3

Finland: A Non-Competitive Education for a Competitive Economy

Finland has been ranked as one of the top-performing countries in PISA for the past decade. During the same period, it has also been cited as one of the world's most competitive economies. This chapter looks at some of the factors that contribute to this double success, including an emphasis on co-operation and networking, rather than competition; education policies that favour informality, flexibility and quick decision making; career guidance and work placements that bridge formal education and the world of work; and an emphasis on teaching skills and creativity.

INTRODUCTION

Prior to 2000 Finland rarely appeared on anyone's list of the world's most advanced nations, let alone education systems. Many young people were leaving the system relatively early, and Finland's performance was never better than average on five different international mathematics or science assessments of the International Association for the Evaluation of Educational Achievement (IEA) between 1962 and 1999. However, over the past decade Finland has been a major international leader in education (Table 3.1; OECD, 2010a). It has consistently ranked in the top tier of countries in all PISA assessments since 2000, and its performance has been notable for its remarkable consistency across schools.

No other country has so little variation in outcomes between schools, and the gap within schools between the top- and bottom-achieving students is extraordinarily modest as well. Finnish schools seem to serve all students well, regardless of family background or socio-economic status. For these reasons, Finnish schools have become a kind of tourist destination, with hundreds of educators and policy makers annually travelling to Helsinki to try to learn the secret of their success.

Table 3.1 Finland's mean scores on reading, mathematics and science scales in PISA

	PISA 2000	PISA 2003	PISA 2006	PISA 2009
	Mean score	Mean score	Mean score	Mean score
Reading	546	543	547	536
Mathematics		544	548	541
Science			563	554

Source: OECD (2010a).

With an economy now based significantly on the service industry, Finland is dependent on a skilled labour force, advanced knowledge workers, and creative designers. But higher and longer education is not enough. It is essential that there is a right balance between solid expertise and creative talent available for the Finnish labour market. This chapter describes the essential facts about the educational changes that have taken Finland from the periphery to the limelight in education and how the country has ensured coherence in its education policies and economic strategies.

FINNISH EDUCATION: A BRIEF HISTORY

Inauspicious beginnings: 1917-1970

Finland became independent from the newly born Soviet Union in 1917. Finland had to fight long and hard against the Soviet Union to preserve that independence through the Second World War. For a nation with a population of less than four million, the cost of the war was devastating: 90 000 dead; 60 000 permanently injured and 50 000 children orphaned (Sahlberg, 2011). Additionally, as part of the 1944 peace treaty with the Soviet Union, Finland was forced to cede 12% of its land, requiring the relocation of 450 000 Finnish citizens.

The first post-war elections in 1945 produced a parliament in which the seats were almost evenly divided between three political parties: the Social Democrats, the Agrarian Centre Party, and the Communists. In the 1950s the Conservatives gained sufficient strength to be included in major negotiations. Multi-party systems typically require the development of a political consensus in order to move any major policy agenda forward, and one priority around which such a consensus developed was the need to rebuild and modernise the Finnish education system.

In 1950 the structure of Finnish economy was at the level of Sweden's in 1910. Poverty was common and many people were leaving the country in search of a better life. The education system was highly unequal and more reflective of the needs of a predominantly rural, agricultural society than of a modern industrial society. In 1950 most young Finns left school after six years of basic education; only those living in towns or larger municipalities had access to a middle grade education. Students were separated at the age of 11 into either academically or practically-oriented educational pathways: 1) *civic schools*, run by some municipalities, which offered two or three additional years of schooling after six grades of elementary school, and which could lead to further vocational education if you happened to live in a town large enough to support such a school; and 2) *grammar schools*, which offered five additional years of schooling and typically led to the academic high school (*gymnasium*) and then to university. Only about a quarter of young Finns in 1950 had access to the grammar school path, and two-thirds of the grammar schools were privately governed.

This two-track system, generally reflecting the social class boundaries, prevailed until 1970, and is the reason why the old structure has been labelled a parallel education system. A fundamental belief underpinning this old structure was that *everyone cannot learn everything;* in other words, children's ability to be educated is not evenly distributed across society.

From backwater to watershed: Systemic reform in the 1970s

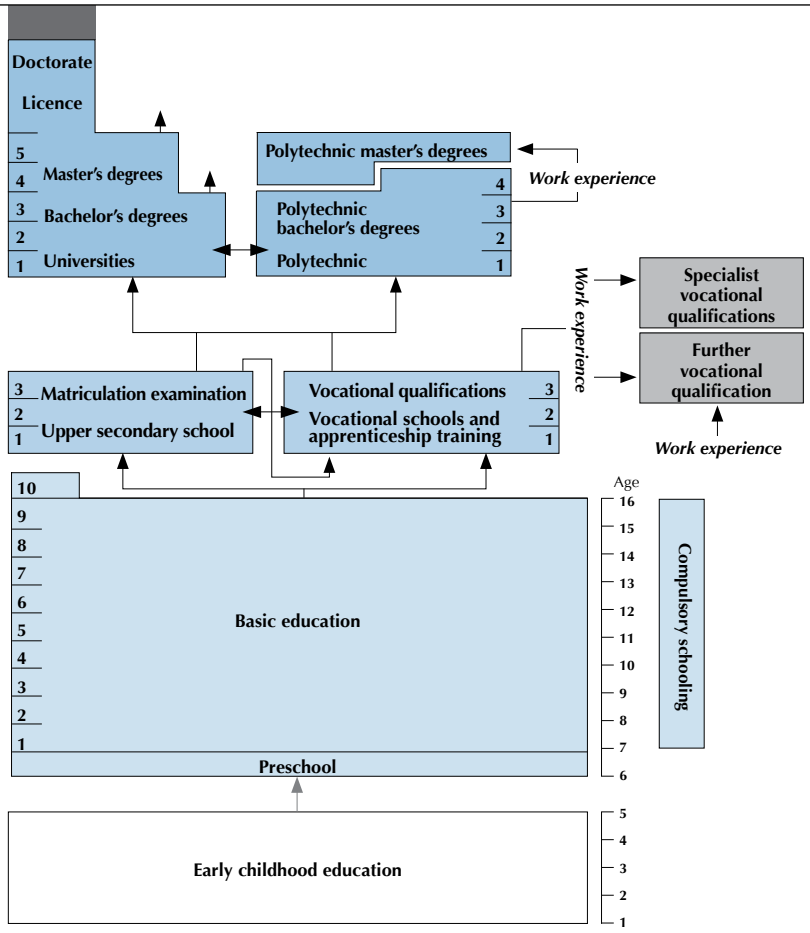
By the second half of the 1960s, a new social policy climate was diffusing the values of equality and social justice throughout Finnish society. The search was on for a more socially just society with higher education levels for all. The New Basic School System (or *peruskoulu* in Finnish) was developed in the early 1970s. Its central idea was to merge existing grammar schools, civic schools and primary schools into a comprehensive nine-year municipal school (Figure 3.1). This meant that all students, regardless of their socio-economic background or interests, would enroll in the same basic schools governed by local education authorities.

The transition from a parallel form of school organisation to the single comprehensive system was challenging, and consequently was phased in slowly, beginning in 1972 in northern Finland and only gradually spreading to the more populated municipalities and towns in the south. Critics of the new system maintained that it was not possible to have the same educational expectations for children from very different social and intellectual circumstances. Other opponents argued that the entire future of Finland as a developed industrial nation was at risk because overall education attainment would have to be adjusted downward to accommodate less talented students.

A major vehicle for addressing the anxieties of veteran teachers and resolving some of the difficulties inherent in merging the formerly parallel sets of schools into a unified system was the development of a new national core curriculum for the comprehensive school. The process for developing the curriculum engaged hundreds of teachers and took five years (1965-1970). One important decision that allayed the fears of some of the critics of the comprehensive school was to allow some differentiation in the upper grades to accommodate perceived differences in ability and interests, especially in mathematics and foreign languages. Schools could offer three levels of study in these subjects: basic, middle, and advanced, with the basic level corresponding to what had been offered in civic schools and advanced to what had been offered in the old grammar schools. This form of ability grouping persisted into the mid-1980s, when it was finally abolished.

