably want to know how they compare to others, and, if other countries are outperforming them, they want to know how they are achieving such results. Such assessments have gained prominence in recent years partly due to pressures from an increasingly competitive global economy that is more than ever driven by the quality of human capital. As a result, the measure for judging public policy in education is no longer improvement against national educational standards, but also improvement against the most successful education systems in the world.

The OECD PISA survey, which assesses the knowledge and skills of 15-year-old students around the world, is the result of collaboration among 70 countries interested in comparing their own students' achievement with that in other countries (Figure 1.3). Every three years since 2000, PISA compares student performance in reading, mathematics and science. PISA assessments are not designed to find out whether students have mastered a particular curriculum, but whether they can apply the knowledge and skills they have acquired in real-life situations. Decisions about the scope and nature of the PISA assessments and the background information to be collected are made by leading experts in participating countries. Considerable efforts and resources are devoted to achieving cultural and linguistic breadth and balance in the assessment materials. Stringent quality-assurance mechanisms are applied in designing the test, in translation, sampling and data collection. As a result, PISA findings have a high degree of validity and reliability.

Because PISA reports on the achievements of many countries against a common set of benchmarks, it inevitably prompts discussion within participating countries about their education policies. Citizens recognise that the educational performance of their countries will not simply need to match average performance, but that they will need to do better to ensure above-average wages and

competitive standards of living for their children. PISA assists this discussion by collecting a wide range of background information

■ Figure 1.2 ■

Framework of analysis for policies to nurture skills for the future

Economic development		
Impoverished, preindustrial low-wage	← →	High value-added, high wage
Teacher quality		
Few years more than lower secondary	← →	High level professional knowledge workers
Curriculum, instruction and assessment		
Basic literacy, rote learning	← →	Complex skills, creativity
Work organisation		
Hierarchical, authoritarian	← →	Flat, collegial
Accountability		
Primary accountability to authorities	← →	Primary accountability to peers and stakeholders
Student inclusion		
The best students must learn at high levels	← →	All students must learn at high levels
Development of skills for the future		
Indirect mechanisms	← →	Direct mechanisms

about each country's education system and about the perspectives of various stakeholders. This makes it possible to relate aspects of performance to important features of those systems.

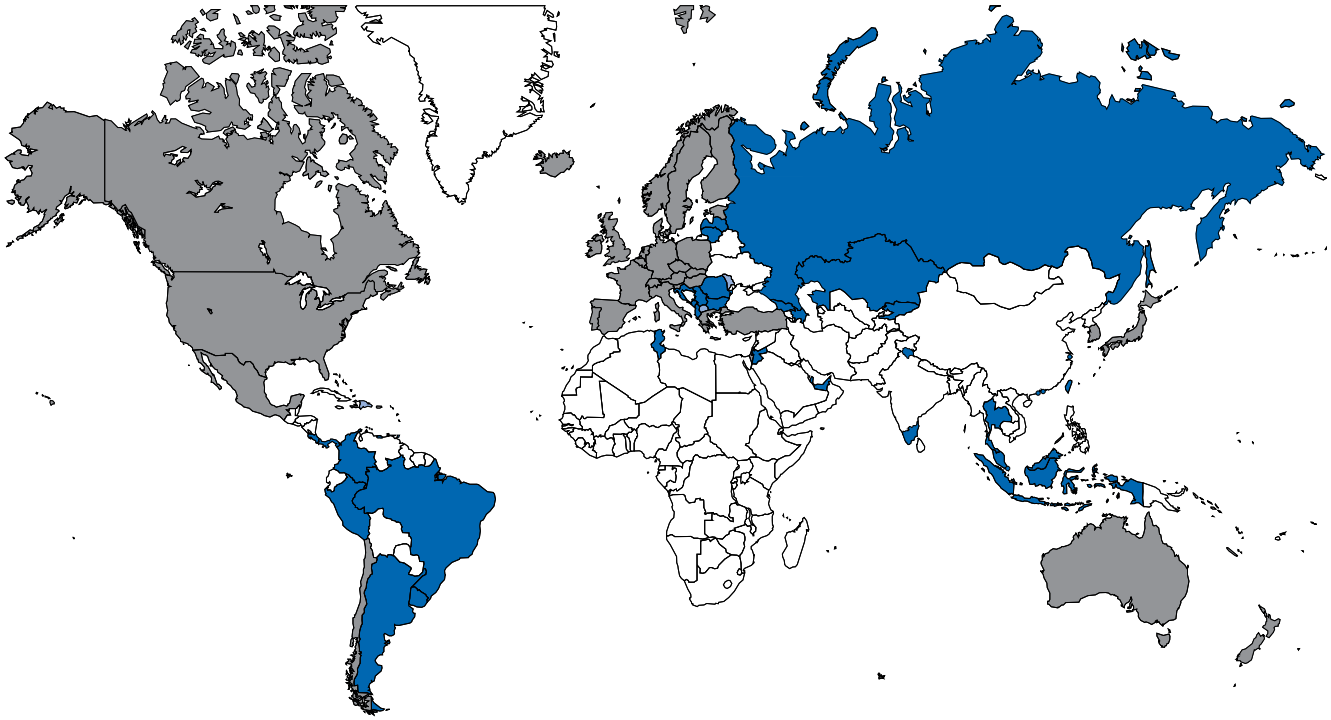
HOW CAN PISA BE USED TO HELP IMPROVE EDUCATION SYSTEMS?

