

EDUCATION AT A GLANCE – OECD INDICATORS 2001

HIGH*light*S

INTROduction

THE 2001 EDITION OF THE OECD EDUCATION INDICATORS

The 1990s have witnessed growing demand for learning throughout OECD countries. Compelling incentives for individuals, economies and societies to raise the level of education have been the driving force behind increased participation in a widening range of learning activities by people of all ages, from earliest childhood to advanced adulthood. The challenge, in this era of spreading and diversifying demand for learning over the lifetime, is how best to meet rising demand while ensuring that the nature and types of learning respond to needs in a cost effective manner.

To understand and manage educational change, it is important to know what is happening over time and across countries. Increasingly, countries want to learn from each other's experiences and to set their development in an international context.

Over the past 13 years, the OECD has developed and published a broad range of comparative indicators that provide insights into the functioning of education systems. These indicators are the product of an ongoing effort to collect and understand data, the objective of which is to link a broad range of policy needs with the best available international data. They cover all major aspects of education, from inputs in terms of education spending to outcomes of study such as student achievement, higher wages and greater chances of employment. The OECD indicators are grouped around three broad themes: the human and financial resources invested in education, how education and learning systems operate and evolve, and

the returns to educational investments. The indicators allow countries to benchmark their performance against that of other countries and thus provide a rich base for policy analysis and development.

The 2001 edition of *Education at a Glance* brings the comparative review of education systems to the end of the 1990s so that, for the first time, the OECD education indicators now cover a complete decade; facilitating examination of trends in the provision and outcomes of education during the 1990s. Furthermore, this year's edition includes new indicators on: the contribution of education to changes in economic growth; trends in public and private payments for education as well as public subsidies for education and their beneficiaries; participation in skill improvement among the employed population; the incentive structures governments offer to attract and retain qualified teachers; the use of ICT in education; trends in student achievement; and inequality in literacy skills among the adult population.

This brochure presents a selection of the indicators published in *Education at a Glance – OECD Indicators 2001*.

DEFINING THE EDUCATIONAL LEVELS

Due to differences in their structure, education systems are difficult to compare. The OECD, in collaboration with UNESCO, has established a typology to classify national programmes in terms of three broad stages of education, primary, secondary and tertiary. The following table sets out how these stages are defined.

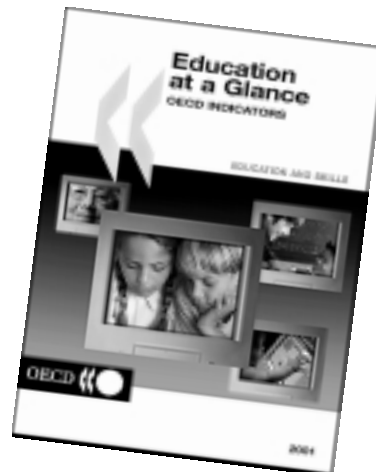
THE COMPLETE SET OF INDICATORS

Every year the OECD publishes *Education at a Glance*, a detailed volume setting out the indicators in full, with tables accompanied by graphs and text commentary. This reference source for the analysis of education systems across countries can be obtained from the address on the back cover.

OECD MEMBER COUNTRIES

The following are the Member countries of the OECD:

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



EDUCATIONAL LEVEL	WHAT IT REFERS TO	SOME OTHER TERMS COMMONLY USED	INTERNATIONAL STANDARD CLASSIFICATION
Early Childhood Education	Programmes designed primarily to introduce pre-school children from 3 years of age to a school-type environment. May be based in a school or other centre	Pre-primary, kindergarten, nursery, pre-school	"ISCED 0"
Primary Education	First stage of basic schooling (to age 11 or 12)	Elementary School	"ISCED 1"
Lower Secondary Education	Second stage of basic schooling (up to age 14 or 15)	Junior High School	"ISCED 2"
Upper Secondary Education	Stage leading up to a final secondary qualification (typically age 18 or 19)*	Senior High School, Lycee, Gymnasium sixth form/ further education	"ISCED 3,4"
Tertiary Education	Programmes significantly more advanced in content and qualifications than upper secondary studies	Higher Education, College Education	"ISCED 5A, 5B, 6"
University Level Education	Tertiary studies leading to a first degree, at least at bachelor's level or equivalent. Does not always take place at universities.		"ISCED 5A"

* Some post-secondary study is classified as upper secondary because the content is similar to that of other programmes at this level.

HIGHLIGHTS

THE OUTCOMES OF LEARNING

Indicator F1, 1995 and 1999

At the 8th-grade level, countries generally witnessed an improvement in science performance between 1995 and 1999.

- In ten out of 13 countries, 8th-grade mean science performance improved between 1995 and 1999, although only in two countries significantly. In 1995, science students in Hungary performed around the OECD country mean, while in 1999 Hungary joined Japan and Korea in the group of countries performing significantly above the country mean. Canada, previously significantly below the OECD country mean, moved to a level comparable to the mean science achievement level in 1999.
- On the other hand, the Czech Republic moved from significantly above the country mean for science achievement in 1995 to a level comparable to the mean in 1999. Italy, New Zealand and the United States remained significantly below the country mean.

Chart 1. Eighth-grade mean science scores relative to the country mean (1995 and 1999)

- Mean score is significantly higher than the country mean
- Mean score is not significantly different than the country mean
- Mean score is significantly lower than the country mean

1995	Mean scale score TIMSS	Difference from country mean
Czech Republic	555	25
Japan	554	24
Korea	546	16
Netherlands	541	11
Hungary	537	7
England	533	3
Belgium (Fl.)	533	3
Australia	527	-4
Canada	514	-16
United States	513	-17
New Zealand	511	-19
Italy	497	-33
Country mean	530	

1999	Mean scale score TIMSS-R	Difference from country mean
Hungary	552	19
Japan	550	16
Korea	549	15
Netherlands	545	11
Australia	540	7
Czech Republic	539	6
England	538	5
Belgium (Fl.)	535	1
Canada	533	-1
United States	515	-19
New Zealand	510	-24
Italy	498	-36
Country mean	534	

Note: Data presented for 1995 have been re-scaled in order to allow comparison with 1999 data.

Source: IEA Third International Mathematics and Science Study (TIMSS); *Education at a Glance – OECD Indicators 2001*. Table F1.1.

Indicator F2, 1995 and 1999

- Korea has been able to improve an already high level of mean achievement in mathematics at the 8th-grade level while, at the same time, reducing the gap between the highest and lowest performers to an average level. Similarly Canada, which exhibited significant improvement both in mathematics and science, witnessed a decrease in disparities in science and only a slight increase in mathematics.

Canada and Korea show that improvement in overall performance can be achieved without widening the gap between the highest and lowest-scoring students...

- However, improvements in overall performance were accompanied in other countries by an increase in the gap between the highest and lowest performers. For example, Hungary showed a significant increase in student achievement in science, yet at the same time witnessed the largest increase in disparities between 1995 and 1999.

...but that is not yet the reality everywhere.

- Finally, the Czech Republic and New Zealand showed decreases in mean 8th-grade mathematics achievement between 1995 and 1999 while variation in achievement increased, although in New Zealand at a level that was not statistically significant.

- In Hungary, the improvement in the performance of the highest-scoring students accounts for the increase in the variation in mathematics scores. In New Zealand, variation increased because the lowest-scoring students performed at a lower level in 1999 than in 1995. Conversely, in Korea, variation in mathematics achievement decreased because the performance of low-achieving students improved.

In Hungary, variation increased because the best-performing students became better while Korea managed to move the weakest performers closer to the mean.

Indicator F4, 1999

- Gender differences in mathematics achievement in the 8th grade are small to moderate in most of the countries. In science, gender differences are larger and more often statistically significant than in mathematics, boys scoring on average the equivalent of half a school year higher than girls.

