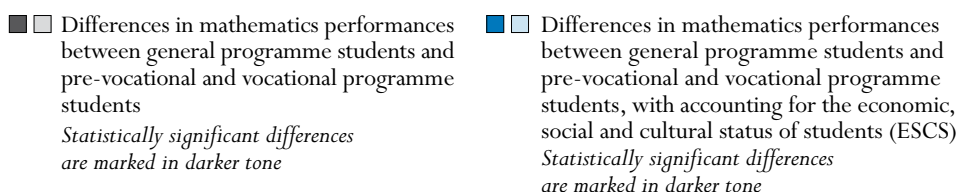


HOW PREVALENT ARE VOCATIONAL PROGRAMMES?

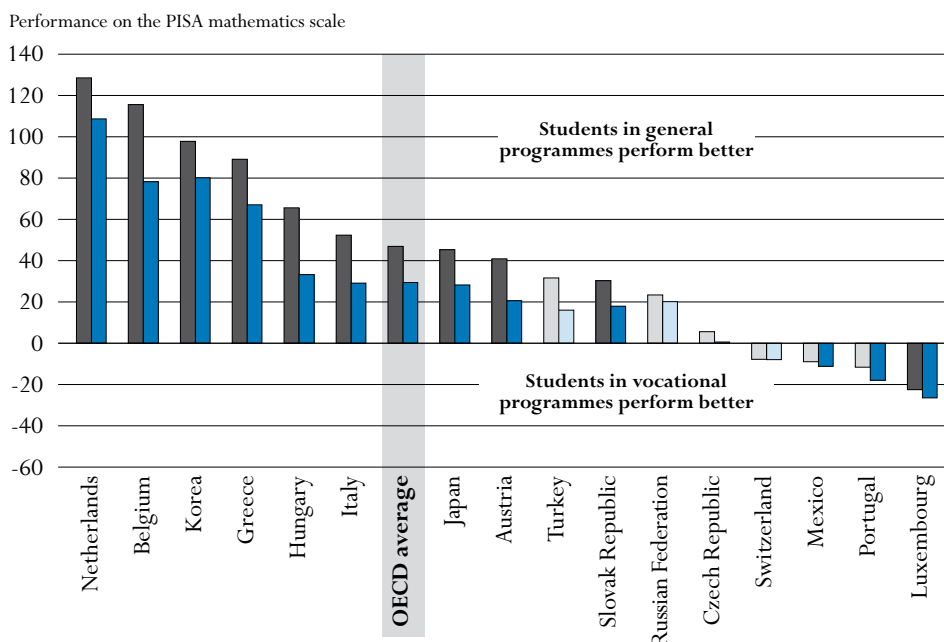
This indicator shows the participation of students in vocational education and training (VET) at the upper secondary level of education and compares the levels of education expenditure per student for general programmes and VET. This indicator also compares the educational outcomes of 15-year-old students enrolled in general education and in vocational education.

Key results

Chart C1.1. Difference in mathematics performance associated with students' programme orientation (2003)



PISA 2003 shows that 15-year-olds in pre-vocational and vocational programmes have statistically significant lower performance in mathematics compared to students enrolled in general programmes in 9 out of the 10 OECD countries for which data are available. On average, across OECD countries, 15-year-olds enrolled in general programmes perform 45 score points higher and after adjusting for socio-economic factors the difference still remains, at 27 score points.



Note: This figure shows data for countries with more than 3 % of students in the aggregated category of pre-vocational and vocational programmes.

Countries are ranked in descending order of performance advantage for students enrolled in general programmes versus students enrolled in vocational programmes.

Source: OECD PISA 2003 database, Table C1.3. See Annex 3 for notes (www.oecd.org/edu/eq2007).

StatLink <http://dx.doi.org/10.1787/068363750663>

Other highlights of this indicator

- In 15 out of the 28 OECD countries and the partner economy Slovenia, the majority of upper secondary students attend pre-vocational and vocational programmes. A significant proportion of vocational education in upper secondary is school-based in most OECD countries.
- The 14 OECD countries for which data are available spend, on average, USD 854 more per student in upper secondary vocational programmes than in general programmes.