▪ Figure 3.1 ▪

Finland's education system



A world-class education system: Finland today

Today the level of Finnish adults' educational attainment is high by international standards. According to the OECD, 38% of Finnish 25-34 year-olds have attained a higher education degree and over 90% have upper secondary education qualifications (OECD, 2010b). This indicates that participation rates in different levels of education are also high. Indeed, practically all pupils participate in voluntary pre-school and then successfully complete nine years' compulsory *peruskoulu*. Either general or vocational upper secondary education is available to all, and higher education to over 60% of the age cohort. Furthermore, Finnish adults participate in adult learning courses and programmes more than most of their peers in other countries.

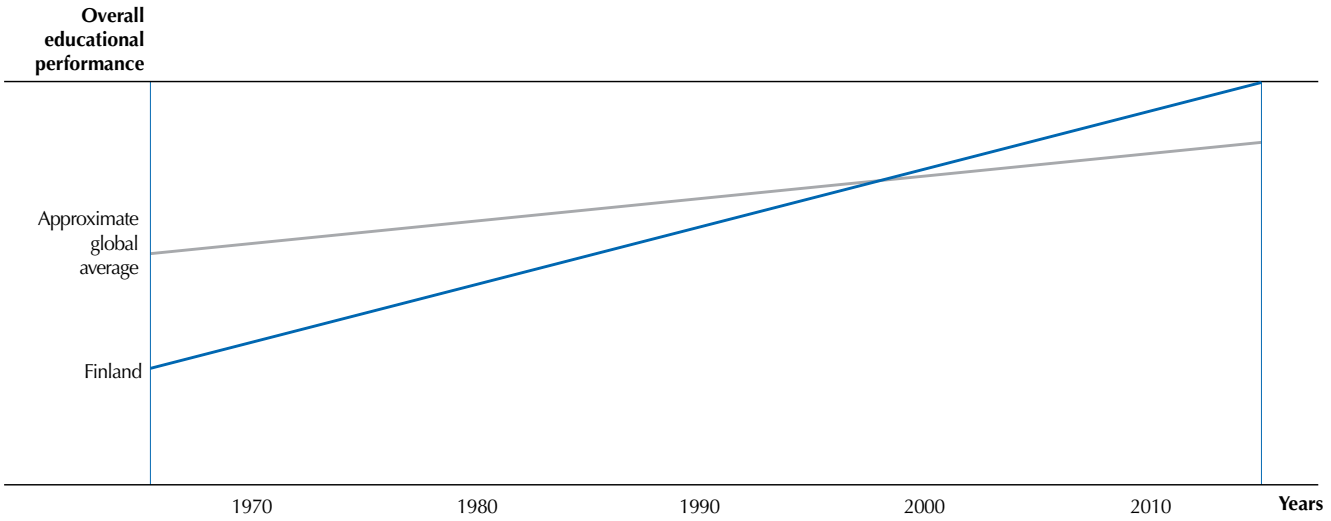
However, strong education performance in the Finnish context means more than high student academic achievement as measured by international comparative assessment studies. Strong educational performance, as it is understood in Finland, also includes the level of participation in and access to education, even distribution of learning outcomes throughout different schools and learners, and affordability and overall cost of education. Equal educational opportunity has been the leading value and the guiding principle of Finnish education policies since the 1960s. The virtue of Finnish education is that everyone has easy access to high-quality and publicly funded educational opportunities.

An important indicator of educational performance is to what extent the education system is able to cope with inequalities that different pupils bring with them into schools. This normally refers to equity of education outcomes. One way to look at this is to compare student achievement in different schools in the education system. PISA studies show that of all OECD countries, Finland has the smallest between-school variation of student achievement. For example, in the 2009 PISA reading literacy scale performance variation between schools in Finland was 7.7% compared to the OECD average variation of 42% (OECD, 2010a). Other international student achievement studies also found similar small between-school variations in students' performance.

However, this strong educational performance took a while to emerge. After implementing *peruskoulu* reform in the late 1970s all four aspects of educational performance – level of participation, equity in education, efficiency of the system, and student achievement – were rather undeveloped. Indeed, before the first PISA results became public in December 2001 there were only a few internationally notable aspects in the Finnish education system. All IEA studies that compared the performance of Finnish 4th- and 8th-grade students to that of their international peers confirm that Finland was at best a mediocre educational performer. Figure 3.2 illustrates the outcome of successful reform to Finland's education system (measured as participation, equity, efficiency and academic achievement) and compares it with the global average since the early 1970s.

▪ Figure 3.2 ▪

Finnish educational improvements compared to the approximate global average



Source: Sahlberg, 2011.

FIVE DRIVERS OF SUCCESSFUL REFORM

As with all education systems that achieve good results, Finland's success is a function of the network of several different factors that work together to create a coherent approach that supports consistent system-wide development and performance. Some of these factors are cultural. Finland's history and geography – caught between the powerful kingdom in the west and the even bigger empire in the east – compelled it to put the nation's interest first and not allow education policy to become victim to partisan

politics. Finland is a small nation that the rest of the world sees as a strange place that speaks a language nobody else understands. Over the past half-century Finns have adopted an understanding that the only way to survive as a small, independent nation is by educating all people. This is the only hope amid the competition between bigger nations and all those who have other benefits Finns don't have. Building a welfare state and its public education system driven by this spirit of survival is an important cultural context that explains, among other things, why Finns have succeeded in reaching consensus on such complicated issues as the comprehensive school system in the 1960s or upper secondary education for all in the 1970s.

The following five interrelated factors are often offered as the reasons behind successful reform and strong educational performance in Finland.

A focus on equity and well-being

While Finland has guarded its hard-won independence, in many areas of social policy it has been much influenced by its Scandinavian neighbours, especially Sweden. As noted above, the idea of the comprehensive school emerged in Finland as part of a larger movement in the 1960s for more social and economic equality, and over the next two decades the Finns adopted many features of the Swedish welfare state. Consequently, Finnish schools are embedded in a society with strong social safety nets and a broad and deep commitment to the healthy development and well-being of children. Education in Finland is not just about teaching and learning, but it also has a strong element of child well-being and care. Schools are expected to maintain strong support systems for all learners – healthful nutrition, health services, psychological counselling and student guidance are normal practice.

Equality in educational opportunities also lies at the heart of Finland's education policy. Education policies emphasise equity and well-being in schools and rely on the principle of inclusive education. The aim is for all children to find their neighborhood school sufficient and appropriate to their needs and to their parents' expectations. However, parents still have freedom to choose any school they like in their own municipality.

Optional pre-school at the age of six is available for all children. More than 98% of this age group participates in pre-school, combined with half-day school and another half daycare. All Finnish children start their formal schooling in August of the year they turn seven. Normally, primary school lasts six years followed by a three-year lower secondary school, although the new law allows some variation. Today it is widely recognised that the six-year primary school provides a solid basis for high educational performance. Finnish experience and international research show that investment in primary education pays off in later grades through better aptitude and learning skills, as well as through positive overall outcomes. Schools are typically small, with class sizes ranging from 15 to 30 students. In 2004, more than one-third of Finnish comprehensive schools had fewer than 50 pupils; just 4% of all schools had 500 or more pupils (Statistics Finland, 2011).[1] Lower grades (1 to 6) typically have fewer than 300 pupils and often operate separately from upper grades (7 to 9), although the unified *peruskoulu* is gradually closing the gap between these two. Compulsory education lasts until completion of nine years of basic school or until a young person turns 16, whichever comes first. Grade repetition is rare and over 99% of young Finns successfully complete nine years of basic school.