Large gender differences are often an impediment to high average achievement.

- Girls in Korea score lower than boys in mathematics, but they still outperform boys and girls in all other countries.

- Low average performance and large gender differences are often found together: four out of the five countries which display the largest gender differences perform well below the OECD country mean.

Indicator F4, 1995 and 1999

- Japan, Korea and the Netherlands managed to eliminate statistically significant gender differences in mathematics scores between 1995 and 1999.

Indicator F3, 1994-1998

- Denmark, Finland, Germany, the Netherlands, Norway and Sweden, six of the eight highest-scoring OECD countries in the International Adult Literacy Survey, also show very low levels of disparities in their prose literacy scores. Canada, on the other hand, shows high mean prose scores and comparatively wide variation. The

Six out of the eight highest-scoring countries show that high levels of adult literacy can go hand in hand with narrow ranges of adult literacy performance.

United States shows a mean score, around the country mean, combined with the highest ratio of the highest 10 per cent of prose literacy scores to the lowest 10 per cent.

THE RETURNS TO INVESTMENT IN LEARNING

Indicator E1, 1999

More education brings large rewards for individuals, in terms of employment prospects...

- Labour force participation rates rise with educational attainment in most OECD countries. With very few exceptions, labour force participation among graduates of higher education is markedly higher than among upper secondary graduates. Among 20 to 29-year-olds without upper secondary education, the ratio of unemployed non-students to the total youth population is on average 1.5 times as high as among upper secondary graduates.

...particularly for women.

- The gender gap in labour force participation decreases with increasing educational attainment. Although a gender gap in labour force participation remains among those with the highest educational attainment, the gap is much narrower than among those with lower qualifications.

Indicator E5, 1999

Upper secondary education is a break-point in many countries, beyond which additional education attracts a particularly high earnings premium.

- In all countries, graduates of tertiary-level education tend to earn substantially more than upper secondary graduates. Among those countries which report gross earnings, the earnings premium for 25 to 64-year-old men with tertiary qualifications ranges from less than 35 per cent in Canada, Denmark, Germany, Ireland, Korea, Norway and Switzerland, to 75 per cent or more in the Czech Republic, Hungary, Portugal and the United States.

- The differentials for tertiary education are generally more pronounced than those between upper secondary education and below, suggesting that upper secondary education forms a break-point in many countries, beyond which additional education attracts a particularly high premium.

Women still earn less than men with similar levels of educational attainment.

- Although both men and women with upper secondary, post-secondary non-tertiary or tertiary attainment have substantial earnings advantages compared with those of the same gender who do not complete upper secondary education, earnings differentials between men and women with the same educational attainment remain substantial, reinforced by the frequency of part-time work among women.

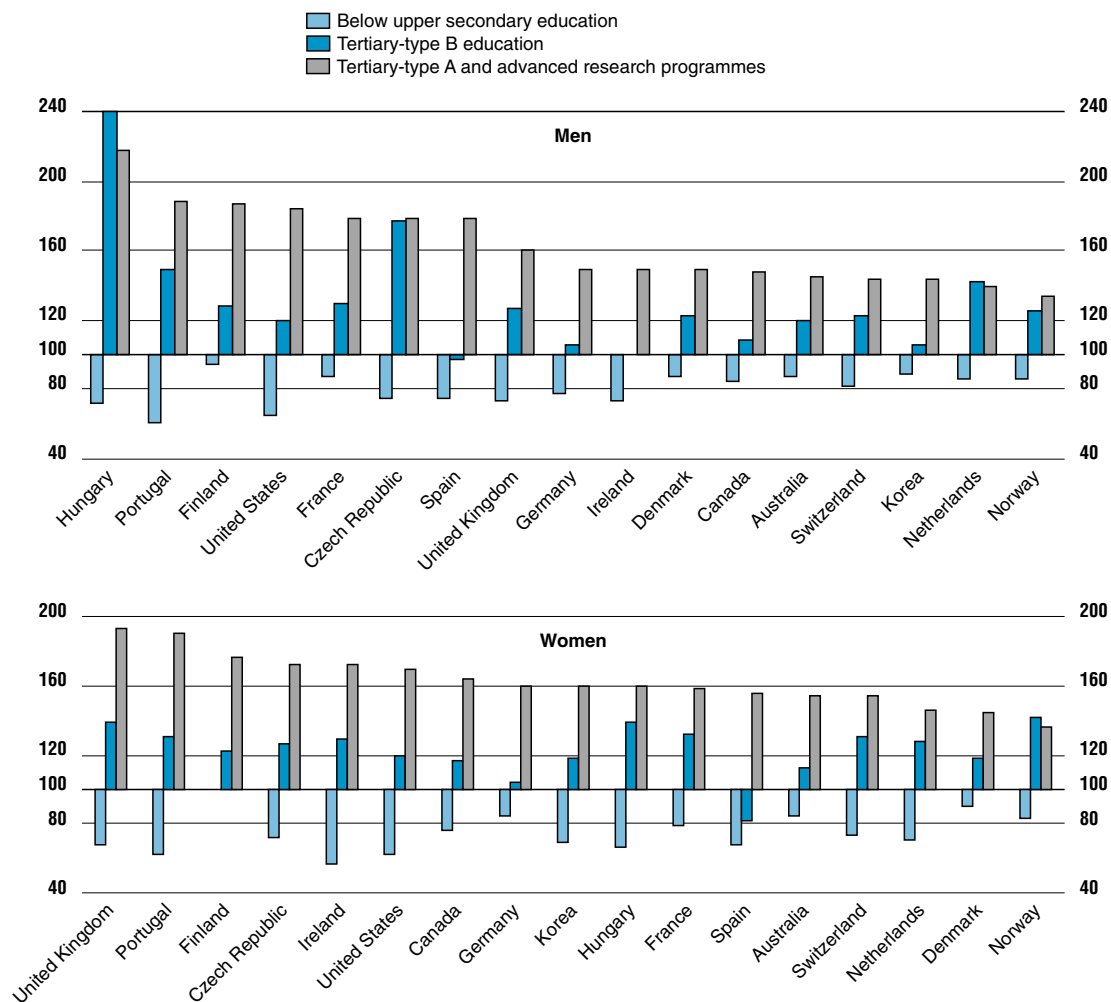
Indicator A3, 1980-1990

More education also pays off in terms of higher economic growth.

- Better-educated populations are a common factor behind economic growth in all OECD countries, especially in Greece, Ireland, Italy and Spain, where increases in educational attainment are estimated to have accounted for more than half a percentage point of the annual average growth rate in the 1990s compared with the previous decade.

Chart 2. **Relative earnings with income from employment (1999)**

By level of educational attainment and gender for the population 25 to 64 years of age (ISCED 3/4 = 100)



Source: Education at a Glance – OECD Indicators 2001. Table E5.1.