Policy context

A range of factors – including better employment outcomes for the more educated – has strengthened the incentive for young people to enroll in school beyond the end of compulsory education and to graduate from upper secondary education. The continued growth in participation in upper secondary education means that countries have to cater to more diverse student populations at that level.

Countries have chosen various approaches to meet these demands. Some have comprehensive lower secondary systems with non-selective general/academic programmes that seek to provide all students with similar opportunities for learning, while others provide more distinct education programmes (*i.e.* academic, pre-vocational and/or vocational programmes) within both lower and upper secondary education. Vocational programmes differ from academic ones not only with regard to their curricula, but also in that they generally prepare students for specific types of occupations and, in some cases, for direct entry into the labour market.

Countries must continuously review their educational systems to ensure that the graduates produced meet the changing demands of their labour market/economy. VET-related issues with which countries are wrestling include increasing the supply of apprentices, specific skill shortages in their workforces, enhancing the status of VET and upgrading its quality.

Today VET encompasses both formal education – secondary programmes (pre-vocational and vocational), post-secondary programmes and even university programmes – and non-formal job-related continuing education and training (see Indicator C5). This indicator will focus on formal education (pre-vocational and vocational programmes) at the upper secondary level.

Evidence and explanations

Participation in upper secondary vocational education

In most OECD countries, students do not follow a uniform curriculum at the upper secondary level. Programmes at the upper secondary level can be subdivided into three categories based on the degree to which they are oriented towards a specific class of occupations or trades and lead to a labour-market relevant qualification:

- General education programmes that are not designed explicitly to prepare participants for specific occupations or trades, or for entry into further vocational or technical education programmes. (Less than 25% of the programme content is vocational or technical.)
- Pre-vocational or pre-technical education programmes that are mainly designed to introduce participants to the world of work and to prepare them for entry into further vocational or technical education programmes. Successful completion of such programmes does not lead to a labour-market relevant vocational or technical qualification. (At least 25% of the programme content is vocational or technical.)
- Vocational or technical education programmes that prepare participants for direct entry into specific occupations without further training. Successful completion of such programmes leads to a labour-market relevant vocational or technical qualification.

Vocational and pre-vocational programmes are further divided into two categories (school-based and combined school- and work-based programmes) on the basis of the amount of training that is provided in-school as opposed to training in the work place:

- In school-based programmes instruction takes place (either partially or exclusively) in educational institutions. These include special training centres run by public or private authorities or enterprise-based special training centres if these qualify as educational institutions. These programmes can have an on-the-job training component, *i.e.* a component of some practical experience at the workplace. Programmes are classified as school-based if at least 75% of the curriculum is presented in the school environment (covering the whole educational programme); this may include distance education.
- In combined school- and work-based programmes, less than 75% of the curriculum is presented in the school environment or through distance education. These programmes include apprenticeship programmes, organised in conjunction with educational authorities or educational institutions that involve concurrent school-based and work-based training, and programmes organised in conjunction with educational authorities or educational institutions that involve alternating intervals of attendance at educational institutions and participation in work-based training (programmes of training in alternation, sometimes referred to as “sandwich” programmes).

The degree to which a programme has a vocational or general orientation does not necessarily determine whether participants have access to tertiary education. In several OECD countries, vocationally oriented programmes are designed to prepare students for further studies at the tertiary level, and in some countries general programmes do not always provide direct access to further education.

In 15 OECD countries and the partner economy Slovenia, the majority of upper secondary students pursue pre-vocational and vocational programmes. In most OECD countries with dual-system apprenticeship programmes (Austria, Germany, Luxembourg, the Netherlands and Switzerland) and in Australia, Belgium, the Czech Republic, Finland, Italy, Norway, the Slovak Republic and the United Kingdom, and the partner economy Slovenia, 60% or more of upper secondary students are enrolled in pre-vocational or vocational programmes. The exceptions are Greece, Hungary, Iceland, Ireland, Japan, Korea, Mexico and Portugal and the partner economies Brazil, Chile, Estonia and Israel, where 60% or more of upper secondary students are enrolled in general programmes even though pre-vocational and/or vocational programmes are offered (Table C1.1).

In many OECD countries, upper secondary vocational education is school based. In Austria, the Czech Republic, Iceland and the Slovak Republic, however, about half of the vocational programmes have combined school-based and work-based elements. In Denmark, Germany, Hungary, Ireland and Switzerland, around 75% or more of students enrolled in vocational programmes have both school-based and work-based elements.