Dealing with difference

Bringing together students with often very different life circumstances and aspirations to learn together in the same schools and classrooms required a fundamentally new approach to education. This was especially so for those with special educational needs. The equal opportunity principle insisted that all students must be offered a fair chance to be successful and to enjoy learning. From early on, it was understood that educating pupils with special needs would only be successful if learning difficulties and other individual deficits were identified early on and treated promptly. Special education and pedagogical differentiation quickly became integral parts of school curricula, and all municipalities and schools soon housed experts trained to support special needs pupils.

Every comprehensive school has a student welfare team that meets at least twice a month for two hours. The team consists of the principal, the special education teacher, the school nurse, the school psychologist, a social worker, and the teachers whose students are being discussed. The parents of any child being discussed are contacted prior to the meeting and are sometimes asked to be present.

Funding efficiency

The vast majority of primary, secondary and tertiary education is financed from the public coffers, with only about 2% of total education expenditure coming from private sources (OECD, 2010b). Parents rarely contribute financially to their children's education and therefore private tutoring or after-school academic classes – common in many other high-performing countries – don't exist in Finland. Finland's education system is also highly efficient: in 2007 Finland spent 5.6% of its GDP on education, less than the OECD total average of 6.2% (OECD, 2010b). This efficiency is discussed further in the conclusions to this chapter.

Teachers who are highly valued and highly trained

The *peruskoulu* reform was not just an organisational change, it was a new educational philosophy. This philosophy included the beliefs that all pupils can learn if they are given proper opportunities and support, that understanding of and learning through human diversity is an important educational goal, and that schools should function as small-scale democracies, just as John Dewey had insisted decades before. *Peruskoulu* required that teachers, who had previously worked in very different schools, had to now all work in the same type of school with students with diverse abilities. This meant that teachers needed new instructional methods, they needed to design learning environments that enable differentiated learning for different pupils, and they needed to perceive teaching as a top profession. These expectations led to a wide-scale teacher education reform in 1979 that emphasised the professional development and research-based learning that have been the key drivers of Finland's rapid educational improvement.

Until the mid-1970s, primary school teachers were prepared in teacher colleges. Middle and high school teachers studied in subject departments of Finnish universities. By the end of the 1970s, all teacher-education programmes became university-based. At the same time, scientific content and educational research methodologies began to enrich the teacher education curriculum. Teacher education is now research-based, meaning that it must be supported by scientific knowledge and focus on thinking processes and cognitive skills used in conducting research (Toom, et al., 2010).

Among young Finns, teaching is consistently the most admired profession in regular opinion polls of high school graduates (Sahlberg, 2011). Classroom teaching is considered an independent and creative, high-status profession that attracts some of the best secondary school graduates each year (Box 3.1). The entry requirement for permanent employment as a teacher in all Finnish basic and high schools today is a Master's degree. Pre-school and kindergarten teachers must have a bachelor's degree.

Wages are not the main reason young people become teachers in Finland. Teachers earn very close to the national average salary level, typically equivalent to what mid-career, middle-school teachers earn annually in the OECD nations – about USD 41 000 (Table 3.3, OECD, 2010b). More important than salaries are such factors as high social prestige, professional autonomy in schools, and the ethos of teaching as a service to society and the public good. Thus, young Finns see teaching as a career on a par with other professions where people work independently and rely on scientific knowledge and skills that they gained through university studies. Another reason for teaching's high appeal is the fact that the master's degree also opens up other career options. A teacher with a master's degree often interests human resource departments within Finnish private sector and third-sector organisations. These teachers also have open access to doctoral studies in Finnish universities. Over the past decade, Finnish schools have noted an upsurge in school principals and teachers who possess a PhD in education.

Box 3.1 **Becoming a teacher in Finland**

Becoming a primary school teacher in Finland is a very competitive process, and only Finland's best and brightest are able to fulfil those professional dreams. Every spring, thousands of high school graduates submit their applications to the Departments of Teacher Education in eight Finnish universities. Normally it's not enough to complete high school and pass a rigorous national Matriculation Examination; successful candidates must have the highest scores and excellent interpersonal skills. Annually only about one in every ten applicants will be accepted to study to become a teacher in Finnish primary schools. In 2011 the University of Helsinki received 2 300 application for 120 study places in its primary teacher education programme. Among all categories of teacher education, about 5 000 teachers are selected from about 20 000 applicants.

The teacher-education programmes for prospective primary and upper grade teachers are somewhat different in structure, but not in rigour. Primary-grade teachers major in education, but they are expected to minor in at least two of the subjects included in the primary school curriculum. This means, for example, that they are studying mathematics in the mathematics department, not in the education department. Upper-grade teachers major in the subject they will be teaching, but they do substantial work in education as well, either in an integrated five-year programme or in a concentrated fifth year after they have completed their work in their subject field. It is also possible for a master's degree holder to take one year of pedagogical studies in the faculty of education to gain a formal teacher qualification.

Teacher education in Finland has at least four distinguishing qualities:

- Research-based. Teacher candidates are not only expected to become experts in pedagogical content knowledge, but they are required to write a research-based dissertation as the final requirement for the master's degree. Upper-grade teachers major in

an academic subject area of their choice; primary-grade teachers major in educational sciences. The rationale for requiring a research-based dissertation is that teachers are expected to be able to have a holistic view of teaching and learning process, and be able to engage in continuous professional development in their career as a teacher.

- Strong focus on developing pedagogical content knowledge. Traditional teacher-preparation programmes too often treat good pedagogy as generic, assuming that good questioning skills, for example, are equally applicable to all subjects. Because teacher education in Finland is a shared responsibility between the teacher education faculty and the academic subject faculty, there is substantial attention to subject-specific pedagogy for prospective primary as well as upper-grade teachers.
- Good training for all Finnish teachers in diagnosing students with learning difficulties and in adapting their instruction to the varying learning needs and styles of their students. Special education belongs to all teacher-education programmes and all teachers are expected to have at least basic knowledge and skills related to students with special educational needs.
- A strong clinical component. There are two main kinds of practicum within teacher-education programmes in Finland. The first – a minor portion of clinical training – occurs in seminars and small-group classes in the Department of Education, where students practice basic teaching skills in front of their peers. The second – the major teaching practice – happens mostly in special Teacher Training Schools governed by the universities, which have similar curricula and practices as normal public schools. Some student teachers also practice in a network of selected Field Schools (normal public schools). Primary-school teacher-education students devote approximately 15% of their intended study time to practice teaching in schools. In subject teacher education, practice teaching comprises about one-third of the curriculum.

The result is that today the Finnish teaching profession is on par with other highly skilled professions: teachers can diagnose problems in their classrooms and schools, apply evidence-based and often alternative solutions to them and evaluate and analyse the impact of implemented procedures. Parents trust teachers as professionals who know what is best for their children.

An OECD review on equity in education in Finland describes how Finland has created a virtuous circle surrounding teaching:

> High status and good working conditions – small classes, adequate support for counselors and special needs teachers, a voice in school decisions, low levels of discipline problems, high levels of professional autonomy – create large pools of applicants, leading to highly selective and intensive teacher preparation programs. This, in turn, leads to success in the early years of teaching, relative stability of the teacher workforce, and success in teaching (of which PISA results are only one example), and a continuation of the high status of teaching (OECD, 2005).

Smart accountability policies

Finland has not followed the global educational accountability movement that assumes that making schools and teachers more accountable for their performance is the key to raising student achievement. Finns don't think that frequent testing of students' achievement and schools' performance using standardised assessments is required. There are three primary reasons for this:

- While assessment practice is grounded in the national curriculum, education policy in Finland gives a high priority to individualised education and creativity as an important part of how schools operate. Therefore each student is judged more against his or her individual progress and abilities rather than against statistical indicators.
- Policy makers realised early on that teaching is the key element that makes a difference in what students learn in school – not externally set standards, standardised testing or alternative instructional programmes. Education developers insist that curriculum, teaching, and learning should drive teachers' practice in schools, rather than testing. Student assessment in Finnish schools is embedded in the teaching and learning process and used to improve both teachers' and students' work throughout the academic year.
- Finns want to avoid the disadvantages often associated with external standardised testing – narrowing of the curriculum, teaching to the test, and unhealthy competition among schools. Finnish education leaders think that the success of a high-stakes testing policy is whether it positively affects student learning, not whether it increases student scores on a particular test. If student learning remains unaffected, or if testing leads to biased teaching, the validity of such high-stakes tests must be questioned. Finnish school principals, and especially teachers, are not convinced that frequent external census-based testing and accountability built on test results are beneficial to students and their learning.

