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**COMMISSION STAFF WORKING PAPER**

**PROGRESS TOWARDS THE LISBON OBJECTIVES  
IN EDUCATION AND TRAINING**

**2005 Report**

**THE REPORT IS WRITTEN WITHIN THE FRAME OF THE OPEN METHOD OF CO-ORDINATION  
AND THE “DETAILED WORK-PROGRAMME ON THE FOLLOW-UP OF THE OBJECTIVES OF  
EDUCATION AND TRAINING SYSTEMS IN EUROPE”**

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## EXECUTIVE SUMMARY

Following the Conclusions of the Heads of State and Governments in Lisbon in 2000 and their endorsement of the common objectives for education and training in Europe in Barcelona, 2002, a radically new process of co-operation was launched in this area, with the overall objective of making education and training systems in Europe a world quality reference by 2010.

This Commission Staff Working Paper "Progress towards the Lisbon Objectives in Education and Training" is the second annual report examining performance and progress of education and training systems in the EU using indicators identified and endorsed by experts from the participating countries.

Monitoring of performance and progress is an essential part of the Lisbon process. Periodic monitoring allows the identification of strengths and weaknesses, thereby providing guidance and strategic direction in implementing the Education & Training 2010 strategy. Consequently, an annual report "Progress towards the Lisbon Objectives in Education and Training" will be prepared.

Of the many observations and conclusions to be found in this report, the following come to the fore:

**The high number of early school leavers is an obstacle to securing greater social cohesion in the EU.**

In 2004, almost 16% of young people aged 18-24 in the EU left school prematurely and were in danger of being on the fringes of the knowledge society. The Council has agreed to reduce this rate to 10% by 2010. Although some progress has been made, the majority of Member States need to increase their efforts in coming years to help reach the EU target. Best performing EU countries as regards the share of early school leavers are: Poland, the Czech Republic and Slovakia.

**An adequate supply of scientists is crucial for a knowledge-based economy**

The Council has set two objectives: to bring about an increase of at least 15% in the number of graduates in these fields by 2010 and at the same time to redress the imbalance between women and men. At current trends both objectives will be achieved, the first objective even ahead of schedule. Slovakia, Poland and Spain are the EU countries with the strongest growth in MST graduates. Best performing countries with regard to MST graduates per 1000 population 20-29, are: Ireland, France, and the UK, while Portugal, Estonia, and Latvia have the best gender balance.

**Successful participation in the knowledge society requires the basic building blocks offered by an upper secondary-level education.**

The Council agreed that, by 2010, at least 85% of 22-year-olds in the European Union should have completed upper-secondary education. However, the completion rate has been fluctuating around 76.5% since 2000. New initiatives and redoubled efforts are needed if the target is to be reached. Best performing EU countries are: Slovakia, the Czech Republic and Slovenia.

**Individuals must update and complement their knowledge, competencies and skills throughout life through participation in lifelong learning.**

The rate of adult participation in education and training in 2004 reached 9.4% in the EU, i.e. 1.5% higher than in 2000. A part of the increase was, however, due to a break in time series in 2003. After and before 2003 progress was only slow. The objective set by the Council of achieving a 12.5% rate of adult participation requires Member States to step up efforts and to develop an integrated, coherent and inclusive lifelong learning strategy. Best performing EU countries are: Sweden, Denmark and Finland.

**Acquiring basic competencies is a first step to participation in the developing knowledge society.**

In the fundamental domain of reading literacy the most recent data suggests that in 2003 about 20% of young people under the age of 15 in EU Member States achieved only the lowest level of proficiency. The average performance did not improve compared to 2000. The EU has still a long way to go to reach the objective set by the Council of reducing this percentage by 20% (to reach 15.5%) by 2010. Best performing EU countries are: Finland, Ireland and the Netherlands.

**The EU suffers from under-investment in human resources, especially in higher education.**

Public investment in education and training as a percentage of GDP has grown slightly since the adoption of the Lisbon strategy, and is comparable with levels in the USA (and higher than in Japan). Rates of private investment in education and training are, however, modest in almost all Member States compared with the leading countries in the world, especially in higher education.