While upper secondary students in many education systems can enrol in vocational programmes, some OECD countries delay vocational training until after graduation from upper secondary education. While vocational programmes are offered as advanced upper secondary programmes in some OECD countries (*e.g.* Austria, Hungary and Spain), they are offered as post-secondary education in others (*e.g.* Canada and the United States).

Apprenticeship (work-based learning) programmes

Table C1.1 includes enrolments in apprenticeship programmes that are a recognised part of the education system in countries. This section provides information on the typical characteristics of these programmes and other work-based learning programmes.

In most OECD countries (Australia, Austria, Belgium, Canada, the Czech Republic, Denmark, Finland, France, Germany, Hungary, Ireland, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, the Slovak Republic, Switzerland, Turkey and the United Kingdom) and partner economies (Israel, the Russian Federation and Slovenia), some form of apprenticeship system exists. In some countries (*e.g.* Austria, Germany and Hungary), apprenticeship (student) contracts are established between the student (not the vocational training school) and the enterprise. In the United States, there are apprenticeship programmes, but they are not part of the formal education system. For the most part, the majority of countries have combined school and work-based apprenticeship programmes. In contrast, apprenticeship systems do not exist in Japan, Korea, Spain and Sweden.

The minimum entry requirements for entry into apprenticeship programmes vary between countries, however, the typical minimum requirement is usually the completion of lower secondary (in Canada, the Czech Republic, Denmark, Finland, France, Germany, Ireland, Luxembourg, Mexico, the Netherlands, Norway, Poland and the Slovak Republic, and in the partner economies Israel and Slovenia) or upper secondary education (in the partner economy Brazil). In Australia, Austria, Belgium, the Netherlands, the United Kingdom and the United States, entry is governed (in full or in part) by age criteria, while in New Zealand, participants must be in employment. In contrast, the Russian Federation has no legal framework governing entry into apprenticeship programmes.

The duration of apprenticeship programmes is standardised in some countries, ranging from one to four years in Canada, the Czech Republic, Denmark, France, Germany, Ireland, New Zealand, Norway, Poland and the United Kingdom and the partner economies Israel and Slovenia. In other countries (*e.g.* Austria and Belgium), it varies according to subject, the specific qualification being sought, previous knowledge and/or experience.

In most countries, the successful completion of an apprenticeship programme usually results in the awarding of an upper secondary or post-secondary qualification. In some countries, higher level qualifications are also possible (*e.g.* an advanced diploma in Australia).

Differences in educational expenditure per student between general and vocational programmes

In most OECD countries, expenditure per student varies according to whether programmes are general or vocational. In the 14 OECD countries for which data are available, expenditure per student in upper secondary vocational programmes in 2004 was, on average, USD 854 higher than in general programmes (Table C1.2).

The countries with large dual-system apprenticeship programmes (*e.g.* Austria, Germany, Luxembourg, the Netherlands and Switzerland) at upper secondary level tend to be those with a higher difference between expenditure per student enrolled in general and vocational programmes. For example, Germany and Switzerland spend, respectively, USD 6 748 and 5 338 more per student in vocational programmes than in general programmes with employers contributing a large part of these expenditures. Exceptions to this pattern are Luxembourg and the Netherlands, where expenditure per student enrolled in general programmes is higher than that for apprenticeship programmes. The data for Luxembourg and the Netherlands however, is underestimated due to the exclusion of expenditures from private enterprises on dual vocational

programmes. Among the four other countries – Australia, the Czech Republic, Finland and the Slovak Republic – with 60% or more of upper secondary students enrolled in vocational programmes, both the Czech Republic and Finland spend more per student enrolled in vocational programmes than in general programmes (Table C1.1 and Table C1.2).

Learning outcomes from vocational education

Is there a difference in the performance of students enrolled in vocational versus general programmes? The analysis below is limited to student performance in mathematics at age 15. Similar patterns were found for PISA 2003 performance in reading and science, but those findings are not reported here in order to simplify the presentation and avoid repetition.