Along with curriculum design (Box 3.2), teachers play a key role in assessing students. Since Finnish teachers must design and conduct appropriate curriculum-based assessments to document student progress, classroom assessments and school-based evaluations are important parts of teacher education and professional development. All assessments of student learning are based on teacher-made tests within each school. Normally Finnish pupils are not assessed using numerical grades that would enable direct comparison with one another before 5th grade. Only descriptive assessments and feedback are used, depending on how student assessment is described in the school curriculum or municipal education plan. Finnish schools accept that there may be some limitations on comparability when teachers do all the grading of students. But the fact that primary school is, to a large extent, free from standardised testing enables teachers to use creative teaching methods and pupils to concentrate on learning and

sustaining their natural curiosity. The national PISA report concludes that only 7% of 15-year-old Finnish students said they feel anxious when working on mathematics tasks at home compared to 52% in Japan (Kupari & Välijärvi, 2005).

Smart accountability in the Finnish education context preserves and enhances trust among teachers, students, school leaders and education authorities and involves them in the process, offering them a strong sense of professional responsibility and initiative. Shared responsibility for teaching and learning characterises education in Finland; parents, students and teachers alike prefer an approach that allows schools to keep the focus on learning and permits more freedom in curriculum planning than the external standardised testing culture prevailing in some other nations.

Box 3.2 **Growing autonomy for teachers**

During the course of Finland's education reforms, teachers have demanded more autonomy and responsibility for curriculum and student assessment (Aho, et al., 2006). While the *National Curriculum Framework for Basic School* and similar documents for upper secondary education provide guidance to teachers, curriculum planning is the responsibility of schools and municipalities. Local education authorities approve curricula for schools, but teachers and school principals play a key role in curriculum design. Teacher education provides them with adequate curriculum knowledge and planning skills. Moreover, the importance of curriculum design in teacher practice has helped shift the focus of professional development from fragmented in-service training towards more systemic, theoretically grounded school-wide improvement efforts.

A culture of trust

Much of what has been previously noted is possible only if parents, students, and authorities trust teachers and school principals. The Finnish education system was highly centralised until the early 1990s. Schools were strictly regulated by the central agencies; a dense network of rules and orders governed the daily work of teachers. The gradual shift towards trusting schools and teachers began in the late 1980s. In the early 1990s, the era of a trust-based school culture formally started in Finland.

The culture of trust means that education authorities and political leaders believe that teachers, together with principals, parents and their communities, know how to provide the best possible education for their children and youth. Trust can only flourish in an environment that is built upon honesty, confidence, professionalism and good governance. Tellingly, Finland also performs well in international transparency rankings that indicate the perceptions of corruption among citizens (Sahlberg, 2010). Public institutions generally enjoy high public trust in Finland. Trusting schools and teachers is a consequence of a well-functioning civil society and high social capital. Honesty and trust are often seen as among the most basic values and the building blocks of Finnish society (Lewis, 2005).

The degree of Finnish social cohesion and trust in government is partly a function of the country's size and relative cultural homogeneity, but also reflects the national temperament. Social cohesion and trust are difficult factors to isolate and quantify, but they clearly are part of the explanation for why teaching has become such an attractive profession for talented young people in Finland.

Sustainable leadership and political coherence

The success of Finnish education reform from an international perspective is mainly based on institutions and institutional structures established in the 1970s and 1980s, rather than on changes and improvements implemented from the 1990s. Changes in Finnish education after 1990 have been more about ideas and innovation than about new institutional structures. Institutional changes in the 1990s have been smaller, except in tertiary education where a new polytechnic system was introduced. Nonetheless, directions remain clear and are based on the earlier policies.

Education policies are intertwined with other social policies, and with the overall political culture. Education in Finland is seen as a public good that contributes to the well-being of all and therefore has a strong nation-building function. The key success factor in Finland's development of a well-performing knowledge economy with good governance and a respected education system has been its ability to reach broad consensus on most major issues concerning the country's future directions. The conclusion is that Finland seems particularly successful in implementing and maintaining the policies and practices that constitute sustainable leadership and renewal.

Increased interaction among various public-sector policies has strengthened the coherence of economic and social reforms and created conditions for sustainable leadership in Finnish society in general and the education sector in particular. This has enabled systematic commitment to a long-term vision and inter-sector co-operation among different policies and strategies.

Governments from the political left and right have respected education as the key public service for all citizens and maintained their belief that only a highly and widely educated nation will be successful in world markets.

EDUCATION AND NATIONAL ECONOMIC COMPETITIVENESS

Is there a correlation between a country's educational performance and its national economic competitiveness? Using available international studies and surveys the simple answer is "no" (Schwab, 2010; OECD, 2010a). Countries like the United States and Norway rank high in the global competitiveness ratings – such as those of the World Economic Forum (Schwab, 2010) – but only modestly in the assessments of their students' learning achievement, such as PISA. On the other hand, Korea, Canada and the Netherlands are high in the student learning comparisons but not at the top of economic competitiveness rankings. Many countries seem to reach similar opposite positions in these two ratings, simultaneously at the high and low ends of the scales; therefore we cannot assume that these two measures correlate. Nevertheless, some countries do manage to do consistently well in both rankings.

Finland has been ranked as one of the most competitive economies since the early 2000s (Routti and Ylä-Anttila, 2006). Two major events occurred in the early 1990s that triggered a significant shift in the economic development strategy promoted by Finland's governmental and private sector leaders. The first was the initiation of the accession process that led to Finland's acceptance into the European Union in 1995. With the collapse of the Soviet Union (a major trading partner), Finland had no choice but to diversify its export strategy and begin to move away from its historic reliance on forest products and other traditional industries. The second and more powerful stimulus was a major economic recession in the early 1990s, set off by a collapse of the financial sector reminiscent of the banking crisis the US has recently experienced. Unemployment in Finland approached 20%; gross domestic product (GDP) declined by 13% and public debt exceeded 60% of GDP (Aho, et al., 2006). The government used this crisis as an opportunity to develop a new national competitiveness policy designed to support private sector innovation and focused heavily on the development of the telecommunications sector, with Nokia as the central player. In a remarkably short time, Finland managed not only to dig itself out of recession but to reduce its historical reliance on its natural resources and transform its economy into one based on information and knowledge. Investments in research and development provided the fuel for this growth. In 1991 only five Finnish workers out of 1 000 were in the research and development (R&D) labour force. By 2003 this number had increased to 22, almost three times the OECD average (Routti and Ylä-Anttila, 2006). By 2001 Finland's ranking in the World Economic Forum's global competitiveness index had climbed from 15th to 1st, and it has remained at or near the top in these rankings ever since.

Economists have been interested to find out why Finland has been able to become the most competitive economy in the world since 1990. Good governance, strong social cohesiveness and an extensive social safety net provided by the welfare state made this exceptionally rapid economic recovery possible. Educational performance has to be seen in the context of other systems in society, *e.g.* health, environment, rule of law, governance, economy and technology. It is not only that education functions well in Finland, but that it is a part of well-functioning democratic welfare state (Castells and Himanen, 2002). Attempts to explain the success of the education system in Finland should be set in this wider context and seen as a part of overall function of democratic civil society.

There are some interesting parallels between education and economic development policies in Finland during the period of transformation and related rapid growth in the 1990s. Table 3.2 summarises some of the key policies and strategies that have been driving education system development and economic growth since 1990.

