


Chapter 2

Schooling – Investments, Organisation, and Learners


The period of compulsory education – primary, lower secondary and even the upper secondary cycle in some countries – is at the core of all education systems. Over recent years, there have been significant investments in this core phase of education, recognised as being fundamental for laying the foundation on which so many other social, economic and educational outcomes may follow. Teachers (and the educational workforce in general) are widely recognised as central to the success of schooling, a position reinforced by the major 2005 OECD study Teachers Matter: Attracting, Developing and Retaining Effective Teachers. OECD work has analysed with growing precision the characteristics of learners and the nature of school practices, including leadership. Policy orientations have stressed the need simultaneously to modernise, professionalise and innovate, while also placing reforms directed at effective learning – rather than changing only structures and administrative systems – at the core of schooling.

2.1. Key findings and conclusions

Only a small minority of students do not now complete compulsory education overall, though rising to 1 in 10 in some countries: The participation rates in most OECD and partner countries tend to be high until the end of compulsory education, with more than 90% completing this phase in most. Those where more than 10% do not complete this phase of education are: Germany, Mexico, the Netherlands, New Zealand, Turkey, the United Kingdom, the United States, and partner country Chile. The age which marks the end of compulsory attendance does vary, however, and in four of these cases is relatively late at 17 or 18 years of age (Chile, Germany, the Netherlands, and the United States).

 *Education at a Glance: OECD Indicators – 2008 Edition, Chapter C.*

Spending on schooling – broadly defined – accounts for two-thirds (66.1%) of the total educational expenditure in OECD countries: The broad-brush measure of investment in schooling as compared with tertiary education shows that the schooling share of spending (covering pre-primary, primary, secondary and some non-tertiary, post-secondary education) accounts for two-thirds of total educational expenditure. In 2005, 70% or over is covered by the schooling portion in Ireland (74.7%), Italy (70.0%), New Zealand (70.9%), and the United Kingdom (73.9%). Tertiary education receives its highest shares in the United States (37.1%), Greece (33.5%), and Korea (33.5%) while the OECD average is less than a quarter (24.2%). (Denmark, Iceland and Japan are harder to compare as they have a sizeable proportion of spending not allocated by level – 6%, 7.7% and 7.0% respectively – while Canada, Luxembourg and Turkey do not break down expenditure by level.)

 *Education at a Glance: OECD Indicators – 2008 Edition, Chapter B.*

Spending per student in schooling (plus post-secondary non-tertiary) has increased everywhere in OECD countries since the mid-1990s, contrasting with a mixed picture in tertiary education: Using 100 as the index in 2000, the increase in spending per student had risen to 119 by 2005 in OECD countries and this is up from 89 in 1995. This compares with 111 for tertiary education in 2005 while the change between 1995 and 2000 averaged across all OECD countries had been negligible (99 to 100). In some, even in only the 5 years since 2000, the rise in school student spending was very marked, with the index reaching 139 in the


Czech Republic, 158 in Hungary, 147 in Ireland, 152 in Korea, and 147 in the Slovak Republic. In only Belgium was the recent level lower than in 2000 (at 96).

 *Education at a Glance: OECD Indicators – 2008 Edition*, Chapter B.

Classes are larger in lower secondary compared with in primary schools (on average, nearly three students more per class), alongside marked differences between countries with big and small classes: Lower secondary average class sizes of 30 or more in Korea, Japan, Brazil, Chile, and Israel contrast sharply with Iceland, Luxembourg, Switzerland and the Russian Federation where both primary and lower secondary classes are, on average, at or below 20 students per class. Primary school classes (21.5 per class OECD average) are generally smaller than in lower secondary schools (24.0 per class). Switzerland and the United Kingdom are minor exceptions to the “primary school classes are smaller” finding.

 *Education at a Glance: OECD Indicators – 2008 Edition*, Chapter D.