The results in PISA 2003 show that, on average across OECD countries, students in pre-vocational and vocational programmes score 45 points lower than students in general programmes before socio-economic factors have been taken into account. The largest differences are observed in Belgium, Greece, Hungary, Korea and Netherlands. In the Netherlands, the performance of students in general programmes (617 score points) is significantly higher than the overall OECD average (500 score points), while the performance of students in vocational programmes (488 score points) is lower than the overall OECD average. A similar pattern is also found in Belgium, Hungary and Korea. In Greece, however, students enrolled in both general and pre-vocational/vocational programmes performed below the OECD average (with 463 and 374 score points, respectively). Luxembourg is the only country in which students enrolled in pre-vocational and vocational programmes have a statistically significant performance advantage (23 score points).

Given that vocational and general tracking can often reflect social segregation in the education systems, it is also important to examine differences in performance after adjusting for socio-economic factors. After adjusting for socio-economic factors, the performance difference of pre-vocational and vocational programmes is lowered by 18 score points, to remain at 27 score points on average across OECD countries. For 12 OECD countries, there is a statistically significant difference in the performance levels of students enrolled in general programmes compared to students enrolled in pre-vocational and vocational programmes, even after adjusting for socio-economic factors. Students enrolled in pre-vocational and vocational programmes in Luxembourg, Mexico and Portugal still have a statistically significant performance advantage (26, 11 and 18 score points respectively). For the remaining nine countries, students enrolled in pre-vocational and vocational programmes have a performance disadvantage ranging from 18 score points in the Slovak Republic to 109 score points in the Netherlands (Table C1.3 and Chart C1.1).

Nevertheless, it is important to note that the performance disadvantage of those enrolled in pre-vocational and vocational programmes may well have no impact on these students' future careers.

Definitions and methodologies

The student performance data are based on assessments administered as part of the Programme for International Student Assessment (PISA) undertaken by the OECD in 2003.


Data on enrolment is for the school year 2004-2005 and data on finance refer to the financial year 2004 and both are based on the UOE data collection on education statistics administered annually by the OECD.

Data on apprenticeship (work-based learning) programmes are based on a special survey carried out by the OECD in the autumn of 2006.

Table C1.1 shows the distribution of enrolled students in upper secondary education by programme orientation. Pre-vocational and vocational programmes include both school-based programmes and combined school- and work-based programmes that are recognised as part of the education system. Entirely work-based education and training that is not overseen by a formal education authority is not included.

Further references

The following additional material relevant to this indicator is available on line at:

StatLink  <http://dx.doi.org/10.1787/068363750663>

- *Table C1.4. Differences in mathematics performances between the different programme orientations (2003)*
- *Table C1.5. Performance of 15-year-old students on the mathematics, reading and science scales by programme orientation (2003)*

Table C1.1.
Upper secondary enrolment patterns (2005)
Enrolment in public and private institutions by programme destination and type of programme