ACCESS TO EDUCATION AND STUDY PATTERNS

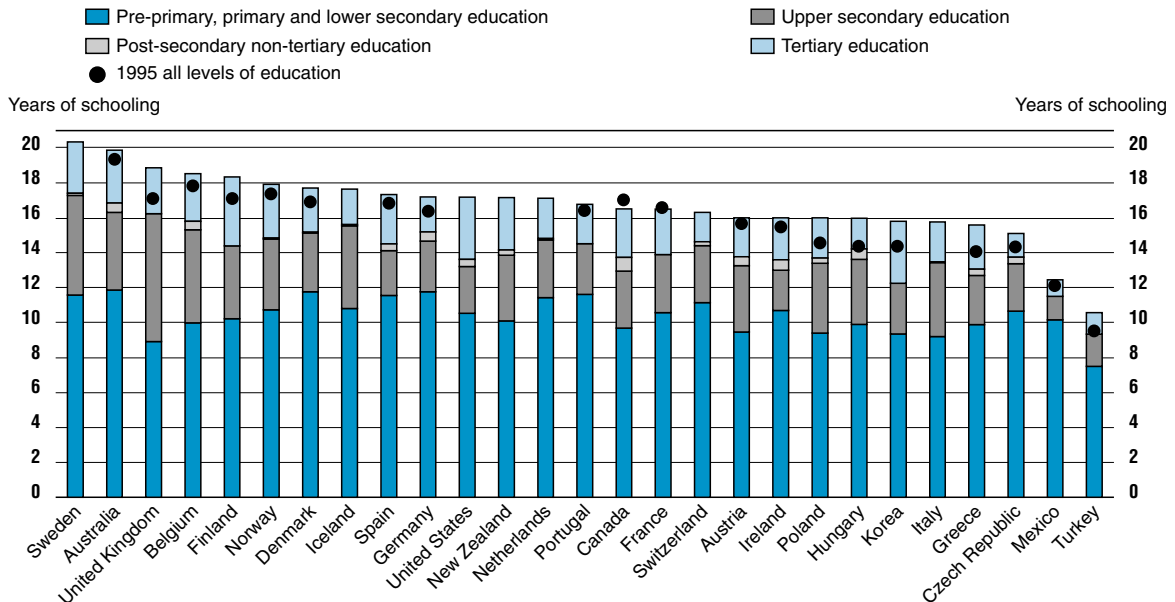
Indicator C1, 1999

• In 25 out of 27 OECD countries, individuals participate in formal education for between 15 and 20 years, on average, with most of the variation coming from differences in enrolment at upper secondary level. School expectancy increased between 1995 and 1999 in 18 out of 20 OECD countries. In Finland, Greece, Hungary, Korea, Poland, Turkey and the United Kingdom, the increase exceeded one year over this relatively short period.

In response to rising demand, education systems are rapidly expanding to allow more people to study for longer.

Chart 3. School expectancy (1999)

Expected years of schooling under current conditions in public and private institutions, excluding education for children under five years of age, by level of education



Source: Education at a Glance – OECD Indicators 2001. Table C1.1.

Indicator C2, 1999

- In two thirds of the countries, the ratio of upper secondary graduates to the population at typical age of graduation exceeds 80 per cent. In Denmark, Germany, Hungary, Japan, Korea, the Netherlands and the Slovak Republic, it is 90 per cent or more. But in most countries, ensuring that the remaining fraction is not left behind poses a significant challenge because of the attendant risk of social exclusion.

Indicator A2, 1999

- A comparison of the attainment of the population aged 25 to 34 years with that of the age group 55 to 64 shows that the proportion of individuals who have not completed upper secondary education has been shrinking in all OECD countries. In Korea and Spain, the proportion of individuals aged 25 to 34 with at least upper secondary attainment is more than three times as high as in the age group 55 to 64.
- Many countries currently showing low attainment in the adult population are expected to move closer to those with higher attainment levels.

Participation is expanding in a widening range of learning activities among people of all ages, from earliest childhood to advanced adulthood...

Indicator C1, 1999

- Enrolment rates for three to four-year-olds range from less than 20 per cent in Canada, Korea, and Switzerland to over 90 per cent in Belgium, France, Iceland, Italy and Spain.

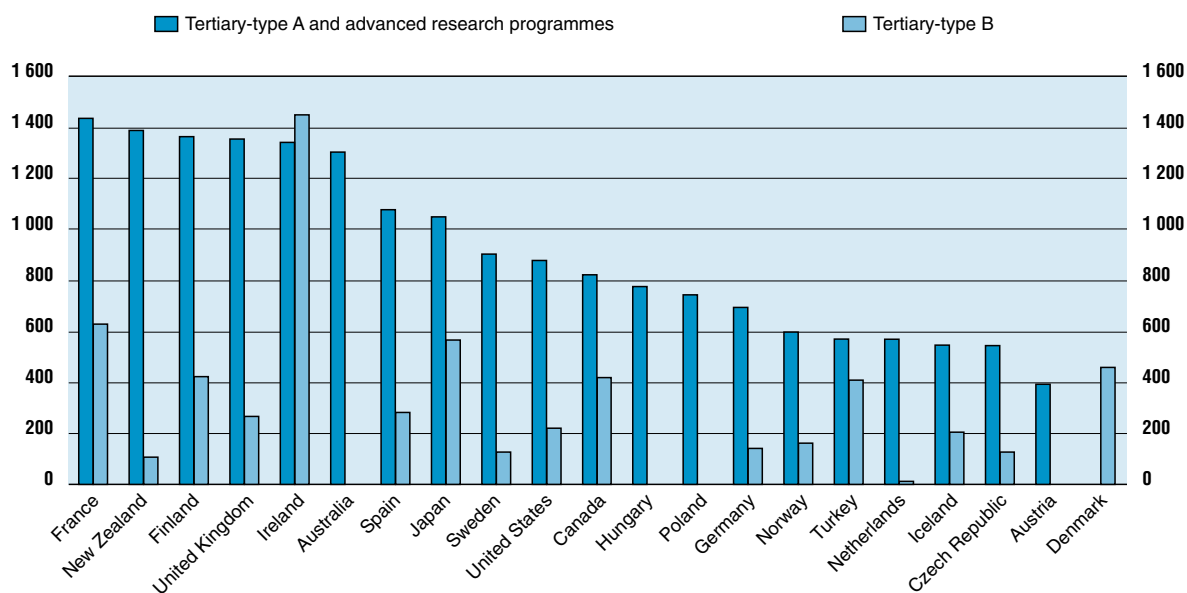
Indicator C3, 1999

- At the other end of the spectrum, an OECD average of four out of ten school leavers are likely to attend tertiary programmes which lead to the equivalent of a Bachelor's or higher tertiary-type A degree during the course of their lives. In Finland, Hungary, Iceland, the Netherlands, New Zealand, Norway, Poland and Sweden, more than one in two school leaver enters a tertiary-type A degree programme.

- With the exception of Canada, France and Germany, enrolment in tertiary education grew in all countries between 1995 and 1999, by more than 15 per cent in the majority of countries, and in Hungary, Korea and Poland by between 40 and 84 per cent. On average across OECD countries, a 17-year-old can now expect to receive 2.5 years of tertiary education, of which 2 years will be full-time.

Indicator C4, 1999

- Comparing the number of science graduates with the number of 25 to 34-year-olds in the labour force provides one way of gauging recent output of high-level science skills by different education systems. The number of science graduates per 100 000 people in the labour force ranges from below 700 in the Czech Republic, Mexico and the Netherlands to above 1 600 in Finland, France, Ireland, Japan and the United Kingdom.

Chart 4. Science graduates in the youth labour force (1999)*Number of science graduates per 100 000 people in the labour force 25 to 34 years of age*

Source: *Education at a Glance – OECD Indicators 2001*. Table C4.4.

Indicator C6, 1999

- In all but one country, at least one in five employees have participated in job-related continuing education and training within a 12-month period. However, the incidence and intensity of participation varies greatly between countries. Participation by employees in job-related continuing education and training ranges from 24 per cent or below in Belgium (Flemish Community), Hungary, Ireland and Poland to over 50 per cent in Denmark, Finland, Norway and the United Kingdom.

...but education combines with other influences to make adult education and training least common among those who need it most.