**The EU needs to attract more than one million teachers to the teaching profession.**

The high proportion of older teachers in school education in the EU implies that within the period 2005-2015 more than one million teachers in Europe will have to be replaced. High-quality initial teacher training, in conjunction with a process of continuous professional development, is necessary to equip the teaching body with skills and competencies for its role in the knowledge society over the coming decades.

**Most EU pupils do not reach the objective of proficiency in at least two foreign languages.**

At present (2002), an average of only 1.3 and 1.6 foreign languages per pupil are taught in the Member States in general lower- and upper-secondary education respectively. Major efforts will have to be made by most countries in order to reach the objective of a European average level of at least two foreign languages learned by all.

Almost half of the Member States are among the three best performing countries in at least one of the areas mentioned above. Good practice and expertise are therefore widespread and not confined to a few countries of the Union. Several new Member States are performing at the highest level, especially in relation to attainment levels in school education.

Finally, the report emphasizes the central role of indicators and benchmarks in measuring progress towards the common objectives and thus ultimately in the success of the Lisbon strategy. Without valid and comparable data in all strategic areas, Member States will lack information on the contribution of their activities in education and training to the achievement of the Lisbon objectives. To enhance the analytical capacity in future annual reports, the Commission is extending its research capacity in statistics and indicators in the area of lifelong learning by establishing a "research unit on lifelong learning" at the Joint Research Centre at ISPRA. The next monitoring report "Progress towards the Lisbon Objectives in Education and Training 2006" is foreseen for the beginning of 2006.

## PREFACE

With this Commission Staff Working Paper, “Progress towards the Lisbon Objectives in Education and Training,” the Commission “takes the temperature” regarding the performance and progress of education and training systems in some 30 countries, with the aid of 29 indicators identified and endorsed by experts from the participating countries.

The Introduction includes an overall summary of the major results of the analysis and provides an account of the context of the Lisbon strategy, the genesis of the system of indicators and benchmarks and their role in the open-method of co-ordination (OMC). It also explores the process of implementing the OMC in the area of education and training.

The main section of the report is divided into ten chapters detailing the 29 indicators and five European benchmarks of average European performance adopted by the Council. In each chapter an analysis is made of the most recent valid and comparable data, with the aim of measuring performance and progress and identifying instances of good policy practice. In areas which are relevant for European benchmarks, the analysis, where possible, draws conclusions on the prospect of reaching the targets set for 2010.

The following section gives a brief overview of the themes of the individual chapters, as well as the distribution of indicators among the chapters, as endorsed by the Commission’s working group of national experts, the Standing Group on Indicators and Benchmarks.<sup>1</sup>

**Chapter I: Improving the Quality of Teachers and Trainers.** The ageing of the teaching body is producing a more experienced teaching force, but also implies a challenge in terms of the motivation, retention and retirement of teachers. The retirement of up to 50% of the current teaching force within the next 15 years will necessitate the recruitment and training of at least one million new teachers.

Indicator n°1	Age of teachers
Indicator n°2	Number of young people
Indicator n°3	Ratio of pupils to teaching staff

**Chapter II: Developing Skills for the Knowledge Society,** analyses several key indicators related to indispensable skills and minimum attainment levels for the modern economy. The Council has set ambitious policy targets to improve participation rates and performance levels in education and training.

Indicator n°4	Completion of upper-secondary education
Indicator n°5	Low-achieving students in reading literacy
Indicator n°6-8	Performance in reading, mathematics and science
Indicator n°9	Participation in education or training of initially low-qualified people

### European Benchmarks 2010

- At least 85% of 22-year-olds in the European Union should have completed upper-secondary education.
- The percentage of low-achieving 15-year-olds in reading literacy in the European Union should have decreased by at least 20% compared to the year 2000.

<sup>1</sup> The full title of each of the 29 indicators can be found in Annex 1.

**Chapter III: Increasing Recruitment to Scientific and Technical Studies**, focuses on the fact that an adequate supply of scientific specialists is essential for the EU in becoming the most dynamic and competitive knowledge-based economy in the world. The Stockholm European Council in 2001 highlighted the need to encourage young people, particularly young women, to become interested in scientific and technological studies.

Indicator n°10      Enrolment in mathematics, science and technology  
Indicator n°11-13      Graduates in mathematics, science and technology

**European Benchmark 2010**

- The total number of graduates in mathematics, science and technology in the European Union should increase by at least 15%, while at the same time the level of gender imbalance should decrease.