	Distribution of enrolment by programme destination			Distribution of enrolment by type of programme				
	ISCED 3A	ISCED 3B	ISCED 3C	General	Pre-vocational	Vocational	of which: combined school and work-based	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	
OECD countries	Australia	38.5	a	61.5	38.5	a	61.5	m
	Austria	43.6	47.1	9.3	21.5	6.2	72.3	32.7
	Belgium ¹	49.5	a	50.5	30.4	a	69.6	3.3
	Canada	m	m	m	m	m	m	m
	Czech Republic	70.3	0.4	29.3	20.5	0.1	79.4	35.5
	Denmark	52.1	a	47.9	52.1	a	47.9	47.7
	Finland	100.0	a	a	36.1	a	63.9	10.5
	France	57.5	10.4	32.1	43.6	a	56.4	11.3
	Germany	39.7	59.7	0.6	39.7	a	60.3	45.0
	Greece	64.0	a	36.0	64.0	a	36.0	a
	Hungary	76.8	a	23.2	75.9	10.9	13.2	13.2
	Iceland	50.6	0.6	48.8	63.2	1.6	35.2	16.4
	Ireland	71.4	a	28.6	65.7	30.5	3.8	3.8
	Italy	80.8	2.9	16.3	38.5	36.6	24.9	a
	Japan	75.3	0.9	23.9	75.3	0.9	23.9	a
	Korea	71.5	a	28.5	71.5	a	28.5	a
	Luxembourg	59.6	15.5	24.8	36.6	a	63.4	13.6
	Mexico	89.8	a	10.2	89.8	a	10.2	m
	Netherlands	61.8	a	38.2	31.8	a	68.2	20.0
	New Zealand	m	m	m	m	m	m	m
	Norway	39.2	a	60.8	39.2	a	60.8	13.3
	Poland	88.3	a	11.7	55.0	a	45.0	6.5
	Portugal	100.0	a	a	69.0	20.5	10.5	m
	Slovak Republic	80.7	a	19.3	25.8	a	74.2	31.7
	Spain	57.4	n	42.6	57.4	n	42.6	2.8
	Sweden	94.8	a	5.2	46.4	0.8	52.7	a
	Switzerland	30.5	62.1	7.4	35.3	a	64.7	58.3
	Turkey	90.7	a	9.3	57.8	a	42.2	7.4
United Kingdom ²	43.6	x(1)	56.4	27.8	x(6)	72.2	m	
United States	100.0	x(1)	x(1)	100.0	x(4)	x(4)	x(4)	
<i>OECD average</i>	<i>67.1</i>	<i>7.7</i>	<i>26.7</i>	<i>50.3</i>	<i>4.2</i>	<i>47.5</i>	<i>16.2</i>	
<i>EU 19 average</i>	<i>68.0</i>	<i>7.6</i>	<i>24.8</i>	<i>44.1</i>	<i>5.9</i>	<i>50.3</i>	<i>16.3</i>	
Partner economies	Brazil	100.0	a	a	93.5	a	6.5	a
	Chile	100.0	a	a	63.9	a	36.1	a
	Estonia	100.0	a	a	69.0	a	31.0	a
	Israel	95.9	a	4.1	65.0	a	35.0	4.1
	Russian Federation	57.0	13.3	29.7	57.0	13.3	29.7	m
	Slovenia	32.6	44.4	23.0	32.6	n	67.4	3.7

1. Excludes the German-speaking Community of Belgium.

2. Includes post-secondary, non-tertiary education.

Source: OECD. See Annex 3 for notes (www.oecd.org/edu/eag2007).

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.


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Table C1.2.

Annual expenditure on educational institutions per student for all services, by type of programme (2004)
In equivalent USD converted using PPPs for GDP, by level of education, based on full-time equivalents