Four common features are often mentioned as contributing to positive educational and economic progress:

- *Policy development has been based on integration* rather than exclusive sub-sector policies. Education sector development is driven by medium-term policy decisions that rely on sustainable basic values, such as equal opportunities to good education for all, inclusion of all students in mainstream publicly financed education and strong trust in public education as a civil right rather than an obligation. These medium-term policies integrate education and training and involve the private sector and industry in the creation and monitoring of their results. Similarly, economic and industrial policies have integrated science and technology policies and innovation system with industrial clusters (Routti and Ylä-Anttila, 2006). Integrated policies have enhanced the systemic development and interconnectedness of these sectors and have thus promoted more sustainable and coherent political leadership for their successful implementation.

Table 3.2. Comparison of education policies and economic development policies in Finland since 1990

Education development	Economic development
BASIC POLICY PRINCIPLES	
▪ Equal opportunities to receive good education ▪ Strong belief in public education ▪ Comprehensive medium-term policies integrating education and research	▪ Integrated science and technology policies and innovation system with industrial clusters ▪ Maintained high public spending on research and development
STRATEGIC FRAMEWORK	
▪ Long-term view of comprehensive schooling that is the same for all pupils ▪ Flexibility at all levels of the education system ▪ Emphasis on creativity in organising schooling and classroom work	▪ Long-term view of the knowledge-based economy and integrated approaches to development ▪ Flexible regulatory framework ▪ Investing in innovations and promotion of regional innovation strategies
ROLE OF GOVERNANCE AND INSTITUTIONS	
▪ Good governance and public institutions play an important role in policy-making and monitoring ▪ Development-oriented evaluation and accountability are spread throughout the system ▪ Consensus on policies among education authorities, employers and trade unions fosters sustainable leadership	▪ Strong governance and rule of law provide solid basis for economic development ▪ Flexible accountability ▪ Specific institutions, such as the Committee of the Future, and the innovation system are shared by private and public representatives for consensus-making purposes
HUMAN CAPITAL	
▪ Well-trained teachers ▪ Recognised professionalism in schools and education institutions ▪ Participatory planning, leadership and evaluation	▪ Private sector participates actively in education and training policy formulation and implementation ▪ Significant financing of staff development ▪ Encouraging lifelong learning and continuous professional development

Source: Sahlberg, 2011.

- Strategic framework development and change have been built upon *longer-term vision*. National development strategies – for example the Information Society Programme (Ministry of Finance, 1995), National Lifelong Learning Strategy (Ministry of Education, 1997) and Ministry of Education Strategy 2015 (Ministry of Education, 2003) – have served as overarching frameworks for the sector strategies. These and other strategies have emphasised increasing flexibility, coherence among various sectors, and the development of local and regional responsiveness and creativity in institutions.
- *The roles of governance and public institutions* have been central in policy developments and implementation of both education and economic reforms. Good governance, high quality public institutions and rule of law play important roles in policy development and implementation of planned changes. Evaluation approaches in both sectors are development-oriented and various players in the system are held accountable for process and outcomes. Particular institutions, for example the Committee of the Future and the Committee of Vocational Education and Training, are shared by private and public representatives as well as the key stakeholders of the society for consensus-making purposes.
- A highly educated labor force and broad participation in education at all levels guarantee the stock of *human capital* that is necessary for both good education service delivery and economic growth. For instance, all teachers are required to hold a master's degree and most workers are encouraged to participate in continuous professional development as part of their work. Teachers are professionals in their schools and therefore actively involved in planning and implementing changes in their work.

Specific policies and desired practices for skills in a competitive knowledge economy

Against this background, what Finnish policies and educational reforms have had a significant impact on its national economic competitiveness? The following education policies have addressed the aspects of teaching and learning that encourage risk-taking in classrooms, creativity in schools and flexibility in the education system. The key assumption is that expert thinking and complex communication require less regulation and more opportunities for real co-operation in schools.

Less competition, more collaboration

A key Finnish lesson is that to prepare themselves for a more competitive economy, schools and students must compete less. Instead, schools should increase internal collaboration. Co-operation and networking rather than competition and disconnectedness should lead the education policies and development of education systems. Schools and other educational institutions should cultivate attitudes, cultures and skills that are necessary in creative and collaborative learning environments. Finnish education policies assume that expert thinking, complex communication and creative problem solving can only flourish when collaboration is maximised and competition is minimised.

Economic competitiveness can be promoted and enhanced by fostering co-operation and interaction at three levels in education: schools, teachers and students. This has been the key strategic principle in educational development in Finland (Box 3.3). It means that supporting school networking has to be given a high priority in education reforms. In almost any education system necessary innovations and ideas for improvement already exist in the system. The challenge is to share them among schools. Therefore, developing the education system in a way that encourages and enables schools to create partnerships and information exchange networks is likely to spread existing good practices. Helping teachers to work as professional communities combats the isolation that is common to many teaching cultures. Learning to teach in new ways is not easy. A safe and supportive professional climate in schools is a necessary condition for the professional improvement of teachers. Designing education reforms in a way that will provide teachers with opportunities and incentives to collaborate more will increase the likelihood of sustainable implementation of intended changes. A national school improvement initiative, the Aquarium Project, implemented in the 1990s in Finland is an example of networking and collaboration at the system level to enhance implementation of intended policies (Sahlberg, 2011).

Box 3.3 **Learning schools**

Education policies in Finland encourage local education leaders, principals and teachers to take risks, find new solutions to make education more meaningful to all, and put creativity at the centre of play in schools. As the level of teacher professionalism gradually increased in schools during the 1990s, the prevalence of effective teaching methods and pedagogical classroom and school designs increased. A new flexibility within the Finnish education system enabled schools to learn from each other, and thus make best practices universal by adopting innovative approaches to organise schooling. It also encouraged teachers and schools to continue to expand their repertoires of teaching methods, and to individualise teaching in order to meet the needs of all students.

Another aspect of the education system in Finland is the role of networks of schools and communities of teachers in school improvement and teachers' professional development. Andreas Schleicher, who leads the PISA in the OECD, concluded in his analysis of Finnish education that building networks of schools that stimulate and spread innovations helps to explain Finland's greatest success in making "strong school performance a consistent and predictable outcome throughout the education system, with less than 5% variation in student performance between schools" (Schleicher, 2006).

More flexibility in the system

Flexibility has been another of the key denominators of education and economic development in Finland. The education system went through a major transformation in the early 1990s when most state regulations were abolished and pathways to education opportunities were dramatically increased. Similarly, private sector regulations were loosened and more flexible standards were introduced, especially to foster networking between firms, universities, and research and development institutions.

Today's education policies emphasise informality, quick decision-making, and freedom to act so that local education authorities and schools can react to changing situations and surrounding environment. As with Nokia (Box 3.4), the objective of educational management in Finland has been to have decisions made by the people who have the best knowledge and skills. The education management system is not only less hierarchical than many other education systems, it is decidedly anti-hierarchical. The objective of meritocratic management in both Nokia and the Finnish education system is to encourage creativity, entrepreneurship and personal responsibility.

Box 3.4 Matching curricula to the needs of the economy

In many Finnish companies today the objective is to hire the most innovative as well as collaborative people they can find and to give them the freedom to work together and take risks. In a meeting for the new national curriculum for science and technology in the early 1990s, as part of a task force on the national science curriculum, Finnish business leaders and employers were asked what their expectations were from schools. They explained that if people work or learn in an environment where avoidance of mistakes and fear of failure are dominant, they typically don't think for themselves. Fear of failure does not engender creativity. A senior Nokia manager put it this way:

"If we hire a youngster who doesn't know all the mathematics or physics that is needed to work here, we have colleagues here who can easily teach those things. But if we get somebody who doesn't know how to work with other people, how to think differently or how to create original ideas and somebody who is afraid of making a mistake, there is nothing we can do here. Do what you have to do to keep our education system up-to-date but don't take away creativity and open-mindedness that we now have in our schools." (Sahlberg, 2011)

This was an important message for those education experts crafting the new national curriculum frameworks in mathematics and science at that time. In my recent interviews with some of the main Finnish service and technology companies' human resource heads a similar trend was confirmed. Successful applicants' academic merits normally weigh less than their personality and attitude. As one informant said, "we are hiring attitudes and talents, not credits or diplomas". Policy makers and schools listen closely to what employers expect of their new human resources. Curriculum policy today is in the balance between children's personal development needs, and the expectations of the Finnish economy.