- Continuing education and training tend to reinforce skill differences resulting from unequal participation in initial education. Participation rates in both job-related continuing education and training and in all continuing education and training rise with levels of educational attainment. Adults aged 25 to 64 years who have not attained upper secondary education participate, on average, in only 17 hours of job-related continuing education and training over the course of a year. As compared to that, the comparable figure is 40 hours for adults with an upper secondary and /or post-secondary non-tertiary qualification and over 64 hours for those with a tertiary qualification.

- Among adults with lower levels of educational attainment, women tend to receive less job-related continuing education and training than men, but the pattern is less pronounced at higher levels of education.

- Unemployed people take even less advantage of continuing education and training but, when they do, programmes tend to be longer, often as a consequence of active labour market policies.

Indicator A2, 1999

In the majority of OECD countries, women can expect to receive more years of formal education than men...

- The balance of educational attainment among men and women in the adult population is unequal in most OECD countries. Historically, women did not have sufficient opportunities and/or incentives to reach the same level of education as men. Women are generally over represented among those who did not proceed to upper secondary education and under-represented at the higher levels of education. However, these differences are mostly attributable to the large differences among older age groups and have been significantly reduced or reversed among younger age groups.

Indicator C1, 1999

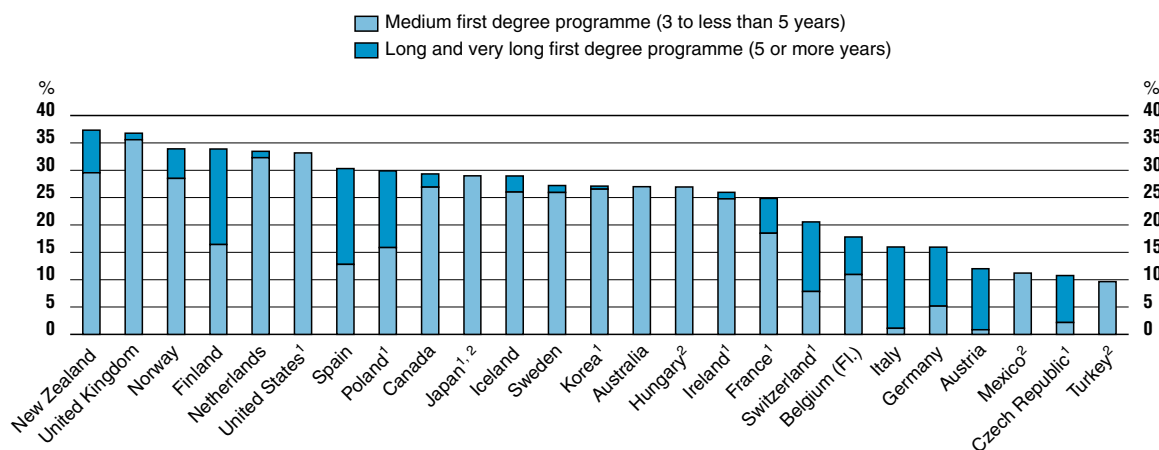
- In the majority of OECD countries, women can currently expect to receive more years of education than men - an additional 0.4 years, on average.

Indicator C2, 1999

- In 17 out of 21 OECD countries graduation rates at the upper secondary level for women exceed those for men, by 10 percentage points or more in the Czech Republic, Denmark, Finland, Greece, Ireland, Italy and Spain.

Chart 5. **Graduation rates in first tertiary-type A programmes (1999)**

Sum of graduation rates by single year of age (multiplied by 100) in public and private institutions, by duration of programme



1. Gross graduation rates.

2. Medium and long first degree programmes combined.

Source: *Education at a Glance – OECD Indicators 2001*. Table C4.1.

Indicator C4, 1999

- On average across OECD countries, 53 per cent of all first tertiary-type A graduates are women. In Iceland, New Zealand, Norway and Sweden, the proportion of women exceeds 60 per cent but is 45 per cent or below in Germany, Japan, Switzerland and Turkey. Men remain more likely than women to attain advanced research degrees in all OECD countries.

...but men remain more likely to attain advanced research degrees in most OECD countries.

Indicator B3, 1998

- New funding strategies aim not only at mobilising the required resources from a wider range of public and private sources, but also at providing a broader range of learning opportunities and improving the efficiency of schooling. In the majority of OECD countries, publicly funded primary and secondary education is also organised and delivered by public institutions, but in some countries the public funds are either transferred to private institutions or given directly to households to spend on the institution of their choice.

In some countries, governments have begun to leave the management of education institutions to the private sector...

Indicator C1, 1999

- On average across OECD countries, 11 per cent of primary and secondary students combined are enrolled in privately managed educational institutions that are predominantly publicly funded. In fact, in Belgium and the Netherlands, the majority of primary and secondary students are enrolled in government-dependent private institutions (58 and 76 per cent, respectively), and in Australia, Korea, Spain and the United Kingdom the proportion is more than 20 per cent (in the case of the United Kingdom largely due to enrolment in private further education colleges). Although these institutions are privately managed, the financial support from governments can have attendant conditions. For example, teachers may be required to meet some minimum level of qualification, or students may be required to pass a government-regulated examination in order to graduate.

...but most privately managed schools are still publicly funded.

- Only in Japan, Mexico, Portugal and the United States are around 10 per cent of students enrolled in private institutions that are predominantly funded through unsubsidised household payments.

Indicator C2, 1999

In more than half of OECD countries, the majority of upper secondary students attend vocational or apprenticeship programmes.

- In more than half of OECD countries, the majority of upper secondary students attend vocational or apprenticeship programmes. In countries with so-called "dual-systems" (such as Austria, Germany, Luxembourg, the Netherlands and Switzerland), as well as in Belgium, the Czech Republic, Italy, Poland, the Slovak Republic and the United Kingdom, 60 per cent or more of upper secondary students are enrolled in vocational programmes.
- In most countries vocational education is school-based, although in Austria, Iceland and the Slovak Republic about half of vocational programmes have combined school-based and work-based elements, and in Denmark, Germany, Hungary and Switzerland the majority of vocational programmes have both school-based and work-based elements.
- In three out of four countries, the majority of upper secondary students are enrolled in general and vocational programmes that are primarily designed to prepare them for a wide range of tertiary education including theory-oriented studies at the tertiary level (ISCED 5A programmes).

THE TRANSITION FROM EDUCATION TO WORK

Indicator E2, 1999

The transition from education to work remains difficult...

- Young people are experiencing difficulties in gaining a firm foothold in the world of work. The transition, even for successful graduates, tends to take place later than it used to, and it is often protracted. A representative 15-year-old in an OECD country can today expect to hold a job for 6.5 years, to be unemployed for one year and to be out of the labour force for 1.5 years in the 15 years up to and including the age of 29.

...but young school leavers can expect to spend less time in unemployment than ten years ago.

- The cumulative average duration of unemployment is below six months in Denmark, Luxembourg, Mexico, Switzerland and the United States, but amounts to more than eighteen months in the Czech Republic, Greece, Italy, Poland and Spain.

Indicator E4, 1999

A high incidence of working while in education and a relatively low incidence of unemployment among non-students are often found together.

- Before the age of 19, the situation of young people in employment varies widely between countries. In more than half of countries, a large majority (between 60 and over 80 per cent) of those in employment are still in education, combining study with some form of employment.
- The proportion of young women who study and have a job is everywhere higher than that of men, the average difference being more than 5 percentage points. For those young women who combine work and education, employment tends to be part-time in more than 60 per cent of cases in almost every country.

INVESTMENT IN EDUCATION

Indicator B2, 1998

- Taking into account both public and private sources of funds, OECD countries spend 5.7 per cent of their collective GDP on their educational institutions. The highest-spending countries are Denmark, Iceland, Korea, Norway and Sweden, which spend around 7 per cent of GDP on educational institutions. One third of OECD countries, however, spend less than 5 per cent of GDP on educational institutions, and in the Czech Republic, the Netherlands and Turkey this figure is only between 3.5 and 4.7 per cent.