	Secondary education											
	Lower secondary education			Upper secondary education			All secondary education			Post-secondary non-tertiary education		
	All programmes	General programmes	Vocational/pre-vocational programmes	All programmes	General programmes	Vocational/pre-vocational programmes	All programmes	General programmes	Vocational/pre-vocational programmes	All programmes	General programmes	Vocational/pre-vocational programmes
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
OECD countries												
Australia	7 747	7 753	7 674	8 853	9 227	7 973	8 160	8 212	7 884	7 969	a	7 969
Austria	8 969	8 969	a	9 962	11 082	9 642	9 446	9 329	9 642	m	m	m
Belgium	x(7)	x(7)	x(7)	x(7)	x(7)	x(7)	7 751	x(7)	x(7)	x(7)	x(7)	x(7)
Canada	m	m	m	m	m	m	m	m	m	m	m	m
Czech Republic	4 769	4 752	8 872	4 790	4 200	4 942	4 779	4 659	4 963	2 191	1917	2 223
Denmark	8 224	8 224	a	9 466	x(4)	x(4)	8 849	x(7)	x(7)	m	m	m
Finland	8 918	8 918	a	6 555	5 230	7 314	7 441	7 525	7 314	x(7)	a	x(9)
France	7 837	7 837	a	9 883	x(4)	x(4)	8 737	x(7)	x(7)	4 081	x(10)	x(10)
Germany	6 082	6 082	x(6)	10 459	6 274	13 022	7 576	6 114	13 022	10 573	6712	11 283
Greece	x(7)	x(7)	x(7)	x(7)	x(7)	x(7)	5 213	x(7)	x(7)	5 688	m	m
Hungary ¹	3 433	x(1)	x(1)	3 968	3 575	5 085	3 692	3 475	5 158	6 351	a	6 351
Iceland	8 284	m	a	7 330	m	m	7 721	m	x(7)	x(7)	x(7)	x(7)
Ireland	6 943	x(1)	x(1)	7 309	x(4)	x(4)	7 110	x(7)	x(7)	5 169	x(10)	x(10)
Italy ¹	7 657	7 590	m	7 971	x(4)	x(4)	7 843	x(7)	x(7)	m	m	m
Japan	7 325	7 325	a	7 883	x(4)	x(4)	7 615	x(7)	x(7)	x(7)	m	m
Korea	6 057	6 057	a	7 485	x(4)	x(4)	6 761	x(7)	x(7)	m	m	m
Luxembourg ¹	18 036	18 036	a	17 731	18 285	17 468	17 876	18 102	17 468	m	m	m
Mexico	1 602	1 859	308	2 564	2 528	2 877	1 922	2 093	918	a	a	a
Netherlands	7 948	7 468	8 729	7 037	8 012	6 595	7 541	7 625	7 463	6 624	a	6 624
New Zealand	5 334	x(1)	x(1)	7 424	x(4)	x(4)	6 299	x(7)	x(7)	5 412	m	m
Norway	9 476	9 476	a	12 498	x(4)	x(4)	11 109	x(7)	x(7)	x(4)	x(4)	x(4)
Poland ¹	2 822	2 822	a	2 949	x(4)	x(4)	2 889	x(7)	x(7)	3 147	m	m
Portugal ¹	6 359	x(1)	x(1)	5 962	x(4)	x(4)	6 168	x(7)	x(7)	m	m	m
Slovak Republic	2 389	2 389	a	3 155	3 461	3 052	2 744	2 581	3 052	x(7)	x(8)	x(9)
Spain	x(7)	x(7)	x(7)	x(7)	x(7)	x(7)	6 701	x(7)	x(7)	a	a	a
Sweden	7 836	7 836	a	8 218	7 315	9 092	8 039	7 650	9 092	3 437	11 469	950
Switzerland ¹	9 197	9 197	a	15 368	11 869	17 207	12 176	9 847	17 207	8 401	5 212	10 361
Turkey ¹	a	a	a	1 808	1 434	2 430	1 808	1 434	2 430	a	a	a
United Kingdom	x(7)	x(7)	x(7)	x(7)	x(7)	x(7)	7 090	x(7)	x(7)	x(7)	x(7)	x(7)
United States	9 490	9 490	a	10 468	10 468	a	9 938	9 938	a	m	a	m
OECD average	6 909	7 159	6 396	7 884	7 354	8 208	7 276	7 042	8 124	4 315	6 327	6 537
Partner economies												
Brazil ¹	1 172	x(1)	x(1)	801	x(4)	x(4)	1 033	x(7)	x(7)	a	a	a
Chile ²	2 106	2 106	a	2 062	2 278	1 680	2 077	2 199	1 680	a	a	a
Estonia ¹	3 579	x(1)	x(1)	3 670	4 118	2 721	3 623	3 798	2 683	3 717	a	3 717
Israel	x(7)	x(7)	x(7)	x(7)	x(7)	x(7)	6 066	m	m	4 272	4 272	a
Russian Federation ¹	x(8)	x(8)	a	x(7)	x(8)	1 766	1 615	1 595	1 766	x(7)	a	x(9)
Slovenia ¹	7 428	x(1)	x(1)	5 062	x(4)	x(4)	6 525	x(7)	x(7)	x(7)	x(7)	x(7)

1. Public institutions only.

2. Year of reference 2005.

Source: OECD. See Annex 3 for notes (www.oecd.org/edu/eag2007).

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.


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Table C1.3.
Performance of 15-year-old students on the PISA mathematics scales, by programme orientation (2003)
Distinction between programme orientation is based on students' self-reports