The investments made in teachers, as indicated by teacher salary levels, have gone up in real terms over the past decade in most countries: Teachers’ salaries have risen in real terms in both primary and secondary education in most of the countries for which OECD has trends data (comparing 1996 and 2006 in 19 systems covering 17 countries). The biggest increases – approximately doubling – have taken place in Hungary. How large have been the increases depends in part on position on the salary scale. Starting salaries have risen faster than mid-career or top-of-the-scale levels, for instance, in Australia, Denmark, England, and Scotland. Largely static or even falling salary levels are only found – but note that not all countries supply data on teacher salaries – for the experienced teachers in Australia, starting secondary teachers in French Belgium, and starting primary teachers and those with 15 years experience in Switzerland, but more noticeable teacher salary decreases have been seen in Spain.

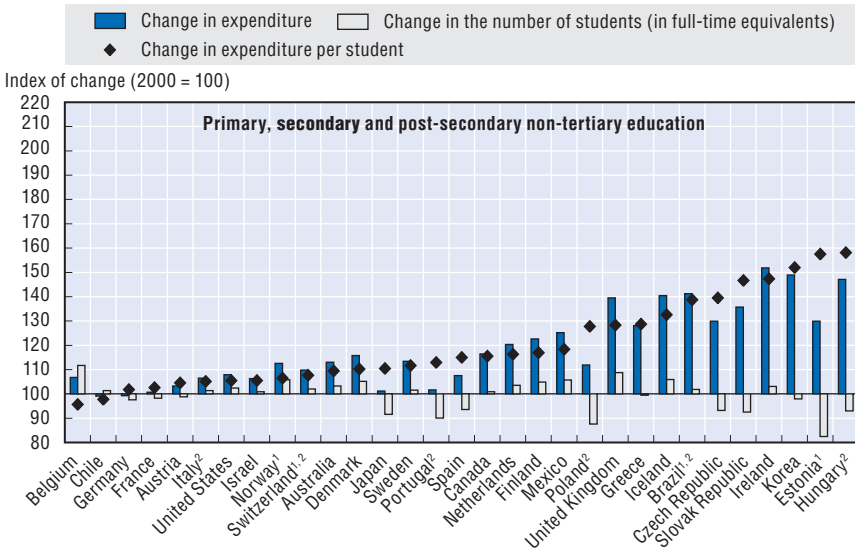
 *Education at a Glance: OECD Indicators – 2008 Edition*, Chapter D.

Some countries use a “career-based” model of teacher employment which brings its own strengths, weaknesses, and policy implications ... In “career-based” systems, teachers expect to stay long in the public service after early entry and once recruited are allocated to posts according to internal rules (e.g. France, Japan, Korea and Spain). These systems tend to avoid problems of teacher shortages but there are real concerns about how far teacher education is connected to school and student needs, with lack of incentives for continued professional development and of responsiveness to local needs.

... Others have “position-based” systems, with their own strengths and weaknesses: These systems tend to select the “best” candidate for each position, whether by external recruitment or internal promotion, with wider access to the


Figure 2.1. **Spending per school student going up**

Change in the number of students in expenditure on educational institutions, and in expenditure per “school” student (2000 = 100, 2005 constant prices)




1. Public expenditure only.
2. Public institutions only.

Source: OECD (2008), *Education at a Glance: OECD Indicators – 2008 Edition*, OECD Publishing, Paris.

StatLink  <http://dx.doi.org/10.1787/401862824252>

profession in terms of age or previous career experience (e.g. Canada, Sweden, Switzerland, and the United Kingdom). The problems typically encountered in these systems are shortages, especially in mathematics, sciences, etc., difficulties in ensuring a core of good teachers beyond age 40, and greater disparities in teacher quality between attractive and unattractive districts/schools.

 *Teachers Matter: Attracting, Developing and Retaining Effective Teachers*, 2005, Executive Summary.

Teacher aspirations can be advanced by capitalising on their intrinsic motivations while making appropriate use of extrinsic motivators: Teachers are much more motivated by intrinsic rewards to enter but extrinsic factors become more important for practising teachers. The evidence suggests that people enter teaching to help young people to learn and other educational reasons, with material factors and working conditions becoming more important later on. Policies to meet teacher aspirations and enhance their motivation as professionals need to capitalise on the intrinsic factors, make appropriate use of extrinsic motivators, and ensure that teachers have good working conditions so that their motivation is maintained.