On their own, cross-sectional international comparisons such as PISA cannot identify cause-and-effect relationships between certain factors and educational outcomes, especially in relation to the classroom and the processes of teaching and learning that take place there. However, they are an important tool to assess and drive educational change in several ways:

- PISA shows the achievements that are possible in education. For example, PISA shows that Canadian 15-year-olds, on average, are over one school year ahead of 15-year-olds in the United States in mathematics and more than half a school year ahead in reading and science. They also show that socio-economically disadvantaged Canadians are far less likely to risk poor educational performance than their counterparts in the United States. More generally, whether in Asia (e.g. Japan or Korea), Europe (e.g. Finland) or North America (e.g. Canada), many OECD countries display strong overall performance in international assessments and, equally important, some of these countries also show that poor performance in school does not automatically follow from a disadvantaged socio-economic background. Some countries also show a consistent and predictable educational outcome for their children regardless of where they send their children to school. In Finland, for example, which has some of the strongest overall PISA results, there is hardly any variation in average performance between schools.
- PISA results are also used to set policy targets in terms of measurable goals achieved by other systems and to establish trajectories for educational reform. For example, Japan's 2010 Growth Strategy sets the goal for Japan to achieve a reduction in the proportion of low achievers and an increase of that of high achievers to the level of the highest performing PISA country, and to increase the proportion of students with an interest in reading, mathematics and science to a level above the OECD average (Ministry of Economy, Trade and Industry, 2010) by 2020. Similarly, in 2010 the Prime Minister of the United Kingdom set the goal of raising the country's average student performance to Rank 3 on the PISA mathematics assessment and to Rank 6 on the PISA science assessment. A range of policies designed to achieve these targets accompanied this announcement. The Mexican

■ Figure 1.3 ■

A map of PISA countries and economies



OECD countries

Australia, Austria, Belgium, Canada, Chile, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea, Luxembourg, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, United Kingdom, United States

Partner countries and economies in PISA 2009

Albania, Argentina, Azerbaijan, Brazil, Bulgaria, Colombia, Costa Rica*, Croatia, Georgia*, Himachal Pradesh-India*, Hong Kong-China, Indonesia, Jordan, Kazakhstan, Kyrgyzstan, Latvia, Liechtenstein, Lithuania, Macao-China, Malaysia*, Malta*, Mauritius*, Miranda-Venezuela*, Moldova*, Montenegro, Netherlands-Antilles*, Panama, Peru, Qatar, Romania, Russian Federation, Serbia, Shanghai-China, Singapore, Chinese Taipei, Tamil Nadu-India*, Thailand, Trinidad and Tobago, Tunisia, Uruguay, United Arab Emirates*

Partner country in previous PISA surveys

Former Yugoslav Republic of Macedonia

* These partner countries and economies carried out the assessment in 2010 instead of 2009.