**Chapter IV: Making Best Use of Resources**, springs from the Lisbon European Council's call for a "significant yearly increase in per capita investment in human resources." Public investment in education and training (as a percentage of GDP) has increased in recent years, but there is increasing awareness of the need for efficient use of resources, including private investment.

Indicator n°14      Public expenditure on education  
Indicator n°15      Private expenditure on educational institutions  
Indicator n°16      Enterprise expenditure on continuing vocational training  
Indicator n°17-18      Total expenditure on educational institutions per pupil/student

**Chapter V: Open Learning Environment**, examines indicators relating to adult participation in lifelong learning. In a rapidly changing environment, individuals will have to update and complement their knowledge and skills continuously for personal and professional development.

Indicator n°19      Participation in lifelong learning

**European Benchmark 2010**

- The European Union average level of participation in lifelong learning should be at least 12.5% of the adult working age population (25-64 age group).

**Chapter VI: Making Learning Attractive**, looks at indicators relating to participation in education, based on the recognition that a minimum knowledge base is required in order to participate effectively in the knowledge society.

Indicator n°20-21      Participation in continuing vocational training  
Indicator n°22      Participation rates in education  
Indicator n°23      Early school leavers

**European Benchmark 2010**

- By 2010, an EU average rate of no more than 10% early school leavers should be attained.



**Chapter VII: Improving Foreign Language Learning**, monitors adherence to the Barcelona European Council's recommendation that all European citizens should be taught at least two foreign languages from an early age.

Indicator n°24	Pupils learning foreign languages
Indicator n°25	Number of foreign languages learned

**Chapter VIII: Mobility and Cooperation**, concentrates on the need to promote the free circulation of students and teaching staff within the EU, both as part of the process of internationalising European education and training systems to improve teaching and learning, and in order to foster international cooperation. Inward mobility is also an indicator of the relative attractiveness of the EU as a destination for academic and research talent.

Indicator n°26	Mobility of teachers and trainers
Indicator n°27-29	Mobility of students and trainees

**Chapter IX: Ensuring Access to ICT for everyone**, follows from the precept that every citizen should be equipped with the skills needed to live and work in the new information society. The educational use of ICT accordingly features prominently in the Commission's e-learning strategy. The indicators utilised focus on the ICT infrastructure in schools and the place of ICT in the school curriculum.

Not all of the thirteen concrete objectives are covered by the indicators listed above. Very important objective areas such as active citizenship, entrepreneurship and European co-operation are not currently covered. In other areas like teachers and trainers, languages and adult education, the indicators used neglect some important aspects. For a proposal of short-, medium- and long-term strategies in these and other areas, see the Staff Working Paper "New Indicators on Education and Training."<sup>2</sup>

The report covers performance and progress in the following countries: the 25 Member States of the European Union (EU); the four Candidate Countries (CC - Bulgaria, Romania, Croatia, Turkey); and three countries of the European Economic Area (EEA) - Iceland, Liechtenstein, Norway). Where valid data is available, comparisons are made with the performance of Japan and the US.

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<sup>2</sup> Commission Staff Working Paper, *New Indicators on Education and Training*, 29 November, 2004. SEC(2004) 1524



## **PART A**

### **INTRODUCTION**

## I. INTRODUCTION

Education has always been a powerful formative influence on society, yet its instrumentality has taken on new dimensions as a result of globalisation and the knowledge revolution. Every serious long-term strategy to increase economic competitiveness, prosperity and social cohesion in the European Union is built on a foundation of education and training.

The European Council in Lisbon in 2000 responded to the changing global formation by devising a comprehensive economic and social policy strategy: to become, by 2010, “the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth, with more and better jobs and greater social cohesion.”<sup>3</sup>

The onus put on European education and training systems by the institutionalisation of this goal is immense. The very nature of education and training systems has had to be thoroughly reconsidered to accommodate the changing needs and values of society and citizens: these relate to the skills and competencies people need to prosper in the knowledge society, to the quality of education and training systems, to principles of equity and inclusiveness, and to the European dimension of education and civil life. The new social and economic formation also demands increased recognition of knowledge and skills acquired outside the formal education system, and increased support for non-formal and informal training for all age- and social groups.