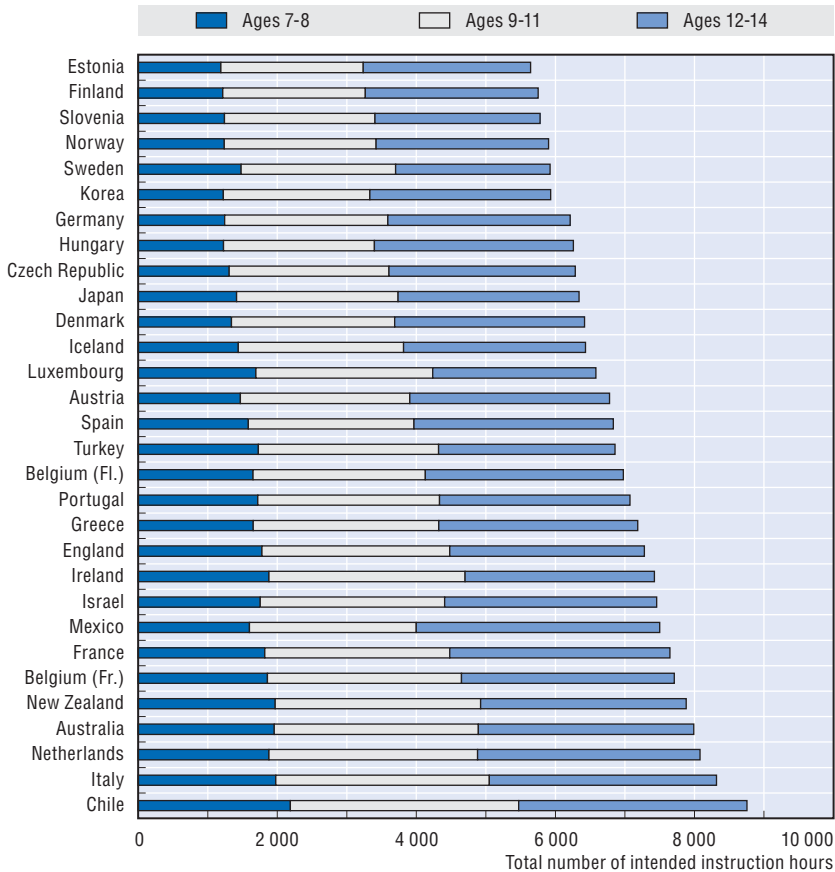

 *Education Policy Analysis – 2006 Edition*, Chapter 3.


Figure 2.2. **Total number of intended instruction hours in public institutions between the ages of 7 and 14 (2006)**




Source: OECD (2008), *Education at a Glance: OECD Indicators – 2008 Edition*, OECD Publishing, Paris.

StatLink  <http://dx.doi.org/10.1787/402183135853>


Finland, as well as excelling in the PISA tests, is the OECD country with the lowest number of “intended instruction hours” for 7-14-year-olds, less than 70% of the accumulated hours in Italy: The average for OECD countries in “intended instruction hours” added up from requirements regarding pupils aged 7 years up to 14-year-old students is 6 907 hours. Requirements vary very widely, from 5 752 in Finland to 8 316 in Italy. The range is even greater when partner countries Estonia and Chile are included as in the former this stands at only 5 644 hours compared with 8 752 hours in Chile (Estonia is thus less than two-thirds of the Chilean teaching hours). This covers the compulsory and non-compulsory time when schools must offer teaching to school students, though actual hours may vary from this and there may be significant variations according to region or type of school.

 *Education at a Glance: OECD Indicators – 2008 Edition*, Chapter D.


School leadership is pivotal for the quality of schooling through creating the right organisational and educational conditions for effectiveness and improvement: A large body of research evidence on school effectiveness and improvement consistently highlights the pivotal role of leadership. It is nevertheless a complex role as leaders largely work outside the classrooms where the teaching and learning takes place. Hence, instead of shaping quality directly, leaders do so by creating the right conditions for good teaching and learning through such factors as professional motivations, capacities, and working environments. They are especially influential as regards four key dimensions: improving teacher quality; goal-setting, assessment and accountability; strategic resource management; and collaboration with external partners.