	General programmes		Pre-vocational and vocational programmes		Differences in mathematics performances between general programme students and pre-vocational and vocational programme students		Differences in mathematics performances between general programme students and pre-vocational and vocational programme students, accounting for the economic, social and cultural status of students (ESCS)	
	Mean score	S.E.	Mean score	S.E.	Mean score	S.E.	Mean score	S.E.
OECD countries								
Australia	c	c	c	c	c	c	c	c
Austria	536	9.3	495	2.5	41	9.5	21	7.7
Belgium	585	2.5	469	3.2	116	4.3	78	3.7
Canada	535	1.7	a	a	a	a	a	a
Czech Republic	519	5.2	513	3.9	6	6.2	1	4.5
Denmark	514	2.7	a	a	a	a	a	a
Finland	544	1.9	a	a	a	a	a	a
France	w	w	w	w	w	w	w	w
Germany	c	c	c	c	c	c	c	c
Greece	463	4.0	374	5.0	89	6.1	67	5.1
Hungary	528	4.4	463	3.9	66	6.0	33	5.2
Iceland	515	1.4	a	a	a	a	a	a
Ireland	c	c	c	c	c	c	c	c
Italy	497	6.1	444	3.7	52	7.3	29	7.4
Japan	545	4.5	500	5.9	45	7.0	28	6.6
Korea	568	3.8	471	5.1	98	6.3	80	6.1
Luxembourg	491	1.0	513	3.2	-23	3.4	-26	3.7
Mexico	382	5.2	391	4.2	-9	6.6	-11	5.1
Netherlands	617	3.2	488	4.5	129	5.5	109	4.7
New Zealand	523	2.3	a	a	a	a	a	a
Norway	495	2.4	a	a	a	a	a	a
Poland	490	2.5	a	a	a	a	a	a
Portugal	465	3.7	477	4.9	-12	6.2	-18	5.4
Slovak Republic	512	4.1	482	5.5	30	7.0	18	5.2
Spain	485	2.4	a	a	a	a	a	a
Sweden	c	c	c	c	c	c	c	c
Switzerland	526	3.3	534	13.2	-8	12.6	-8	13.3
Turkey	431	8.9	400	12.6	32	16.8	16	11.8
United Kingdom	c	c	c	c	c	c	c	c
United States	483	2.9	a	a	a	a	a	a
OECD average	510		466		45		27	
Partner economies								
Brazil	356	4.8	a	a	a	a	a	a
Russian Federation	473	3.6	450	13.4	23	13.5	20	11.9

Note: The classification of students into programme type is based on self-reports of 15-year-old students, whereas the classification of students into programme type in Table C1.1 is based on national statistics of upper secondary students, and may therefore differ.

Please refer to the Reader's Guide for information concerning the symbols replacing missing data.

Source: OECD PISA 2003 database. See Annex 3 for notes (www.oecd.org/edu/eag2007).

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READER'S GUIDE

Coverage of the statistics

Although a lack of data still limits the scope of the indicators in many countries, the coverage extends, in principle, to the entire national education system (within the national territory) regardless of the ownership or sponsorship of the institutions concerned and regardless of education delivery mechanisms. With one exception described below, all types of students and all age groups are meant to be included: children (including students with special needs), adults, nationals, foreigners, as well as students in open distance learning, in special education programmes or in educational programmes organised by ministries other than the Ministry of Education, provided the main aim of the programme is the educational development of the individual. However, vocational and technical training in the workplace, with the exception of combined school and work-based programmes that are explicitly deemed to be parts of the education system, is not included in the basic education expenditure and enrolment data.

Educational activities classified as “adult” or “non-regular” are covered, provided that the activities involve studies or have a subject matter content similar to “regular” education studies or that the underlying programmes lead to potential qualifications similar to corresponding regular educational programmes. Courses for adults that are primarily for general interest, personal enrichment, leisure or recreation are excluded.

Calculation of international means

For many indicators an OECD average is presented and for some an OECD total.

The OECD average is calculated as the unweighted mean of the data values of all OECD countries for which data are available or can be estimated. The OECD average therefore refers to an average of data values at the level of the national systems and can be used to answer the question of how an indicator value for a given country compares with the value for a typical or average country. It does not take into account the absolute size of the education system in each country.

The OECD total is calculated as a weighted mean of the data values of all OECD countries for which data are available or can be estimated. It reflects the value for a given indicator when the OECD area is considered as a whole. This approach is taken for the purpose of comparing, for example, expenditure charts for individual countries with those of the entire OECD area for which valid data are available, with this area considered as a single entity.