President established a "PISA performance target" in 2006, to be achieved by 2012, which highlights the gap between national performance and international standards and allows monitoring of how educational strategies succeed in closing this gap. The reform trajectory includes a delivery chain of support systems, incentive structures as well as improved access to professional development to assist school leaders and teachers in meeting the target.

- Some countries have systematically related national performance to international assessments, for example by embedding components of the PISA assessments into their national assessments. For instance, by linking its national assessment with PISA, Brazil is providing each secondary school with information on the progress it must make to match the average PISA performance level by 2021. Germany, Japan and the State of Oregon in the United States have embedded PISA items in their national/state assessments.
- PISA can help countries gauge the pace of their educational progress. Educators are often faced with a dilemma: if, at the national level, the percentage of students obtaining high scores increases, some will claim that the school system has improved. Others will claim that standards must have been lowered, and behind the suspicion that better results reflect lowered standards is often a belief that overall performance in education cannot be raised. International assessments allow improvements to be validated internationally. Poland raised the performance of its 15-year-olds in the PISA reading assessment by the equivalent of

well over half a school year's progress within six years, catching up with the performance of United States in 2009 from levels well below that in 2000. It also reduced the proportion of students performing below the baseline level of reading performance from 23% in 2000 to 15% in 2009 (the proportion of bottom performers remained unchanged at 18% in the United States during this time). Poland also succeeded in halving performance differences between schools.

- PISA can help governments optimise existing policies or consider more fundamental alternatives when researchers combine advanced forms of educational assessment with sophisticated survey research methods. For example, PISA collects reliable data on the ability of students to apply high levels of knowledge and highly complex thinking to real-world problems. The survey research from PISA also gathers a wide range of background data surrounding the education of the students being assessed. By linking these two bodies of data one can associate in great detail certain patterns of student performance with a multitude of background data such as the qualifications of their teachers, how much those teachers are paid, the degree to which decisions are devolved from higher authorities to the school faculty, the socioeconomic or minority status of the students, the nature of the assessments that students must take, the nature of the qualifications they might earn, etc. In this way, while the causal nature of such relationships might not be established, an extensive web of correlations can be drawn between certain dimensions of student performance and a large range of factors that could conceivably affect that performance.

RESEARCH METHODS EMPLOYED FOR THE COUNTRY CHAPTERS

Research into international policy experiences undertaken for this report entailed surveying historians, policy makers, economists, education experts, ordinary citizens, journalists, industrialists, and educators to enable alternative benchmarking. The research began with a document review and was enriched by interviews with current and former leading policy makers and other education stakeholders in the countries and education systems concerned. The PISA data provided the basis for country selection as well as important clues for the points of investigation.

This report complements the uses of PISA just described with a form of industrial benchmarking (Box 1.2). The aim of the research presented in this report is to relate differences in student achievement between one country and another to certain features of the education systems of those countries. Education is highly value-laden. Systems develop for historical reasons that reflect the values and preferences of parents, students, administrators, politicians and many others. Yet such values and preferences evolve and education systems must change to accommodate them. Decision-makers in the education arena can benefit from benchmarking research in the same way as heads of firms. This involves learning about the range of factors that lead to success, taking inspiration from the lessons of others, and then adapting the operational elements to the local context while adding unique elements that make their own education system one of a kind.

The intent of this report is not to specify a formula for success – this report contains no policy prescriptions. Rather the objective is to describe the experience of countries whose education systems have proven exceptionally successful to help identify policy options for consideration. It is intended as a resource for decision-making.