 *Improving School Leadership – Volume 1: Policy and Practice*, 2008, Chapter 1.

There has been very rapid recent investment in ICT for schools across OECD countries: That PISA surveys have taken place at regular intervals gives one way of showing the very rapid way in which ICT has been penetrating schools in OECD countries. The availability of computers in schools had at least doubled almost everywhere in only the three years up to 2003. In Greece, Portugal and Mexico, where very few computers were available for 15-year-old students in 2000, investments grew by a factor of five or more. For example, in Mexico, the number of students per computer fell from 81 to 12 over the period, and in Greece it fell from 58 to 12. Even in countries where the number of students per computer was already low in 2000, they halved again during this short period.


 *Education Policy Analysis – 2004 Edition*, Chapter 2.

It is necessary to reach thresholds of investments in ICT and in the skills and educational organisation to use them so as to reap educational benefits: Only in a certain relatively small number of countries have the thresholds of equipment and investment begun to be reached (at the time the chapter was written this included some of the Nordic countries, Australia, Hungary, Korea, New Zealand, the United Kingdom, and the United States) to allow most students to gain access to the technology and to use it frequently. Data from PISA 2003 show that even in countries with among the highest levels of investment in ICT in schools, often it is not used for much of the time. In the systems that have reached the thresholds, investment in equipment has often been complemented by extensive teacher training, and patterns of computer use by young people, both within the school and outside it, more often are for clearly educational and learning purposes.


 *Education Policy Analysis – 2004 Edition*, Chapter 2.

Some countries persist with repetition of school years as common practice despite its cost – to individuals and the system alike: In some school systems (France, Luxembourg and Spain), up to one-quarter of lower secondary


school students repeat a year at some point, as do over 20% of primary pupils in the Netherlands and Mexico. But this is not the common situation across OECD countries. Although year repetition is often popular with teachers, there is little evidence that children gain benefit from it. Repetition is expensive – the full economic cost is up to USD 20 000 equivalent for each student who repeats a year – and schools have few incentives to take into account the costs involved.

 *No More Failures: Ten Steps to Equity in Education*, 2007, Chapter 4.

Formative assessment is among the most effective classroom strategies for promoting high student performance: Formative assessment differs from summative assessment (standardised tests, exams) in that the information gathered in the formative process is used on an on-going and targeted basis to shape improvements rather than the assessment serving as a summary of performance for wider purposes. The principles of formative assessment may be applied at the classroom and school [and even higher] levels to identify areas for improvement and to promote constructive cultures of evaluation. Meta-analyses show it is one of the most effective strategies for promoting high student performance. It is also important for improving equity and developing “learning to learn” skills.

 *Formative Assessment: Improving Learning in Secondary Classrooms*, 2005, Chapter 1.

Students are generally positive about school as a place, with younger and more successful students and girls the more positive: The evidence on student attitudes, from diverse international and national sources, reveals several general tendencies on reported satisfaction: students are fairly satisfied with school in general, although older students less than younger ones; students in higher tracks are more positive than students in lower tracks; girls tend to be more positive about school than boys. Countries where the measured sense of belonging is lowest among 15-year-olds are the Czech Republic, France, Belgium and Japan, and especially Korea and Poland. The cases of Japan and Korea show that low engagement can go hand-in-hand with high achievement. Countries where engagement is highest are Sweden, Ireland, Hungary and the United Kingdom.

 *Student Engagement at School: A Sense of Belonging and Participation. Results from PISA 2000, 2003; Demand-sensitive Schooling? Evidence and Issues*, 2006.

Anxiety towards mathematics is widespread: Taking the OECD countries as a whole, half of 15-year-old males and more than 6 in 10 female students report that they often worry that they will find classes in maths difficult and that they will get poor marks or grades. Nearly a third of all students across OECD countries agree that they get very nervous, tense and even helpless when


doing mathematics problems or homework. Anxiety levels are highest in France, Italy, Japan, Korea, Mexico, Spain and Turkey, and are lowest in Denmark, Finland, the Netherlands, and Sweden. There is no obvious relationship between levels of anxiety and overall performance: countries with very high performance are sometimes those with the highest reported anxiety levels (Japan, Korea) and are sometimes those with the lowest anxiety (Finland, the Netherlands), though of course the anxious and the high-scoring students are not necessarily the same persons.