All OECD countries invest a substantial proportion of national resources in education...

Indicator B4, 1998

- On average, OECD countries devote almost 13 per cent of total government expenditure to educational institutions. Iceland, Korea, Mexico and Norway allocate between 16 and 22 per cent of total public spending to education but in the Czech Republic, Germany and Greece, this figure is less than 10 per cent. As in the case of educational spending relative to GDP, these values need to be interpreted in the light of several factors, most notably student demography and enrolment rates.

Indicator B1, 1998

- As a whole, OECD countries spend US\$ 3 915 per primary student, US\$ 5 625 per secondary student and US\$ 11 720 per tertiary student. This amounts to 19 per cent of GDP per capita per primary student, 25 per cent per secondary student and 44 per cent per tertiary student. But there are wide differences between countries. At the primary level, expenditure ranges from US\$ 863 in Mexico to US\$ 6 713 in Denmark. Differences between countries are even greater at the secondary level, where spending per student varies by a factor of 6.5, from US\$ 1 438 in Poland to US\$ 9 348 in Switzerland. Expenditure per tertiary student ranges from US\$ 3 800 in Mexico to US\$ 19 802 in the United States. The labour-intensiveness of the traditional model of education accounts for the predominance of teachers' salaries in overall costs. Differences in the ratio of students to teaching staff (Indicator D5), in staffing patterns (Indicator D2), in teachers' salaries (Indicator D1) and in facilities (Indicator B6) all influence the differences in cost between levels of education and types of programme.

...but spending per secondary student varies between countries by a factor of 6.5.

- Comparatively moderate annual expenditure per student can translate into high overall costs of education if the average duration of studies is long. For example, annual spending per tertiary student in the Netherlands is about the same as in Austria (around US\$ 11 000). But because of differences in the tertiary degree structure and length of studies (Indicator C4), the cumulative expenditure for each tertiary student is more than 50 per cent higher in Austria than in the Netherlands (US\$ 72 000 compared with US\$ 42 000).

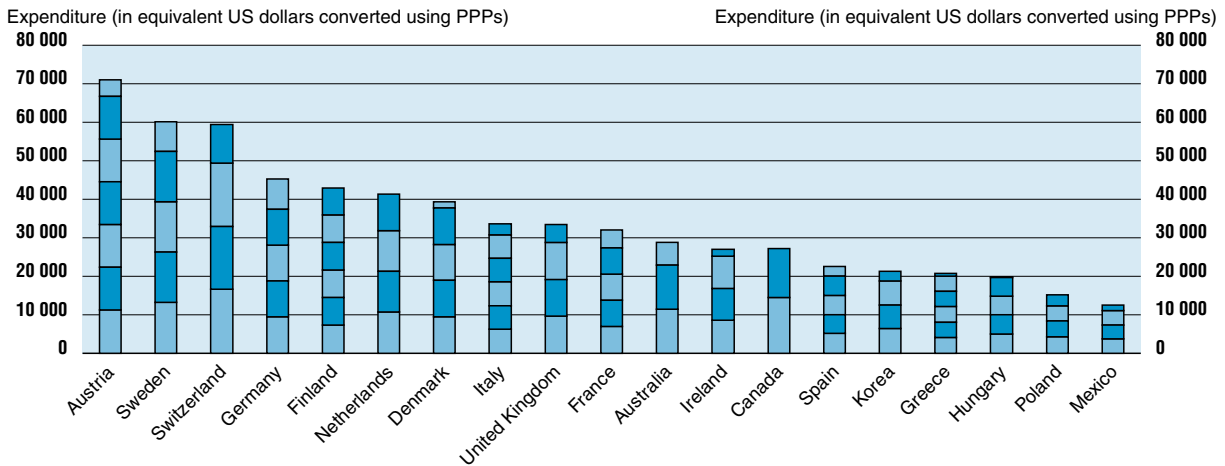
Indicators B1 and F1, 1998 and 1999

- However, lower spending per student cannot automatically be equated with lower quality of educational outcomes. Japan, Korea and the Netherlands, for example, which show comparatively moderate expenditure per student, are among the countries with the highest levels of mathematics achievement among 8th-grade students.

However, lower spending per student cannot automatically be equated with lower quality of educational outcomes.

Chart 6. Cumulative expenditure per student over the average duration of tertiary studies (1998)

Annual expenditure per student (in equivalent US dollars converted using PPPs) multiplied by the average duration of studies, in public and private institutions



Note: Each segment of the bar represents the annual expenditure per student. The number of segments represents the number of years a student remains on average in tertiary education.

Source: *Education at a Glance – OECD Indicators 2001*. Table B1.4.

Indicator B2, 1995 and 1998

In 11 out of 18 OECD countries, investment in education increased between 1995 and 1998 by more than 5 per cent...

- In 11 out of 18 OECD countries, public and private investment in educational institutions increased by over 5 per cent between 1995 and 1998 in real terms. Increases in expenditure amounted to over 15 per cent in Denmark, Ireland and Portugal, and to over 60 per cent in Turkey.

- Direct public expenditure on institutions and public subsidies to households rose by over 5 per cent in 16 out of 22 countries over the same period.

- Italy, which saw significant decreases in public expenditure on educational institutions in the early 1990s, experienced growth in public spending on educational institutions of more than 11 per cent between 1995 and 1998. On the other hand, expenditure on educational institutions remained unchanged in Austria, Canada, Germany, Hungary and Mexico between 1995 and 1998, and fell in the Czech Republic.

Indicator B4, 1995 and 1998

Typically, public expenditure on education grew faster than total government spending...

- The process of budget consolidation puts pressure on education as on every other public service. Nevertheless, with the exception of Canada, the Czech Republic and Norway, spending on education grew faster than public spending in other areas, the proportion of public budgets spent on education growing, on average, from 11.9 per cent in 1995 to 12.9 per cent in 1998. In Denmark, the proportion of public spending devoted to education increased from 13.1 per cent in 1995 to 14.8 per cent in 1998, in Italy from 8.7 to 10.0 per cent and in the Netherlands, from 9.1 to 10.6 per cent.

Indicator B2, 1995 and 1998

- While spending on educational institutions tended to increase, both in absolute terms and in relation to total public expenditure, it should not be overlooked that, with the exception of Denmark, Greece, Italy, Portugal, New Zealand and Turkey, these increases lagged behind growth in GDP over the same period.

...but increases in spending on education tended to fall behind the growth in national income.

Indicator B3, 1995 and 1998

- With increased participation drawing from new client groups, and a wider range of educational opportunities, programmes and providers, governments are forging new partnerships to mobilise the necessary resources to pay for education. While schools, universities and other educational institutions are still mainly publicly funded, there is a substantial and growing degree of private funding. At the primary and secondary levels of education, an average of 9 per cent of funding now comes from private sources and in Australia, Germany, Korea and Turkey, this figure is more than 15 per cent.

While schools, universities and other educational institutions are still mainly publicly funded, there is a substantial degree of private funding...

Indicator B3, 1998

- While primary and secondary education are usually perceived as a public good and are therefore publicly funded, at the tertiary level the high private returns in the form of better employment and income opportunities suggest that a greater contribution by individuals to the costs of tertiary education would be justified. Hence, the proportion of private funds tends to be much higher at the tertiary level: ranging from 2 per cent or less in Austria and Switzerland to over one third in Australia, Canada, Japan, Korea, the United Kingdom and the United States. In Japan, more than half of all final funds for tertiary institutions originate from private sources, and in Korea the figure exceeds 80 per cent.

...most notably at the tertiary level of education.