Sound career pathways

Career guidance and counselling became a compulsory part of the *peruskoulu* curricula in all schools. Career guidance was intended to minimise the risk of students making irreversible choices about their educational futures. Career guidance and counselling soon became a cornerstone of both lower and upper secondary education, and has been an important factor in explaining Finland's very low drop-out rates and grade repetition. Career guidance has also served as a bridge between formal education and the world of work. As part of the overall career guidance curriculum, each student in basic school spends two weeks in a selected workplace to learn about the work environment.

Value experimentation and creativity

Improving economic competitiveness requires well-educated and trained people, technological and network readiness, and the knowledge and skills to work in an innovation-rich world. In order to be on the cutting edge of creative design and continuous innovation in high-tech industries, Finland has contended that people and their creative talent must be the key (Box 3.4). Creativity will not flourish and be sustained in schools unless people feel secure to take risks and explore the unknown. Moreover, working with and understanding innovations require creative and risk-intensive contexts. In other words, economic competitiveness is promoted by creating safe and inspiring learning environments in schools. In such schools teachers and principals will step beyond their conventional territories of thinking and doing that are often conditions for making a difference in students' learning and schools' performance.

Making learning interesting for students is the imperative for achieving sustainable development and change in schools. Economic competitiveness is above all about sustained learning. When individuals or societies have severe learning difficulties the economic forecasts will not look good. If students do not learn to love learning in their schools and universities, they will not find learning and change attractive afterwards. Therefore, education policies should first and foremost try to make learning in schools interesting and creative for all students without sacrificing the other important goals of education.

Linda Darling-Hammond, a leading US scholar and practitioner of teacher education, describes how Finnish teacher preparation can instill creativity:

> Student teachers participate in problem-solving groups, a common feature in Finnish schools. The problem-solving groups engage in a cycle of planning, action, and reflection/evaluation that is reinforced throughout the teacher education program and is, in fact, a model for what teachers will plan for their own students, who are expected to use similar kinds of research and inquiry in their own studies. Indeed, the entire system is intended to improve through continual reflection, evaluation, and problem-solving, at the level of the classroom, school, municipality, and nation. (Darling-Hammond, 2010)

LESSONS FROM FINLAND

For all of Finland's perceived advantages of size, relative cultural homogeneity and economic strength, it is important to remember that as recently as 1970 only 14% of Finnish adults had completed upper secondary school (Sahlberg, 2010). In 1993 Finland was in near economic collapse due to the banking crisis. Finland's ascent into the very top tier of educational performance was by no means inevitable: it was at least as much the result of a set of policy decisions deliberately taken, implemented thoughtfully, and sustained over a very long period of time as of factors endemic to the country's culture and history.

There are five main lessons from the story of Finland's path to the head of the international pack in educational performance. The overall conclusion from the Finnish experience has to do with time, i.e., with understanding that changing a country's education system is a complex process that requires stability and continuity of both politics and policy over decades, not years. Finland's leaders took the time to build a solid political consensus across party lines before enacting the comprehensive school legislation in the early 1960s, and then took several more years to phase in the implementation of the law. Everything that has followed has been built upon that consensus-based foundation.

High-quality teachers

There is now strong evidence that the quality of teachers and teaching is by far the most important school-based determinant of educational performance and student achievement, especially for students from less advantaged backgrounds (Hanushek and Wössmann, 2007; Auguste, et al., 2010). Many countries pay lip-service to the importance of attracting and retaining a high-quality teacher force, but few have pursued this goal as single-mindedly as Finland. While teachers have always enjoyed a degree of respect in Finnish society, through a combination of raising the bar for entry into the profession and granting teachers greater autonomy and control over their classrooms and working conditions than their peers enjoy elsewhere, Finland has managed to make teaching one of the most desirable career choices among young Finns. Consequently, teaching is now a highly selective occupation in Finland, with well-trained professionals spread throughout the country. This fact, more than any other, accounts for the high level of consistency across Finnish schools.

Some of the noteworthy successful practices in Finland appear to be:

- The development of rigorous, research-based teacher-education programmes that prepare teachers in content, pedagogy, and educational theory, as well as the capacity to do their own research and craft creative pedagogical solutions for teaching.
- Significant financial support for teacher education, professional development, reasonable and equitable salaries, and supportive working conditions.
- The creation of a respected profession in which teachers have considerable authority and autonomy, including responsibility for curriculum design and student assessment, which engages them in the ongoing analysis and refinement of practice.

Highly efficient policies

With such policies and reforms, Finland appears to get more for less in education. Finland differs from many other countries in its minimalistic approach to educational effectiveness. Finnish children start formal schooling later than most other children, at the age of seven. According to international surveys they also are expected to do much less school-related homework than others. Comparisons of intended instructional hours during compulsory education reveal that pupils in Finland have less classroom-based learning time than pupils in other developed countries (Box 3.5). Last but not least, Finnish children experience little or no external standardised testing of what they have learned. This minimalistic approach to education policy and practice might suggest that the education system is mediocre. That does not seem to be the case. Some Finnish analysts suggest that a golden balance has been struck in Finnish schools between formal instruction and informal learning that allows both students and teachers to use their creative potential and imagination to complement the effect of education. These smart education policies optimise inputs and limit the use of expensive quality control and data mechanisms that are common in many other countries.

Diagnosis and early intervention

Finnish teachers are trained to accept that *all* children can learn, and to intervene before struggling children become discouraged and fall too far behind their classmates. The proximity of help in the form of specially trained intervention experts in every school – the special education teacher – means that the regular classroom teacher has easy access to support and that struggling children are much less likely to go unnoticed or to fall through the cracks. The small size of Finland's schools is an important factor here, as is the co-ordination of resources embodied in the pupils' care group. Most primary school teachers also teach the same class of pupils for several years, i.e. from first grade to sixth, allowing them to become very familiar with the needs and personalities of each student. Again, this combination of elements helps explain why the gap between the top and bottom performing schools and students in Finland is so narrow compared with virtually all other nations.

Box 3.5 **Teaching less does not mean achieving less**

From an international perspective, Finnish teachers devote less time to teaching than do teachers in many other nations. For example, a typical middle-school teacher in Finland teaches just less than 600 hours annually, corresponding to about four 45-minute lessons a day. In the United States, by contrast, a teacher at the same level devotes 1 080 hours to teaching over 180 school days (OECD, 2010b). This means that, on average, a middle-school teacher in the United States devotes almost twice as much time to teaching compared with his or her counterpart in Finland.

This, however, does not imply that teachers in Finland work less than they do elsewhere. An important – and still voluntary – part of Finnish teachers' work is devoted to improving classroom practice, the school as a whole, and working with the community. Formally, teacher's working time in Finland consists of classroom teaching, preparation for teaching, and two hours a week planning school work with colleagues. But because Finnish teachers take on significant responsibility for curriculum and assessment, as well as experimentation with and improvement of teaching methods, some of the most important aspects of their work are conducted outside of classrooms.

Creativity

Creativity and innovation are overused words in education, especially by merchants of the latest pieces of hardware or software that promise to revolutionise teaching and learning. However, in this chapter creativity refers to the emphasis in Finnish schools on the importance of cultivating in young people those dispositions and habits of mind that are often associated with innovators: risk-taking, flexibility, initiative, collaboration, and the ability to apply knowledge to novel situations. Some skeptics about Finland's success attribute its consistently high performance on PISA to the degree of alignment between the kind of learning PISA measures and values and the goals of the Finnish education system. There is clearly some truth to this observation, but this hardly constitutes a criticism of the Finnish system. The Finns are not the least bit apologetic about their focus on preparing people for an economy in which creativity, innovation and entrepreneurship will continue to be drivers of progress.