 *Learning for Tomorrow's World: First Results from PISA 2003, 2004, Chapter 3.*

Intrinsic interest in mathematics among students is far lower than it is in reading: Comparing PISA 2003, rich in mathematics data, with PISA 2000 which was rich in reading data, shows how much lower is interest in mathematics among 15-year-olds. About half across OECD countries agree that they are interested in the things they learn in their maths lessons, but less than 40% are ready to agree that they do mathematics because they enjoy it. Less than a third look forward to their mathematics classes.


 *Learning for Tomorrow's World: First Results from PISA 2003, 2004, Chapter 3.*

Immigrant students are motivated learners and have positive attitudes towards school: Immigrant students report similar or even higher levels of positive learning dispositions compared with their native peers. First and second generation students often report higher levels of interest and motivation in mathematics and more positive attitudes towards schooling, and in none of the countries do immigrant students report lower levels on these engagement and interest indicators. The consistency of this finding is striking given that there are substantial differences between countries in terms of immigrant populations, policies and histories, as well as immigrant student performance in PISA 2003.

 *Where Immigrant Students Succeed: A Comparative Review of Performance and Engagement in PISA 2003, 2006, Chapter 4.*

The closer parents are to schooling provision the more satisfied they tend to be about its achievements: Parents tend to be more satisfied with their own children's school than with the state of education in general; parents with children in school more satisfied than other parents; those involved in school governance more than other parents; women – who tend to be more active in their children's education and the life of the school – more than men. In evidence from diverse national studies, there is a generally positive level of

reported satisfaction with schools by parents and the public. Education appears to be a high public priority alongside health and higher than many other calls on the public purse.


 *Demand-sensitive Schooling? Evidence and Issues*, 2006, Chapter 2.

2.2. Orientations for policy

Teacher employment and deployment are organised along markedly different lines in different systems: in some this follows a “career-based” model; in others, a “position-based” model. OECD analysis proposes the following directions to inform policy development whichever of the two applies:

- **Emphasise teacher quality over teacher quantity:** There is substantial research indicating that the quality of teachers and their teaching is the most important factor shaping student outcomes that is open to significant policy influence. Key ingredients in the teacher quality agenda include more attention to the criteria for selection into initial teacher education and teaching employment, on-going evaluation throughout the teaching career to identify areas for improvement, and recognising and rewarding effective teaching.
- **Develop teacher profiles to align teacher development and performance with school needs:** Countries need to have clear, concise statements of what teachers are expected to know and be able to do; these need to be embedded throughout the school and teacher education systems. The teacher profiles should encompass strong subject matter knowledge, pedagogical skills, the capacity to work effectively with a wide range of students and colleagues, to contribute to the school and the profession, and the capacity to continue developing.
- **View teacher development as a continuum:** The stages of initial teacher education, induction and professional development need to be well connected to create a coherent learning and development system for teachers – which they tend not to be in most countries. Lifelong learning for teachers implies supporting them more effectively in the early career stages and then providing incentives and resources for ongoing professional development.
- **Make teacher education and entry more flexible:** Provide more routes into the profession including: post-graduate study following an initial qualification in a subject matter field; para-professionals and teacher’s aides given opportunities to gain full qualifications; and mid-career changers able to combine reduced teaching loads and concurrent participation in teacher preparation.
- **Transform teaching into a knowledge-rich profession:** Teachers need to be active agents in analysing their own practice in the light of professional standards and their own students’ learning. Teachers need to engage more actively with new knowledge, and with professional development focused on the evidence base of improved practice.


- **Provide schools with genuine responsibility for teacher personnel management:** The evidence suggests that too often the selection process is dominated by rules about qualifications and seniority that bear little relationship to the qualifications needed to be an effective teacher. The school is the key agency for student learning – and hence for teacher selection, development, etc. – but will need highly-skilled leadership teams and support to carry this out.

 *Teachers Matter: Attracting, Developing and Retaining Effective Teachers*, 2005, Executive Summary.