While quantitative analysis can be used to apportion the relative influence of a variety of factors in determining variations in student performance in PISA, the data collected by PISA alone leave many questions unanswered. For instance, it is not possible to determine from PISA results whether teachers in the schools of a particular country are using a very powerful instructional system that would be equally effective in another country with very different class sizes. PISA data does not reveal whether new political leadership reframed the issues in education policy in such a way that facilitated the introduction of new reforms. PISA data does not show how awareness of weak education performance can mobilise a country's education establishment to reform and radically improve its education outcomes. Nor does PISA data reveal how a country's industrial and educational institutions are able to work together to leverage a qualifications structure that produces incentives for high-level student performance.

The lessons suggested in this report emerge from instances in which PISA data and country analysis tend to converge. The report provides complementary qualitative analysis of high-performing and rapidly-reforming improving education systems to reveal possible contextual influences on education performance. The country studies have not only suggested some possible answers to interesting questions, but have also uncovered some new questions for consideration in future PISA assessments.

RESEARCH METHODS EMPLOYED TO DRAW LESSONS FOR KOREA

This report offers analysis of Korea's recent reform and its outcome in Chapter 2 on PISA results, Chapter 3 on supplementary education and Chapter 8 on policy lessons for Korea. These chapters are produced specially for this volume and the last chapter draws lessons for Korea referring also to the chapters on the experiences of other countries adopted from the first volume of the *Strong Performers and Successful Reformers in Education* series.

Chapter 2 analyses the results of the PISA assessment for Korea. This analysis is based on the PISA 2009 data, which was the latest PISA data available when this report was being drafted. By presenting and interpreting data, this chapter examines the profile of education outcomes and the learning environment in Korea. The dimensions of analysis mirror those applied to the country PISA analysis for the United States (OECD, 2010) and for Japan (OECD, 2012).

Chapter 3 includes the review of supplementary education, a topic that is relevant to the context of education reforms in Korea and other countries today. The contents of this chapter were developed mainly through reviewing literature and employing knowledge gained by previous research. In addition, this chapter incorporated insights and recommendations on supplementary education that had been discussed with the Korean government through the last *Economic Survey* (OECD, 2012).

Chapter 8 draws lessons for Korea based on and summarising OECD publications. Building on the strengths and challenges of the Korean education system identified in Chapters 2 and 3, Chapter 8 further analyses and presents the way forward for Korea. The report refers to thematic reviews and country specific analysis which were conducted in the past and which provide relevant evidence for this chapter. Reports published by other Organisations are also entitled, as well as the chapters on other high-performing countries. Chapter 8 was prepared without conducting a country visit to Korea while taking into account the context of policy reform and implementation in Korea as much as possible. The lessons drawn in Chapter 8 are not prescriptions for Korea to further improve its education system, but rather elements of debate that Korea might add to its continuous dialogue among policy makers.

BACKGROUND ON EDUCATION IN KOREA AND COMPARISONS WITH SELECTED HIGH-PERFORMING COUNTRIES

Country comparisons

Table 1.1 compares the countries covered in this report according to learning outcomes, equity in the distribution of learning opportunities, spending on education, and the economic context. These countries were chosen not only to provide a variety of relevant policies and practices, and to illustrate a range of education structures and models, but also to build on the analyses begun in the first volume:

- **Korea** has been one of the highest-performing countries in PISA since 2000 and demonstrating continuous improvement. The proportion of high-performing students is high and growing.
- **Canada** has been among the top performers in PISA over the past decade. Given its decentralised education system, it is methodologically prudent to look at provincial education policies. Ontario, the most populous province, provides a window onto some key reforms.
- **Finland** was the highest-performing country in the first PISA assessment in 2000 and has performed consistently well in subsequent assessments.
- **Singapore** conducted its first PISA assessment in 2009, where it scored near the top, having improved its education system in dramatic ways since its independence in 1965.
- **China** is a country newly covered in PISA. This report focuses on the performance of the cities of Hong Kong-China and Shanghai, each with a population equally large or larger than some OECD countries. Hong Kong-China has long been a top performer on the PISA league tables; Shanghai was only assessed for the first time in PISA 2009, yet it is already among the star performers. These two cities, despite being in the same country, have markedly different histories and school systems with very different governance arrangements. Contrasting them provides valuable insights into the impressive accomplishments in education in a country now taking a prominent position on the world stage.