Note that both the OECD average and the OECD total can be significantly affected by missing data. Given the relatively small number of countries, no statistical methods are used to compensate for this. In cases where a category is not applicable (code “a”) in a country or where the data value is negligible (code “n”) for the corresponding calculation, the value zero is imputed for the purpose of calculating OECD averages. In cases where both the numerator and the denominator of a ratio are not applicable (code “a”) for a certain country, this country is not included in the OECD average.

For financial tables using 1995 data, both the OECD average and OECD total are calculated for countries providing both 1995 and 2004 data. This allows comparison of the OECD average and OECD total over time with no distortion due to the exclusion of certain countries in the different years.

For many indicators an EU19 average is also presented. It is calculated as the unweighted mean of the data values of the 19 OECD countries that are members of the European Union for which data are available or can be estimated. These 19 countries are Austria, Belgium, the Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Italy, Ireland, Luxembourg, the Netherlands, Poland, Portugal, the Slovak Republic, Spain, Sweden and the United Kingdom.

■ **Classification of levels of education**

The classification of the levels of education is based on the revised International Standard Classification of Education (ISCED-97). The biggest change between the revised ISCED and the former ISCED (ISCED-76) is the introduction of a multi-dimensional classification framework, allowing for the alignment of the educational content of programmes using multiple classification criteria. ISCED is an instrument for compiling statistics on education internationally and distinguishes among six levels of education. The glossary available at www.oecd.org/edu/eag2007 describes in detail the ISCED levels of education, and Annex 1 shows corresponding typical graduation ages of the main educational programmes by ISCED level.

■ **Symbols for missing data**

Six symbols are employed in the tables and charts to denote missing data:

- a* Data is not applicable because the category does not apply.
- c* There are too few observations to provide reliable estimates (*i.e.* there are fewer than 3% of students for this cell or too few schools for valid inferences). However, these statistics were included in the calculation of cross-country averages.
- m* Data is not available.
- n* Magnitude is either negligible or zero.
- w* Data has been withdrawn at the request of the country concerned.
- x* Data included in another category or column of the table (*e.g.* *x*(2) means that data are included in column 2 of the table).
- ~ Average is not comparable with other levels of education.

■ **Further resources**

The website www.oecd.org/edu/eag2007 provides a rich source of information on the methods employed for the calculation of the indicators, the interpretation of the indicators in the respective national contexts and the data sources involved. The website also provides access to the data underlying the indicators as well as to a comprehensive glossary for technical terms used in this publication.

Any post-production changes to this publication are listed at www.oecd.org/edu/eag2007.

The website www.pisa.oecd.org provides information on the OECD Programme for International Student Assessment (PISA), on which many of the indicators in this publication draw.

Education at a Glance uses the OECD's StatLinks service. Below each table and chart in *Education at a Glance 2007* is a url which leads to a corresponding Excel workbook containing the underlying data for the indicator. These urls are stable and will remain unchanged over time. In addition, readers of the *Education at a Glance* e-book will be able to click directly on these links and the workbook will open in a separate window.

Codes used for territorial entities

These codes are used in certain charts. Country or territorial entity names are used in the text. Note that in the text the Flemish Community of Belgium is referred to as "Belgium (Fl.," and the French Community of Belgium as "Belgium (Fr.)."

AUS Australia	ITA Italy
AUT Austria	JPN Japan
BEL Belgium	KOR Korea
BFL Belgium (Flemish Community)	LUX Luxembourg
BFR Belgium (French Community)	MEX Mexico
BRA Brazil	NLD Netherlands
CAN Canada	NZL New Zealand
CHL Chile	NOR Norway
CZE Czech Republic	POL Poland
DNK Denmark	PRT Portugal
ENG England	RUS Russian Federation
EST Estonia	SCO Scotland
FIN Finland	SVK Slovak Republic
FRA France	SVN Slovenia
DEU Germany	ESP Spain
GRC Greece	SWE Sweden
HUN Hungary	CHE Switzerland
ISL Iceland	TUR Turkey
IRL Ireland	UKM United Kingdom
ISR Israel	USA United States

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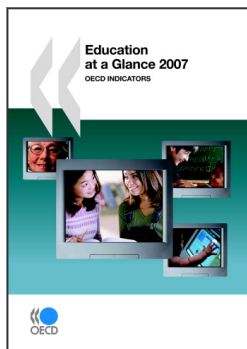
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