Indicators B2 and B3, 1995 and 1998

- Direct private expenditure on educational institutions increased by over 5 per cent in absolute terms between 1995 and 1998 in nine out of 16 OECD countries.

In many countries, the private proportion of educational funding has been rising...

Indicator B3, 1995 and 1998

- Despite a significant concurrent increase in public funding, in Turkey the proportion of private funds in total spending on all levels of education grew from 5.3 per cent in 1995 to 16 per cent in 1998.

Indicator B2, 1995 and 1998

- As demand for tertiary education has increased in many countries, so has the share of the financial burden borne by the families and other private entities. Eight out of 17 OECD countries reported an increase in private spending on tertiary education institutions of more than 20 per cent between 1995 and 1998.

...but changes are most striking in tertiary education, where a dramatic growth in participation is in response to heavy demand...

Indicator B3, 1995 and 1998

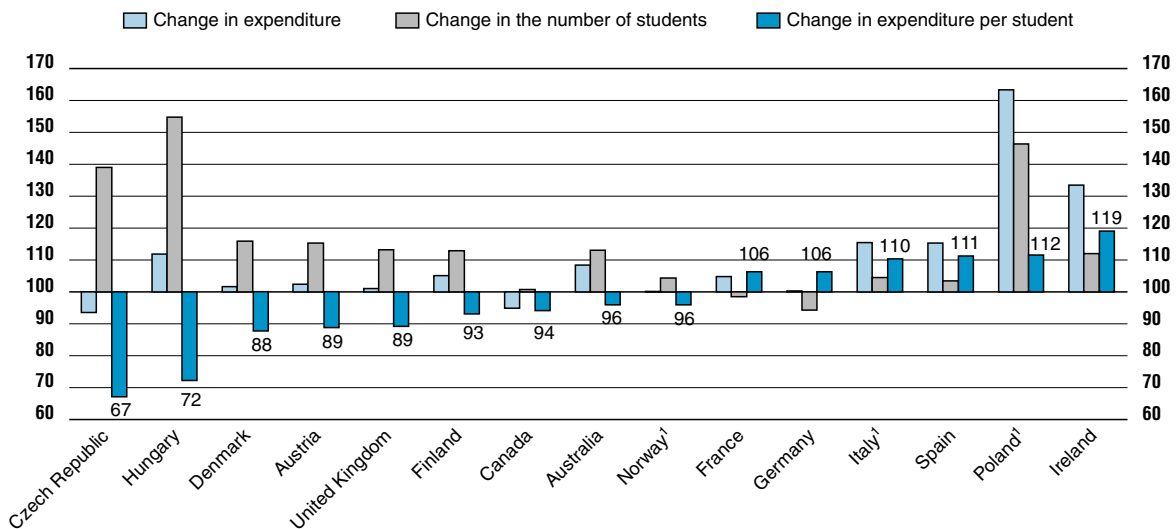
- Some countries, notably Hungary and Italy, saw a clear shift in the relative proportions of public and private investment in tertiary education institutions between

1995 and 1998. In Italy, the private-sector proportion increased from 17 to 25 per cent and in Hungary, from as little as 2 per cent in 1995 to 23 per cent in 1998.

- However, there are exceptions to this pattern. In Austria, the Czech Republic and Mexico, private funding of tertiary education decreased by around half between 1995 and 1998. As a consequence, the proportion of private funding of educational institutions relative to total spending decreased from almost 30 per cent in 1995 to less than 15 per cent in the Czech Republic, and from 23 to 12 per cent in Mexico.

Chart 7. Changes in expenditure per student and underlying factors, tertiary education (1998)

Index of change in expenditure on educational institutions, enrolment and expenditure per student between 1995 and 1998, in public and private institutions (1995 = 100)



1. Public institutions only.

Source: Education at a Glance – OECD Indicators 2001.

...although this has not led in most countries to a decrease in public spending on tertiary education.

- Public investment in education has increased in all but three countries for which 1995 to 1998 data are available, regardless of changes in private spending. In fact, some of the countries with the highest growth in private spending have also seen the highest increase in public spending on education. This finding, which can also be observed when one considers the longer period 1980-1998, indicates that increasing private spending on tertiary education tends to complement, rather than replace, public investment.

Indicators B2 and B3, 1995 and 1998

- In Ireland, an increase of 21 per cent in private-sector funding of tertiary institutions between 1995 and 1998 was outpaced by an increase in public funding of over 40 per cent, resulting in a decline in the private share.

Indicators B3 and C3, 1998 and 1999

- New funding strategies aim not only at mobilising the required resources from a wider range of public and private sources, but also at influencing student behaviour in ways that make education more cost-effective. It is hard to determine the precise impact of tuition fees on learners' behaviour, partly because fees cannot be seen in isolation from grants, taxation and implicit subsidies through loans as well as the expected earnings premia from investment in tertiary qualifications. But many countries in which students and their families spend more on tertiary education show some of the highest tertiary participation and completion rates.

Private funding of tertiary education does not exclude high levels of participation...

Indicators B3, B5 and C3, 1998 and 1999

- Conversely, in the six countries with the lowest entry rates to tertiary type-A education - the Czech Republic, Denmark, France, Germany, Mexico and Switzerland - private sources of funds account only for between 1 and 15 per cent of total spending on tertiary institutions. It is therefore not clear that participation by the beneficiaries of tertiary studies in the funding of their education creates economic barriers, provided that governments develop appropriate strategies to make funding accessible to students from all income groups.

...and some of the countries with largely publicly funded tertiary education show some of the lowest entry rates.

Indicator B5, 1998

- Countries use different mixtures of grants and loans to subsidise students' educational costs. Fourteen out of 26 OECD countries, for which the data are available, rely exclusively on grants or scholarships. The remaining countries provide both grants or scholarships and loans to students.
- Canada, New Zealand and the United Kingdom spend a third or more of their public education budget at the tertiary level on subsidies to the private sector.
- In most countries, the beneficiaries of subsidies have considerable discretion in how they spend those subsidies.

OECD countries spend an average of 0.4 per cent of their GDP on public subsidies to households and other private entities.

Indicator B6, 1998

- The salaries of teachers and other staff employed in education account for the largest proportion of current expenditure in OECD countries. On average across OECD countries, expenditure on the compensation of educational personnel accounts for 80 per cent of current expenditure at the primary, secondary and post-secondary non-tertiary levels of education combined.
- In Denmark and the United States, around one third of staff expenditure in primary, secondary and post-secondary non-tertiary education combined goes towards compensation of non-teaching staff, while in Ireland and Turkey this figure is 5 per

Staff salaries account for most of educational spending.

cent or less of current expenditure. These differences reflect the degree to which educational personnel are engaged in non-teaching activities in a particular country, as well as the relative salaries of teaching and non-teaching personnel.

On average, one quarter of expenditure on tertiary education is attributable to R&D activities performed by tertiary education institutions.

- In Sweden, R&D in tertiary education institutions accounts for 47 per cent of overall spending on tertiary education institutions, which in turn amounts to 0.8 per cent of GDP. In Germany, the Netherlands and the United Kingdom, R&D accounts for one third or more of spending on tertiary education institutions.