OECD work on “formative assessment” (or “assessment for learning”) – which is aimed at gearing teaching up to the needs and weaknesses of individuals in classroom environments – suggests a number of broad policy principles, some of which have much broader application:


- **Keep the focus on teaching and learning:** A constant for policy needs to be that, while it may seem obvious, the core of the education process lies in the teaching and learning which takes place every day in countless classrooms.
- **Align summative and formative assessment approaches:** Multiple measures of student progress are needed with a range of well-aligned assessments in order to improve validity, reliability and coherence. At the most basic level, “alignment” means to ensure that policies do not compete with each other; at a more sophisticated level, it means that the formative and summative evaluations reinforce each other.
- **Ensure that classroom, school, and system-level approaches to assessment are linked and are used formatively to shape improvement from top to bottom:** Policies that promote well-designed formative evaluations which are aligned – between what goes on in classrooms, in the schools in which the classes are located, and in their encompassing systems – will provide much clearer, coherent messages and help to ensure that systems are, at all levels, geared to improving learning.
- **Invest in training and support for formative assessment:** As teaching involving formative assessment calls for more advanced professional repertoires, it is natural that they need professional development – for student teachers, those just starting and the experienced. Policy can help with guidelines on implementation and by promoting exemplars of good practice.
- **Encourage innovation:** Policy makers and school leaders should promote innovation among confident teachers, and encourage peer support and involvement in research; policy can test research-based innovations through pilot projects.

- **Build good bridges between research, policy and practice:** Develop the research literacy of practitioners and officials, build best-practice databases, and promote new research in identified key areas where gaps exist.
- **Actively involve students and parents in the formative process:** As students are by definition interacting with teachers in the formative process, they need to be involved and encouraged to do so by setting and internalising their own learning goals and becoming skilled at peer- and self-assessment. The active involvement of parents as in other aspects of school life is always an advantage.

 *Formative Assessment: Improving Learning in Secondary Classrooms*, 2005, Chapter 6.


The quality of school leadership needs to be enhanced and it needs to be made sustainable. Four main policy levers, taken together, can improve school leadership practice:

- **Redefine school leadership responsibilities:** Leaders need to exercise a significant degree of autonomy if they are to influence quality and policy should ensure that they have this. Policy should encourage leaders to: support, evaluate and develop teacher quality; engage in goal-setting and organisational evaluation; enhance strategic financial and human resource management; and operate more widely than within the confines of the school itself.
- **Distribute school leadership:** Leadership is strengthened, not weakened, if the responsibilities of school principals are shared effectively with other middle management and school professionals and with school boards; policy should support and enable this to happen.
- **Develop skills for effective school leadership:** School leadership demands specific advanced competences that explicitly need development. Leadership development should contribute to the different career stages so policies should distinguish between preparation for leadership, induction programmes, and adequate in-service opportunities adapted to need and context. This career focus will also enhance attractiveness (next point).
- **Make school leadership an attractive profession:** Ensuring that the procedures for recruiting the key personnel of school leadership are highly professionalised is one important route to enhancing attractiveness. Another is to establish salaries at levels commensurate with workloads and responsibilities, compared with classroom teachers and those in other professions, and linked to local factors which influence attractiveness.

 *Improving School Leadership – Volume 1: Policy and Practice*, 2008, Executive Summary.


Strategies for transforming schools into “learning organisations” should include:

- **The reconsideration of teacher employment and working time regulations** in the light of demands for new teaching and learning skills and increased preparation time for the efficient use of digital technology. A similar reconsideration of student learning time is also needed.
- **Policies fostering school-based staff development** including activities in which teachers share their knowledge and experiences and co-operate in development projects.
- **Policies promoting networking** between teaching professionals and co-operation between other “learning organisations” including private companies.
- Move towards a **higher level of school autonomy in human resource management** and in the allocation of funds for ICT development.

 *Completing the Foundation for Lifelong Learning: An OECD Survey of Upper Secondary Schools*, 2004, Chapter 4.