Shaping education in Korea

As an introduction to the following chapters, this section summarises some of the major events and key educational reforms that have shaped the Korean education system and determined its current context.

The foundations of Korea's strong performance are rooted in a long tradition of structured learning systems. In recent decades, Korea has successfully expanded its educational opportunities to elementary education, and then to secondary and tertiary education. Over the past 30 years, Korea's education reform increasingly focused on quality improvement, which is translated in improved student outcomes over the last decade.

■ Table 1.1 ■

Basic data on the countries studied in this volume

	Quality					Equity	Coherence	Efficiency	Income	Equality
	Mean PISA score on the reading scale 2009[1]	Mean PISA score on the reading scale 2000[2]	PISA score difference in reading between 2000 and 2009[3]	Mean PISA score on the mathematics scale 2009[4]	Mean PISA score on the science scale 2009[5]	Percentage of the variance in student performance explained by student socio-economic background[6]	Total variance between schools expressed as a percentage of the total variance within the country[7]	Annual expenditure per student on educational core services (below tertiary) 2007[8]	GDP per capita[9]	Gini Index[10]
	Score S.E.[11]	Score S.E.[11]	Score S.E.[11]	Score S.E.[11]	Score S.E.[11]	%	%	in USD PPP[12]	Value	Value
Canada	524 1.5	534 1.6	-10 5.4	527 1.6	527 1.6	8.6	22	8 997	36 397	0.32
Shanghai-China	556 2.4	m m	m m	600 2.8	575 2.3	12.3	38	m	5 340	m
Hong Kong-China	533 2.1	525 2.9	8 6.1	555 2.7	549 2.8	4.5	42	m	42 178	0.43[13]
Finland	536 2.3	546 2.6	-11 6.0	541 2.2	554 2.3	7.8	9	8 314	35 322	0.27
Korea	539 3.5	525 2.4	15 6.5	546 4.0	538 3.4	11	34	8 122	26 574	0.31
Singapore	526 1.1	m m	m m	562 1.4	542 1.4	15.3	35	m	51 462	0.43[14]
OECD average	493 0.5	496 0.8	1 5.0	496 0.5	501 0.5	14	39	8 617	32 219	0.31

1. OECD (2010), *PISA 2009 Results: What Students Know and Can Do*, Volume I, Table I.2.3, I.3.3 and I.3.6.
2. OECD (2010), *PISA 2009 Results: Learning Trends*, Volume IV, Table V.2.1.
3. OECD (2010), *PISA 2009 Results: Learning Trends*, Volume IV, Table V.2.1.
4. OECD (2010), *PISA 2009 Results: What Students Know and Can Do*, Volume I, Table I.2.3, I.3.3 and I.3.6.
5. OECD (2010), *PISA 2009 Results: What Students Know and Can Do,* Volume I, Table I.2.3, I.3.3 and I.3.6.
6. OECD (2010), *PISA 2009 Results: Overcoming Social Background,* Volume II, Table IIA.
7. OECD (2010), *PISA 2009 Results: Overcoming Social Background,* Volume II, calculated based on Table II.5.1.
8. OECD (2012), *Education at a Glance*, Table B1.2.
9. OECD (2010), *PISA 2009 Results: What Makes a School Successful?*, Volume IV, Table IV.3.21C.
10. OECD (2010), *PISA 2009 Results: Overcoming Social Background,* Volume II, Table II.1.2.
11. Standard error.
12. Purchase Power Parity.
13. Gini index from World Bank 1996.
14. Gini index from World Bank 1998.