THE LEARNING ENVIRONMENT AND THE ORGANISATION OF SCHOOLS

Indicator D1, 1999

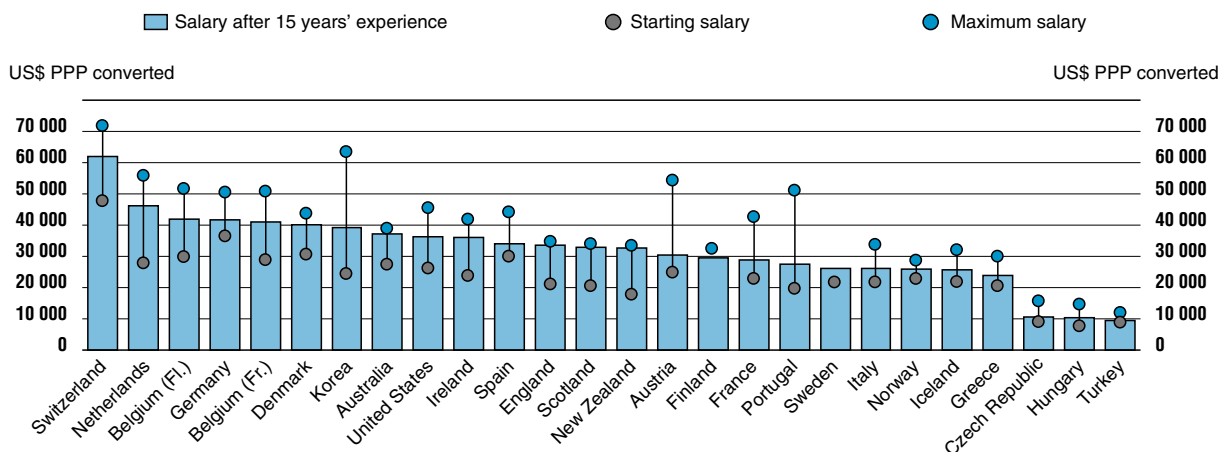
Statutory salaries for lower secondary teachers with 15 years' experience in Germany, Korea and Switzerland are more than four times those in the Czech Republic, Hungary and Turkey.

- In OECD countries, annual statutory salaries of public lower secondary classroom teachers with 15 years' experience range from below US\$ 10 000 in the Czech Republic, Hungary and Turkey to over US\$ 50 000 in Switzerland. These differences, which appear even after an adjustment for purchasing power parities has been made, have a large impact on the variation in education costs per student.

- With increasing levels of education, statutory mid-career salaries tend to increase, from an average of US\$ 27 500 at the primary level through US\$ 28 600 at the lower secondary level to US\$ 31 900 at the upper secondary level. At the same time, the extent to which countries pay classroom teachers more at higher levels of education varies greatly. While in England, Norway, New Zealand, Portugal and Scotland, statutory salaries after 15 years of experience do not significantly differ between the primary and secondary level, in the Netherlands and Switzerland upper secondary salaries are 1.5 and 1.4 times as high as at the primary level.

Chart 8. Teachers' salaries in upper secondary general education (1999)

Annual statutory teachers' salaries in public institutions in upper secondary education, general programmes, in equivalent US dollars converted using PPPs



Source: Education at a Glance – OECD Indicators 2001. Table D1.1.c.

- Most countries provide permanent bonuses to classroom teachers for higher-than-minimum educational qualifications, for additional management responsibilities and for teaching students with special educational needs. Temporary adjustments are awarded to teachers who work overtime or who are involved in special tasks and activities.

Many countries reward teachers with additional bonuses...

- Several countries award permanent or temporary salary enhancements to teachers for outstanding performance in teaching.

...which may also be given for outstanding performance.

- In general, primary classroom teachers' salaries tend to be significantly lower than those in other public professions at skill levels 1 to 3 of the International Standard Classification of Occupations. The discrepancy is particularly large in Australia, Canada, Denmark, France, Iceland and Italy. In 13 countries, the salary of a primary school teacher is at least 10 per cent lower than that of a civil engineer, qualified executive official, sanitary engineer, mathematics teacher, head-teacher or public health physician.

In most countries, many other public sector professions tend to be better off than primary teachers.

- But there are exceptions. In Greece, Mexico and Portugal, the salary of a primary school teacher is at least 10 per cent higher than that in other public sector professions.

- In order to measure the extent to which a country invests in teaching resources, relative to its ability to fund educational expenditure, it is useful to compare statutory salaries relative to GDP per capita. High salaries relative to GDP per capita suggest that a country is making more of an effort to invest its financial resources in teachers. Mid-career salaries of primary and lower secondary classroom teachers relative to GDP per capita were lower in 1999 than in 1994 in all OECD countries except Greece and New Zealand. At the lower secondary level, the OECD average for mid-career salaries relative to GDP per capita was 1.36 in 1999, compared with 1.50 in 1994.

In most countries, mid-career salaries for teachers relative to GDP per capita were lower in 1999 than in 1994.

- Comparing gross teachers' salaries between countries at the point of entry into the teaching profession, after 15 years' experience and at the top of the salary scale provides information on the extent to which teaching experience influences salary scales within countries. Classroom teachers in Hungary and Portugal, for example, have starting salaries that are below the OECD average but increase by over 43 per cent after 15 years' experience. In countries such as Australia, Denmark, England, New Zealand and Scotland, where it takes only between seven and 11 years for upper secondary teachers to reach the top salary, there is little or no difference between salaries after 15 years of service and top-of-the-scale salaries.

Length of teaching experience influences teachers' salary scales in many countries.

Indicators A1 and D2, 1999

- In most OECD countries, the majority of primary and secondary students are taught by teachers aged 40 years or over. In Canada, Germany, Italy, the Netherlands and Sweden, 60 per cent or more of primary teachers are over 40 years of age. In some countries, these teachers will be reaching retirement age at about the time when student enrolments are expected to increase. On the other hand, Belgium (Flemish Community) and Korea have a comparatively young teaching force in primary education; more than 50 per cent of their primary teachers are younger than 40 years of age.

Several countries have a large proportion of teachers within a decade of retirement...

Indicator D2, 1999

- In 16 out of 18 countries, secondary teachers tend to be older than primary teachers.

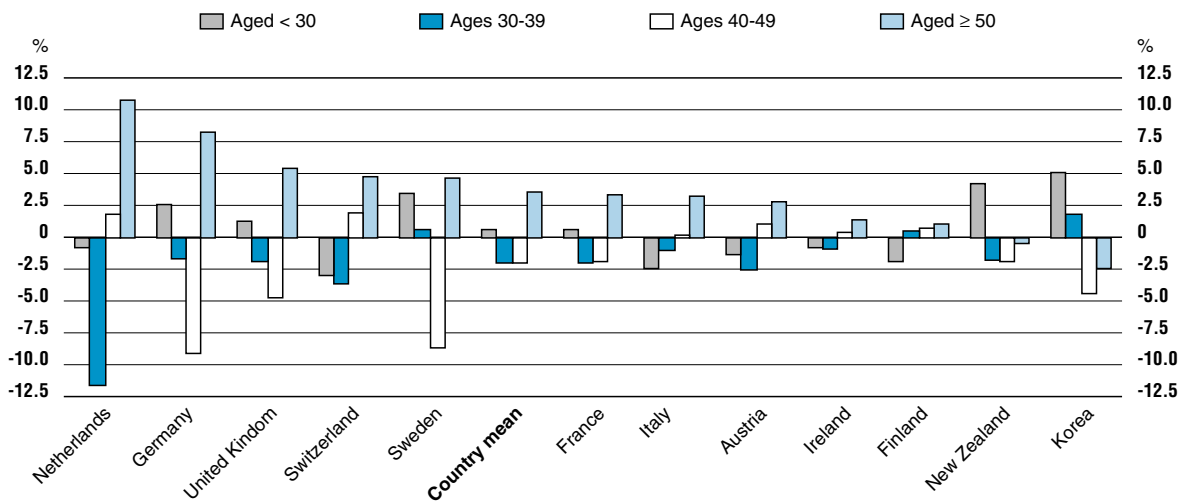
Indicator D2, 1996 and 1999

...and the teaching force
continues to age.