Deep sectoral reforms

Most governments enact education reform through new programmes – e.g. smaller class size, more ambitious external assessments, increased professional development. Reforms like these take the basic features of the system as given. The Finnish reforms, by contrast, especially the creation of the comprehensive school, created a sector that functioned in a radically different way. It is the shape of this new sector, not continued programmatic initiatives from a central government, which accounts for Finland's success. Closer analysis of Finnish education policies and reforms since the 1970s reveals that Finland has employed different solutions to transforming its education system compared with many other OECD countries (Darling-Hammond, 2010; Hargreaves and Shirley, 2009; Sahlberg, 2011). This is sometimes called *the Finnish Way* of educational reform. The Finnish experience shows that successful reform of the education system is possible without strong emphasis on competition, choice, external inspection, standardised testing or non-public governance of schools (such as charter schools). Finnish policies have endorsed the systematic building of professionalism among teachers and leaders, the gradual creation of trust in schools and teachers, and the importance of personalisation of teaching and learning. Moreover, Finnish education policies have put creativity and experimentation on a par with teaching for academic achievement. One of the key lessons from Finland is therefore a notion of hope: it is possible to turn around an education system if the change strategies are based on right things.

THE CHALLENGE AHEAD

The big question all high-performing systems need to face is whether or not the policies and practices that have brought about their current high performance will be sufficient to sustain them in a rapidly-changing, globalising world. Like all other countries, Finland needs to put serious effort into renewing its education system to meet the needs of a society that will be more globalised, complex and unpredictable than today's. The following challenges to the Finnish education system are likely to need rapid attention:

- Although the educational performance of Finnish schools, as measured by international student assessments, is remarkably even, the gap between individuals in Finland is increasing. In reading literacy, for example, differences between girls and boys are already significant. Domestic research also reveals that the number of adolescents who find no or little value in studying at school is growing. Education policies need to address these indifferences in achievement and engagement. One option is to have more personalised learning and customised schools that would better meet the interests and needs of individuals and communities (Sahlberg, 2011).

- The global economic downturn is reducing available funds for the public sector in Finland. Many Finnish municipalities are in serious fiscal crisis and spending in education is at stake. In some cases local decision makers argue that good enough results can be accomplished with a reduced education budget. But continuous renewal of the education system requires both human and financial resources. The risk is that shrinking resources will eventually jeopardise the process of renewal.
- During times of economic downturn, professional development budgets are often the first to vanish. Concerns have been raised recently about the variability of in-service professional development for teachers. Municipalities, as the overseers of primary, middle and high schools, are responsible for providing teachers with learning opportunities, based on their needs. Therefore, some schools receive greater allocations for professional development and school improvement than others. In response to concerns that participation in professional development may be decreasing, the government is planning substantial increases in professional development budgets and considering ways to require that all teachers have access to adequate professional training financed by municipalities. The state budget annually allocates some USD 30 million to professional development of teachers and school principals through various forms of pre-tertiary and continuing education. The government determines the focus of the training, based on current national educational development needs, and the training is contracted out to service providers on a competitive basis. The Finnish Ministry of Education, in collaboration with municipalities, plans to double the public funding for teacher professional development by 2016.
- Finally, creativity is the central power of Finnish education system. Lack of fear, and the freedom to find one's own personal way to learn are the main drivers of the risk-taking and relaxed atmosphere in Finnish schools. Increasing diversity in classrooms also helps teachers to look for new ways to make learning inspiring for all. It is paramount to maintain that diversity and further develop creative approaches in schools and classrooms. Having more creativity and innovation in education is not only a methodological or curricular issue. This is first and foremost a cultural issue, and the challenge is to organise schools to make the best use of everybody's imagination and creative talent. Minimising external control of schools and maximising trust will be the success factors of Finnish education for the decades to come.

■ Figure 3.3 ■

Finland: Profile data

Language(s)	Finnish and Swedish[2]
Population	5 326 000[3]
Youth population	16.7%[4] (OECD average 18. 5%)
Elderly population	16. 9%[5] (OECD average 14. 6%)
Growth rate	0.38%[6] (OECD average 0.51%)[7]
Foreign-born population	3.8%[8] (OECD average 12.9%)
GDP per capita	35 918 USD[9] (OECD average 33 732)[10]
Economy-Origin of GDP	Services: 70.6%; Industry and construction: 24.6%; Agriculture, forestry and fishing: 4.9%[11]
Unemployment	6.4% (2008)[12](OECD average 6.1%)
Youth unemployment	21,6% (OECD average 18.0%)[13]
Expenditure on education	5.9% of GDP; (OECD average 5.2%) 3.7% on primary, secondary and post-secondary non-tertiary 1.9 % on tertiary[14] education[15] (OECD average 3.5%; 1.2% respectively) (Table B4.1) 12.5% of total government expenditure[16] 7.9% on primary, secondary and post-secondary non-tertiary 3.9 % on tertiary education[17] (OECD average 9%; 3.1% respectively)
Enrolment ratio, early childhood education	48.2% (OECD average 71.5%)[18]
Enrolment ratio, primary education	95.5% (OECD average 98.8%)[19]
Enrolment ratio, secondary education	87.2% (OECD average 81.5%)[20]
Enrolment ratio, tertiary education	42.6%[21] (OECD average 24.9%)[22]
Students in primary education, by type of institution or mode of enrolment[23]	Public 98.6% (OECD average 89.6%) Government-dependent private: 1.4% (OECD average 8.1%) Independent, private: no data[24] (OECD average 2.9%)
Students in lower secondary education, by type of institution or mode of enrolment[25]	Public 95.7% (OECD average 83.2%) Government-dependent private: 4.3% (OECD average 10.9%) Independent, private: no data[26] (OECD average 3.5%)
Students in upper secondary education, by type of institution or mode of enrolment[27]	Public 86.1% (OECD average 82%) Government-dependent private: 13.9% (OECD average 13.6%) Independent, private: no data[28] (OECD average 5.5%)
Students in tertiary education, by type of institution or mode of enrolment[29]	Tertiary type B education: Public: 100% Government-dependent private[30] Independent-private: no data[31] (OECD average Public: 61.8% Government-dependent private : 19.2% Independent-private: 16.6%) Tertiary type A education: Public: 89.3% Government-dependent private: 10.7% Independent-private: no data[32] (OECD average Public: 77.1% Government-dependent private : 9.6% Independent-private: 15%)[33]
Teachers' salaries	Average annual starting salary in lower secondary education: USD 32 513 (OECD average USD 30 750) Ratio of salary in lower secondary education after 15 years of experience to GDP per capita: 1.15 (OECD average: 1.22)[34]
Upper secondary graduation rates	93% (OECD average 80%)[35]