Note: Comparing the OECD averages across the various PISA assessments must be made with great care. Not all the OECD members participated in every PISA assessment and the list of participating partner countries and economies has widened substantially since 2000, as has the number of OECD member states. The group of OECD countries for which the OECD average can be compared across time differs between assessment areas (reading, mathematics, and science). For methodological reasons, some countries have not been included in comparisons between 2000, 2003, 2006 and 2009. This is explained in Chapter 1 and Annex A5 in OECD, 2010c.

Source: OECD, PISA 2009 Volume I / Volume II / Volume V, and OECD (2012).

Box 1.1 **Education reform trajectory in Korea**

The foundations

While the history of Korea can be track back to 2333 BC, the first formal education in Korea appeared in AD 372, namely the school of Taehak, in Goguryreo. Other learning institutions, such as Gukjagam (established in AD 992) and Sungkyunkwan (established in AD 1362) have been developed. The curriculum of these schools was based on the ethical principles of Confucianism and Buddhism. In the 19th century, national and private education institutes were established both by Christian missionaries and members of the independence movement. The foundations for modern Korean education were established after 1945, following the liberation from Japanese colonial rule (1910-1945).

1945 to 1970s: The growth of democratic education

After 1945, education policies were focused on a number of objectives including compilation and distribution of primary school textbooks; reform of the school system to a single track system following a 6-3-3-4 pattern; the expansion of secondary and higher education, and the creation of teacher colleges. The Education Law was enacted and basic education became compulsory.

In the 1950s, despite the Korean War, Korea achieved universal elementary education based on the low-cost approach that enabled the rapid expansion of schooling. The curriculum revision project was initiated, standard national admission tests for applicants to junior high schools were introduced, national public universities were established, and the 'Wartime Emergency Education Act' was promulgated during this time.

During the 1960s and 1970s, the rapid increase in student numbers led to over-crowded classrooms and schools, lack in the number of fully qualified teachers, and intense competition in the college entrance system. A standard examination as a preliminary screening mechanism for the college entrance examination was put in place in an effort to normalise secondary education, while local university system were improved and junior colleges were established. Moreover, broadcast and correspondence colleges and high schools were also established during this period. The Graduate School of Education was established for teacher in-service training, along with a reform to upgrade teacher-training institutions for primary and secondary school teachers.

1980's and 1990's: Quality improvement and normalisation of the education system

Government initiatives for school reform

Ten innovative education measures were proposed to be implemented by December 1985 for the purpose of "Cultivating Koreans to Lead the 21st Century", including improving the college entrance system; upgrading school facilities; securing high quality teachers; promoting science education; updating the curriculum and methodology; improving college education; promoting autonomy in education administration; establishing a lifelong education system; and increasing investments in education. The Framework for a New Educational System of 1995 presented a new education model directed towards building a knowledge-based society by allowing schools more autonomy and accountability.

Increasing financial input for quality improvement

The increased financial resources for education, as a result of economic growth and following several policy measures for school funding, contributed to the quantitative expansion and qualitative improvement at both the primary and secondary levels of education. The Korean government also made special efforts to reduce class sizes, to increase the number of teachers and to improve pay for teachers.

Investment for information and communication technologies (ICT)

In the mid-90s, the Korean government set about strategic planning as to how best position Korea to achieve its potential within the emerging knowledge society in the context of globalisation, the impact of the ICT revolution, and the acceleration of the knowledge base in many disciplines. Korea established the National Education Information System (NESI), the Korean Education Research Information System (KERIS), the Educational Broadcast System (EBS), and learning sites operated by private education institutes.

Increasing access to tertiary education and lifelong learning

With the July 30 Education Reform Policy of 1980, Korea opened the way to increasing admission quotas for higher education. For education innovation to pursue science and lifelong learning, a broadcasting system for education programs was introduced. Moreover, a college graduation quota system was implemented (abolished in 1987) and secondary school achievements were given greater weight in determining qualification. Quality improvement in higher education also emerged in the 1990s, initiating new policies to boost the universities' research competitiveness.