- The average proportion of teachers in primary education aged 50 years or over increased by 4 per cent between 1996 and 1999. In Germany, the Netherlands and the United Kingdom, this proportion rose by more than 5 per cent.

Chart 9. Change in the age distribution of teachers in primary education

Change in the age distribution of teachers in public and private primary level institutions between 1996 and 1999 (1996 = 0)



Note: While data for 1999 include private and public institutions, data for 1996 are limited to public institutions.

Source: Education at a Glance – OECD Indicators 2001.

Indicator D2, 1999

Teaching is still predominantly a
female profession...

- Women tend to be in the majority in the teaching profession at the pre-primary, primary and lower secondary levels of education.

Indicators D1 and D2, 1999

...except at the higher, and
usually better paid,
levels of education.

- In general, women are less well represented at the higher, and usually better paid, levels of education. At the upper secondary level, 49 per cent of teachers are women, on average, but this ranges from 40 per cent or less in Denmark, Germany, Korea, the Netherlands and Switzerland to between 59 and 67 per cent in Canada, Hungary, Italy and the Slovak Republic.

Indicator D2, 1999

- At the tertiary-type A and advanced research programmes level, male teachers are in the majority in all countries except in the Czech Republic. At this level, the proportion of female teachers ranges from less than one quarter in the Flemish Community of Belgium, Korea and Switzerland to over 40 per cent in Australia, the Czech Republic, Finland and Iceland.

Indicator D4, 1999

- Across OECD countries, reading and writing in the mother tongue, mathematics and science account for 39 per cent of total intended instruction time.
- Intended instruction time in mathematics and science over three years ranges from 467 hours in Iceland to 1 167 hours in Mexico.
- In Australia, Belgium (Flemish Community), Hungary, the Netherlands and Scotland, 20 per cent or more of total intended instruction time is allocated to non-compulsory subjects.

There is wide variation in intended hours of instruction.

Indicator D7, 1999

- The average number of students per computer is a proxy for the extent to which new technologies are accessible to students. Although the availability of hardware does not guarantee its effective use, an inadequate number of computers can seriously affect the dissemination and development of information and communication technology (ICT) within schools. At the primary level, the percentage of students using computers ranged, in 1999, from 25 per cent in Italy to around 90 per cent or more in Canada, Finland and New Zealand.
- The number of primary school students (including those who do not use computers) per computer ranged from 158 in Italy to 11 in Canada.
- In 1999, over 75 per cent of primary schools were connected to the Internet in Canada, Finland, Iceland and New Zealand. With the exception of Italy, where 28 per cent of primary schools were connected, in all other countries participating in the survey more than half of primary schools were connected to the Internet.
- However, many countries have ambitious plans for the schools not currently connected to the Internet. Italy, for example, has the lowest connection rate, 28 per cent, but aims to connect 71 per cent of primary schools to the Internet by 2001.

The percentage of primary students using computers ranges from 25 per cent in Italy to around 90 per cent or more in Canada, Finland and New Zealand.

At the primary level, over 75 per cent of schools in Canada, Finland, Iceland and New Zealand are connected to the Internet.

Indicator D6, 1999

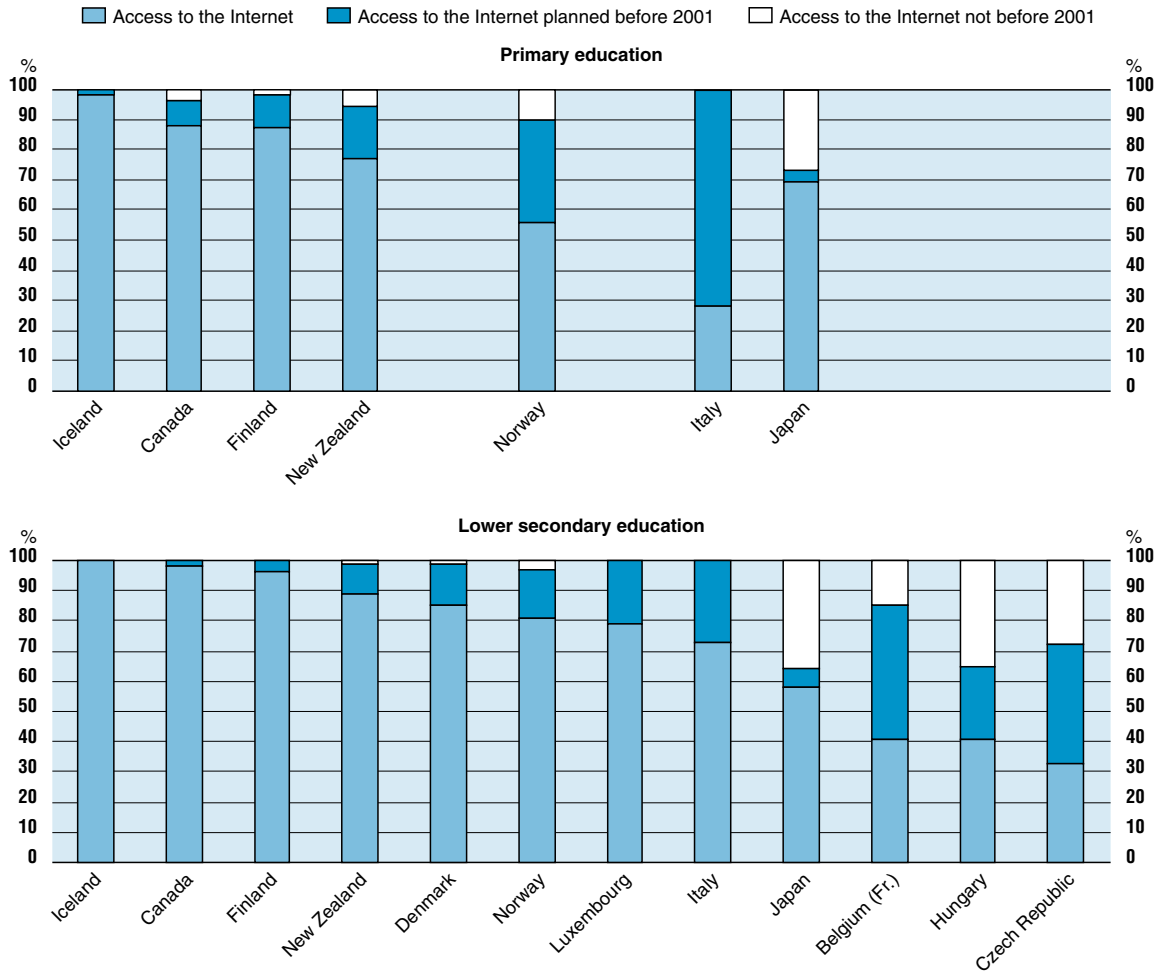
- At least 70 per cent of school principals intend to train all their teachers in ICT, except in secondary education in Japan. In Finland, New Zealand and Norway, this figure is close to 95 per cent.
- However, there are significant differences between countries in the realisation of these training objectives. Only in Finland and New Zealand do at least 30 per cent of school principals claim that all primary teachers have received ICT training.
- Principals of primary schools report that teachers acquire ICT knowledge largely through informal contacts and communications. Training by the school's IT specialist is reported to be the second most common means of transfer of knowledge, followed by in-school and then external courses

*On average, seven out of ten primary and lower secondary school principals have set the goal of training all teachers in ICT...
...but few countries have achieved this goal.*

Informal communication is the most common means by which primary school teachers acquire ICT knowledge.

Chart 10. Use of the Internet in schools (1998-1999)

Percentage of schools that have access or intend to have access to the Internet for instructional purposes, by level of education, based on school principals' reports



Source: IEA Second International Technology in Education Study (SITES); *Education at a Glance – OECD Indicators 2001*. Table D7.3.

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