Notes

1. As a consequence of the tightening financial conditions in Finnish municipalities, about 1 000 basic schools were shut down during the first decade of this century. Many of them were small rural schools.
2. "Population according to language and the number of foreigners and land area km2 by area". Statistics Finland's PX-Web databases. Helsinki: Statistics Finland. 2008-12-31.
3. OECD (2010c), *OECD Economic Surveys: Finland 2010*, OECD Publishing (data from 2009).
4. OECD (2010d), *OECD Factbook* 2010, Ratio of population aged less than 15 to the total population (data from 2009).
5. OECD (2010d), *OECD Factbook* 2010, Ratio of population aged 65 and older to the total population, (data from 2009).
6. OECD (2010d), *OECD Factbook 2010*, Annual population growth rate, (data from 2009).
7. OECD (2010d), *OECD Factbook 2010*, OECD total, Annual population growth in percentage, year of reference 2007.
8. OECD (2010d), *OECD Factbook 2010*, Foreign-born population as a percentage of the total population, year of reference 2007. The estimated average for the OECD area is 13.5% for the 21 OECD countries out of 29 which reported foreign-born population.
9. OECD (2010d), *OECD Economic Surveys: Finland 2010*, OECD Publishing.
10. OECD (2010d), *OECD Factbook 2010*, current prices and PPPs, (data from 2008).
11. OECD (2010c), *OECD Economic Surveys: Finland 2010*. OECD Publishing, p.7.
12. OECD (2010d), *OECD Factbook 2010*, Total unemployment rates as percentage of total labour force, (data from 2008).
13. OECD (2010e) *Employment Outlook*, OECD Publishing. Unemployed as a percentage of the labour force in the age group: youth aged 15-24. Data from 2009.
14. The OECD follows standard international conventions in using the term "tertiary education" to refer to all post-secondary programmes at ISCED levels 5B, 5A and 6, regardless of the institutions in which they are offered. OECD (2008), *Tertiary Education for the Knowledge Society: Volume 1*, OECD Publishing.
15. OECD (2010b), *Education at a Glance 2010: OECD Indicators*, OECD Publishing. Data from 2007. Public expenditure presented in this table includes public subsidies to households for living costs (scholarships and grants to students/households and students loans), which are not spent on educational institutions.
16. OECD (2010c), *OECD Economic Surveys: Finland 2010*, OECD Publishing.
17. OECD (2010b), *Education at a Glance 2010: OECD Indicators*, OECD Publishing. Data from 2007. Public expenditure presented in this table includes public subsidies to households for living costs (scholarships and grants to students/households and students loans), which are not spent on educational institutions.
18. OECD (2010b), *Education at a Glance 2010: OECD Indicators*, OECD Publishing. Data from 2008 on net enrolment rates of ages 4 and under as a percentage of the population aged 3 to 4. 1. The rates "4 and under as a percentage of the population aged 3 to 4" are overestimated. A significant number of students are younger than 3 years old. The net rates between 3 and 5 are around 100%.
19. OECD (2010b), *Education at a Glance 2010: OECD Indicators*, OECD Publishing. OECD average net enrolment rates of ages 5 to 14 as a percentage of the population aged 5 to 14, year of reference 2008.
20. OECD (2010b), *Education at a Glance 2010: OECD Indicators*, OECD Publishing. OECD average net enrolment rates of ages 15 to 19 as a percentage of the population aged 15 to 19, year of reference 2008.
21. OECD (2010b), *Education at a Glance 2010: OECD Indicators*, OECD Publishing. Data from 2008 on net enrolment rates of ages 20 to 29 as a percentage of the population aged 20 to 29. This figure includes includes all 20-29 year olds, including those in employment, etc. The Gross Enrolment Ratio (GER), measured by the UN as the number of actual students enrolled / number of potential students enrolled, is generally higher. The GER for tertiary education in Finland in 2008 is 94%, compared to the regional average of 70% (UIS 2010).
22. OECD (2010b), *Education at a Glance 2010: OECD Indicators*, OECD Publishing. OECD average net enrolment rates of ages 20 to 29 as a percentage of the population aged 20 to 29, year of reference 2008.
23. OECD (2010b), *Education at a Glance 2010: OECD Indicators*, OECD Publishing (data from 2008).
24. Data is not applicable because category does not apply.
25. OECD (2010b), *Education at a Glance 2010: OECD Indicators*, OECD Publishing (data from 2008).
26. Data is not applicable because category does not apply.
27. OECD (2010b), *Education at a Glance 2010: OECD Indicators*, OECD Publishing (data from 2008).

28. Data is not applicable because category does not apply.
29. OECD (2010b), *Education at a Glance 2010: OECD Indicators*, OECD Publishing (data from 2008).
30. Magnitude is either negligible or zero.
31. Data is not applicable because category does not apply.
32. Data is not applicable because category does not apply.
33. OECD (2010b), *Education at a Glance 2010: OECD Indicators*, OECD Publishing (data from 2008).
34. Starting salary/ minimum training in USD adjusted for PPP, (OECD, 2010b) *Education at a Glance 2010: OECD Indicators,* OECD Publishing (data from 2008).
35. Sum of upper secondary graduation rates for a single year of age (Year of reference 2008). (OECD, 2010b), *Education at a Glance 2010: OECD Indicators,* OECD Publishing.

References and further reading

Aho, E., K. Pitkänen, K. and **P. Sahlberg** (2006), *Policy Development and Reform Principles of Basic and Secondary Education in Finland Since 1968,* The World Bank, Washington, DC.

Auguste, B., P. Kihn, P. and **M. Miller** (2010), *Closing the Talent Gap: Attracting and Retaining Top Third Graduates to a Career in Teaching,* McKinsey & Company, London.

Castells, M. and P. Himanen (2002), *The Information Society and the Welfare State: The Finnish Model*, Oxford University Press, Oxford.

Darling-Hammond, L. (2010), *The Flat World and Education. How America's Commitment to Equity will Determine our Future,* Teachers College Press, New York.

Hanushek, E. and **L. Wössmann** (2007), *Education Quality and Economic Growth*, The World Bank, Washington, DC.

Hargreaves, A. and **D. Shirley** (2009), *The Fourth Way. The Inspiring Future for Educational Change,* Corwin, Thousand Oaks.

Kupari, P. and **J. Välijärvi** (Eds.) (2005), *Osaaminen kestävällä pohjalla. PISA 2003 Suomessa [Competences on Solid Ground. PISA 2003 in Finland],* Institute for Educational Research, University of Jyväskylä, Jyväskylä.

Lewis, R. (2005), *Finland, Cultural Lone Wolf,* Intercultural Press, Yarmouth.

Ministry of Education (1997), *National Lifelong Learning Strategy,* Ministry of Education, Helsinki.

Ministry of Education (2003), *Ministry of Education Strategy 2015,* Ministry of Education, Helsinki.

Ministry of Finance (1995), *Finnish Information Society Program,* Ministry of Finance, Helsinki.

OECD (2005), *Equity in Education. Thematic Review of Finland*, OECD Publishing.

OECD (2010a), *PISA 2009 Results: What Students Know and Can Do: Student Performance in Reading, Mathematics and Science (Volume I*), OECD Publishing.

OECD (2010b), *Education at a Glance: OECD Indicators*, OECD Publishing.

OECD (2010c), *OECD Economic Surveys: Finland 2010*, OECD Publishing.

OECD (2010d), *OECD Factbook 2010, Ratio of population aged less than 15 to the total population,* OECD Publishing.

OECD (2010e) *Employment Outlook,* OECD Publishing.

Routti, J. and **P. Ylä-Anttila** (2006), *Finland as a Knowledge Economy. Elements of Success and Lessons Learned*, The World Bank, Washington, DC.

Sahlberg, P. (2010), "Educational Change in Finland", in A. Hargreaves, A. Lieberman, M. Fullan and D. Hopkins (Eds.), *Second International Handbook of Educational Change*, Springer, New York.

Sahlberg, P. (2011), *Finnish Lessons: What Can the World Learn from Educational Change in Finland,* Teachers College Press, New York.

Schleicher, A. (2006), *The Economics of Knowledge: Why Education is Key for Europe's Success,* The Lisbon Council, Brussels.

Schwab, K. (Ed.) (2010), *The Global Competitiveness report 2010-2011*, World Economic Forum, Geneva, available at *www3.weforum.org/docs/WEF_GlobalCompetitivenessReport_2010-11.pdf.*

Statistics Finland (2011), *Education*, available at *www.stat.fi/til/kou_en.html.*

Toom, A., H. Kynäslahti, L. Krokfors, R. Jyrhämä, R. Byman, K. Stenberg, K. Maaranen, and **P. Kansanen** (2010), "Experiences of Research-based Approach to teacher Education: Suggestion for the future policies", *European Journal of Education*, 45(2), 331-344.