The Lisbon strategy is more urgent than ever at the end of 2004, as highlighted in the Report from the High Level Group chaired by former prime minister of the Netherlands Wim Kok.<sup>4</sup> In its Communication to the Spring European Council, the Commission confirms the need for urgent action in the face of an ageing population and global competition.<sup>5</sup> The Communication calls for a “dynamic economy to fuel our wider social and environmental ambitions, and it underlines that “knowledge and innovation are the beating heart of European growth”.

Education and training help deliver what European citizens desire most – personal fulfilment, jobs, prosperity, greater social cohesion and a cleaner environment. Without first-rate education and training systems, a skilled, flexible workforce, a cohesive, participative society, research into high-value and technologically-advanced products, it will not be possible to achieve the Lisbon goals.

The high ambitions in the field of European education and training were also expressed in the wish of the Barcelona European Council of March 2002, that European education and training systems should become “a world reference for quality by 2010.”

This annual report<sup>6</sup> charts progress towards Europe’s targets in the area of education and training using a framework of indicators, benchmarks and statistics, and puts performance, where useful and possible, into a global perspective. The data gives an indication of the direction European education systems are moving in and of Europe’s potential to fulfil the objectives set at Lisbon.

The Council has grouped the strategic objectives of European education and training systems into three broad categories, concerning: firstly, the quality and effectiveness of education systems; secondly, access to education; and thirdly, opening up education systems to the

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<sup>3</sup> Presidency Conclusions, Lisbon, paragraph 37.

<sup>4</sup> *Facing the Challenge: The Lisbon strategy for growth and employment*. November 2004

<sup>5</sup> Communication to the Spring European Council “Working together for growth and jobs – a new start for the Lisbon Strategy” COM (2005) 24 02.02.2005.

<sup>6</sup> A first Commission staff working paper “Progress towards the Common Objectives in Education and Training” was published in January 2004.

wider world.<sup>7</sup> In addition to these overall strategic objectives, the Council has set precise targets or “benchmarks,” in five exemplary areas of education policy, namely early school leavers, completion of upper-secondary education, reading literacy, participation in lifelong learning, and graduates in maths, science and technology (MST). These benchmarks are not concrete targets for individual states, but rather “reference levels of European average performance.”<sup>8</sup> They are targets for the Union as a whole, and the collective responsibility of the Member States to reach the targets by 2010 is translated into action at national level on the basis of specific national policy priorities, fully respecting the principle of subsidiarity, as stipulated by the Treaty (Article 149 and 150).<sup>9</sup>

## **1.1 Summary of progress in education and training since the Lisbon Summit in 2000.**

The five European benchmarks adopted by the Council in May 2003 still pose a serious challenge for EU education and training systems. In the fields of increasing participation in lifelong learning and decreasing the proportion of low achievers in school education, the EU has made little progress up to 2003, the last year for which data is available. In terms of early school leavers and completion of upper-secondary education, some progress has been registered, but Member States need to increase their efforts substantially if the benchmarks are to be achieved by 2010. However, the benchmark set for the increase in the number of maths, science and technology graduates has already proved more than manageable, and will probably be achieved as early as 2005.

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<sup>7</sup> Adopted by the European Council, Stockholm, 2001. Work programme approved by the European Council, Barcelona, 2002.

<sup>8</sup> Council Conclusions, 5 May 2003

<sup>9</sup> However, within the EU the Netherlands has drawn up an Action Plan on how it will translate the five EU objectives agreed in the Council into national objectives and policy measures (see Dutch EU Education Action Plan). In “A report on education and training in Sweden and the shared European goals,” Sweden more generally looks into its progress towards the commonly agreed objectives and towards the five benchmarks. Norway recently published a Norwegian perspective on progress using the framework of 29 indicators and 5 benchmarks.

## Early school leavers

### European Benchmark

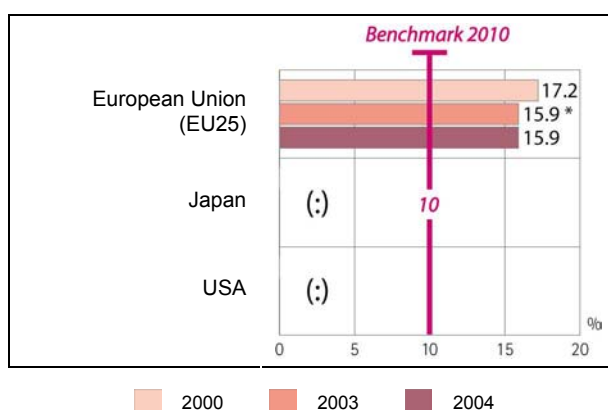
By 2010, an EU average ratio of no more than 10% early school leavers should be achieved.