2000 to present: Responding to the new challenges of globalization, the knowledge-based society, and social polarisation

Master Plan for Educational Welfare Policies to ensure education for all

The Master Plan for Educational Welfare (2008-2012) aims to provide equal educational opportunities and a welfare system for all. Projects include reinforcement of vocational education (Meister high schools), financial support, active support systems for underachieving students and improvements in public education. From 2012, the Nuri programme, a common course for five-year-olds that combines education with childcare will be provided in kindergartens and daycare centres. Education and childcare programs for preschool children, previously divided between MEST and the Ministry of Health and Welfare will be integrated.

Fostering global talents with creativity and character through Creative Management Schools

Creativity and character-building education were the first priorities in the government's educational policies in 2010 and thus, has been promoting fundamental changes in classroom instruction. The 2009 National Curriculum was implemented to replace the curricula that focused excessively on acquiring textbook knowledge. Creative Management Schools (CMS) aim at developing autonomous and creative schools that nurture self-directed students. MoE subsidises these schools in order to promote them as 'the schools that nurture dreams and talents' which help students to develop their individual characteristics and creativity.

Reinforcing public education and providing alternative public services to reduce private education

In 1980, Hagwons and other private tutoring was banned because they had been causing inequality in learning opportunities. Despite initial intentions, the private tutoring industry simply continued to exist and went underground. The Constitutional Court of Korea finally ruled the change unconstitutional in 2000, and the government made efforts to compete with private tutoring by improving the quality of schools. Continuous efforts have been made to limit private tutoring by limiting the cost of hagwons and imposing a 10 pm curfew on hagwons in five regions including Seoul.

The importance of the College Scholastic Ability Test (CSAT) in university admissions, which caused high demand of supplementary education, has been reduced by expanding the application of school reports to university admission.

The "Plan for the Reduction of Private Education Expenses through the Improvement of Public Education's Competitiveness" and the "Plan for Creating a Virtuous Cycle by Reinforcing Public Education and Weakening Private Education" were introduced in 2009 and 2011 respectively. These measures are expected to reduce private education expenses by improving confidence and satisfaction of public education, rather than by directly regulating the private education market.

The 'After School' system, which emphasises learning that supplements regular educational curricula was first proposed by the Education Reform Commission (ERC) in 1995 and was introduced in full scale in 2006. The Education Broadcast System (EBS)'s CSAT courses that began in 2004, provides extra learning to prepare for the CSAT through the public education system.

Reforming recruitment and professional development for quality teachers and school principals

In order to train competent teachers, in 1995 the Presidential Committee on Education Reform suggested the establishment of a capability-oriented promotion and payroll system. The implementation of a new teacher appraisal system was proposed in the Educational Development Five-year Plan and the Comprehensive Teacher Development Plan in 2000 laid out reform measures for a teacher appraisal system.

Moreover, the Open Recruitment of Principals (ORP) system diversifies the appointment process and enables the selection of suitably qualified school principals with the skill and passion who will be able to lead the development of the school and the local community.

Integrating digital technology: SMART (Self-directed, Motivated, Adaptive, Resources Enriched, Technology Embedded) Education

The recently introduced "SMART Education" policy includes digitising Korea's entire school curriculum by 2015. A core initiative is the introduction of 'digital textbooks', which are interactive versions of traditional textbooks that can be constantly updated in real time.

The Cyber Learning System (CLS) was launched in 2004 and is being promoted to provide on-line supplementary learning contents, to reduce the cost of private education and to eliminate the education gap between regions and classes.

Improving school outcomes through evaluation and assessment

The evaluation and assessment framework to improve school outcomes in Korea is broadening its scope to encompass the whole education system: from student assessment to school evaluation, teacher appraisal, evaluation of principals, evaluation of local education authorities, evaluation of research institutes, evaluation of educational policies. Data collection and management are provided by the National Education Information System (NEIS), School Information Disclosure System, and statistical surveys of education. Measures are being taken to link the systems so that policy makers can better understand what is taking place at schools rather than simply looking at the outcomes of educational administrative bodies. Moreover, efforts are being made to link data collection/management systems with the evaluation systems.