Educational buildings and facilities need to accommodate both the known, identifiable needs of today and the uncertain demands of the future:


Students need an environment that will support and enhance the learning process, encourage innovation, and be a tool for learning – these are much more important than creating a monument to aesthetics. Facilities need to be conceived not as an exclusive provision for the few, but as a resource to support lifelong education and recreation for all. They should provide good value for money. They should seek to minimise running and maintenance costs, ensuring that today’s design decisions do not impose an unnecessary burden on future generations. Finally, they need to be designed to safeguard the well-being of the planet as well as the well-being of the individual.

 *Designs for Learning: 55 Exemplary Educational Facilities*, 2001, Introduction.

Programmes for seismic safety in schools should recognise the safety of children in schools as an important goal. The principles to guide such programmes to be established on an urgent basis to assure earthquake safety of new and existing schools should include:

- **Establish clear and measurable objectives for school seismic safety**, based on the level of risk and supported by the residents of communities in question and agencies at the local government level.
- **Define the level of the earthquake hazard** in order to facilitate the development and application of construction codes and standards.

- **Specify the desired ability of school buildings to resist earthquakes.** School buildings should be designed and constructed, or retrofitted, to prevent collapse, partial collapse or other failure that would endanger human life when subjected to specified levels of ground shaking and/or collateral seismic hazards.
- **Give priority to making new schools safe.** A longer timeframe will likely be needed to correct seismic weaknesses of existing school buildings.

 “OECD Recommendation Concerning Guidelines on Earthquake Safety in Schools”, 2005.

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Table of Contents

Introduction	7
Chapter 1. Early Childhood Education and Care	9
1.1. Key findings and conclusions	10
1.2. Orientations for policy	14
Chapter 2. Schooling – Investments, Organisation, and Learners	17
2.1. Key findings and conclusions	18
2.2. Orientations for policy	25
Chapter 3. Transitions beyond Initial Education	31
3.1. Key findings and conclusions	32
3.2. Orientations for policy	36
Chapter 4. Higher Education	39
4.1. Key findings and conclusions	40
4.2. Orientations for policy	45
Chapter 5. Adult Education and Training – Participation and Provision	51
5.1. Key findings and conclusions	52
5.2. Orientations for policy	55
Chapter 6. Lifelong Learning	59
6.1. Key findings and conclusions	60
6.2. Orientations for policy	62
Chapter 7. Outcomes, Benefits and Returns	65
7.1. Key findings and conclusions	66
7.2. Orientations for policy	74
Chapter 8. Equity and Equality of Opportunity	77
8.1. Key findings and conclusions	78
8.2. Orientations for policy	82
Chapter 9. Innovation and Knowledge Management	87
9.1. Key findings and conclusions	88
9.2. Orientations for policy	89
Bibliography	93
List of tables	
1.1. Main forms of funding for early childhood education and care services	12

List of figures

1.1.	Most children come into education well before the age of 5 years (2006)	10
2.1.	Spending per school student going up.	20
2.2.	Total number of intended instruction hours in public institutions between the ages of 7 and 14 (2006)	21
3.1.	Completion of upper secondary education is now the norm across OECD countries	34
3.2.	Expected years in education and not in education for 15-to-29-year-olds (2006)	35
4.1.	Population that has attained at least tertiary education (2006)	40
4.2.	Distribution of foreign students in tertiary education, by country of destination (2006)	43
5.1.	Adults enrolled in education (2006)	53
6.1.	Expected time in education for 5-year-olds based on current enrolment patterns (2004)	61
7.1.	Percentages in each PISA proficiency level in science (2006)	67
7.2.	Percentages in each PISA proficiency level in mathematics (2006)	68
7.3.	Percentages in each PISA proficiency level in reading (2006)	68
7.4.	Earnings from employment by level of educational attainment for 25-to-64-years-olds by gender, 2006 or latest available year	71
8.1.	Women have overtaken men in upper secondary and higher education attainments, as shown by attainments of different age groups in the adult population in 2006	80
8.2.	Mathematics performance by migration status in 2003	80

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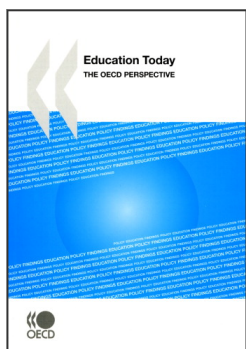


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