The National Assessment of Educational Achievement (NAEA), a national evaluation system that expanded to all schools nationwide starting from 2008, is becoming recognised as a central link between the various systems of evaluation and assessment. The NAEA enables the user to compare how schools and metropolitan/provincial offices of education have performed over the current, and also in comparison to the previous, academic year. The results of evaluations conducted by metropolitan/provincial offices of education and the central government are now fully accessible to the public.

Adapted from:

Background material provided by Korean Institute for Curriculum and Evaluation (KICE).

Ministry of Education website: http://english.mest.go.kr/enMain.do.

Ministry of Education, Introduction, Education System, Overview.
http://english.mest.go.kr/web/1692/site/contents/en/en_0203.jsp;jsessionid=n61E7Tw3PzcEauxbfyZJiuv6UrB0lac2XlHr
sxpDvx7yzphsXuq2sJ91QWlhU26L.homepageAP2_servlet_engine2

C.J. Lee, L. Kim, S. Byun (2012), OECD (2010a), *Pearson Foundation and OECD*: *Strong Performers Successful Reformers in Education* – Korea Video.

OECD (2010d), *Review on Evaluation and Assessment Frameworks for Improving School Outcomes – Country Background Report for Korea*, OECD Publishing, Paris.

OECD (2012b), *Economic Survey of Korea,* OECD Publishing, Paris.

OECD, *PISA in Focus,* Issue 12.

References and further reading

Autor, D., F. Levy and **R.J. Murnane** (2003), "The skill content of recent technical change: An empirical investigation", *Quarterly Journal of Economics,* Vol. 118/4, pp. 1279-1334.

C.J. Lee, L. Kim, S. Byun (2012), "The rise of Korean education from the ashes of the Korean War", *Prospects: Quarterly Review of Comparative Education*, Vol. 3/163, pp. 303-318.

Levy, F. (2010), "How technology changes demand for human skills", OECD Education Working Papers No. 45, OECD Publishing, *http://dx.doi.org/10.1787/5kmhds6czqzq-en.*

Levy, F. and R.J. Murnane, (2005), *The New Division of Labour: How Computers are Creating the Next Job Market*, Princeton University Press, Princeton.

Ministry of Economy, Trade and Industry (2010), *The New Growth Strategy: Blueprint for Revitalizing Japan,* METI Cabinet Decision, 18 June, Tokyo, Japan.

Kang N. and M. Hong (2008), "Achieving excellence in teacher workforce and equity in learning opportunities in South Korea", *Educational Researcher,* Vol. 37/3, pp. 200-207.

OECD (2010a), *Strong Performers and Successful Reformers in Education: Lessons from PISA for the United States*, OECD Publishing. *http://dx.doi.org/10.1787/9789264096660-en.*

OECD (2010b), *PISA 2009 Results: Students On Line: Digital Technologies and Performance (Volume VI)*, OECD Publishing. *http://dx.doi.org/10.1787/9789264112995-en.*

OECD (2010c), *PISA 2009 Results: Learning Trends: Changes in Student Performance since 2000 (Volume V)*, OECD Publishing. *http://dx.doi.org/10.1787/9789264091580-en.*

OECD (2010d), *Review on Evaluation and Assessment Frameworks for Improving School Outcomes Country Background Report for Korea*, OECD Publishing.
www.oecd.org/edu/school/49363138.pdf.

OECD (2012a), *Education at a Glance 2012: OECD Indicators*, OECD Publishing.
http://dx.doi.org/10.1787/eag-2012-en.

OECD (2012b), *Economic Survey of Korea*, OECD Publishing.
http://dx.doi.org/10.1787/eco_surveys-kor-2012-en.