That three of the five European benchmarks are closely related to issues of access to and participation in education clearly demonstrates the will of the Union to spread prosperity and increase social cohesion. Reducing the numbers of early school leavers is thus one of its foremost priorities. Encouraging young people to participate in post-compulsory education is vital for their social and labour-market integration, since those who leave school without qualifications are in danger of being left behind in today's increasingly competitive society.

The average rate of early school leaving in the EU is still high but decreasing steadily. There was an improvement in the average EU ratio of almost 1.5% over the period 2000-2003, bringing the latest figure to 15.9% (2004). However, this is still far in excess of the benchmark of a rate of early school leavers of only 10%. It will take considerable political action to achieve the benchmark in this area – the yearly decrease would have to triple to achieve the benchmark.

### Early school leavers

Share of the population aged 18-24 with only lower-secondary education and not in education or training



Source: DG EAC. Data source: Eurostat (Labour Force Survey)

\* 2003 : change in series

- At the current rate of improvement, the ratio of early school leavers will reach approximately 14% by 2010.
- In 2004, eight EU countries already had ratios of early school leavers below the European benchmark: the Czech Republic (6.1%), Denmark (8.1%), Lithuania (9.5%), Austria (9.2%), Poland (5.7%), Slovakia (7.1%), Finland (8.7%) and Sweden (8.6%).
- In general, the new Member States perform particularly well in this area, with an average ratio of early school leavers of 7.5% - well below the European benchmark.
- Girls have, in general, a lower rate of early school leaving than boys, and in some countries the difference is pronounced.

## Key competencies

### European Benchmark

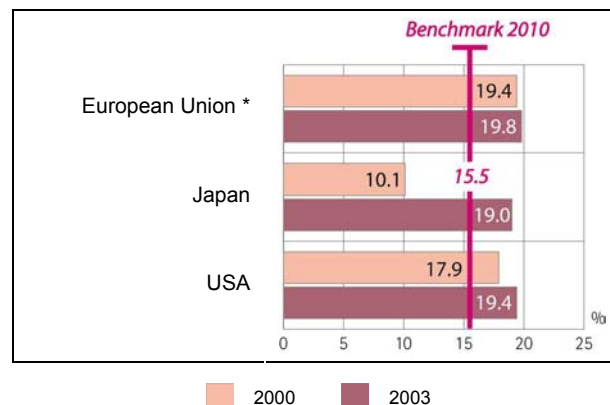
By 2010, the percentage of low-achieving 15-year-olds in reading literacy in the European Union should have decreased by at least 20% compared to the year 2000.

All individuals need a core set of competencies and skills for employment, social inclusion, lifelong learning and personal fulfilment. The European benchmark of a 20% decrease in the percentage of low-achieving 15-year-olds in reading literacy by 2010 implies a decrease from 19.4% in 2000 to 15.5% by 2010.

The latest data from 2003, however, shows a slight increase compared to 2000, so that in 2003, 19.8% of 15-year-old pupils in the EU countries participating in the OECD PISA survey were found to be low achievers in reading literacy. The relative difference between the strongest and weakest pupils varies considerably between countries. Such levels of low-achieving 15-year-olds imply that each year some 1 million young people in the EU (one fifth of a cohort) risk entering working life without the most basic competencies.

### Key Competencies

Percentage of pupils with reading literacy proficiency level 1 and lower in the PISA reading literacy scale



Source: DG EAC. Data source: OECD, PISA 2003 database.

#### Explanatory note

\* In 2000, in the 16 EU countries for which comparable data was available both for 2000 and 2003, the percentage of 15 years old in level 1 or below was 19.4. This implies a benchmark of 15.5 (- 20%).

- **Reaching the target of 15.5% in the proportion of low achievers by 2010 will be a difficult task for the Union, despite the strong performance of countries such as Finland (5.7%), Ireland (11%) and the Netherlands (11.5%).**
- **The present ratio of low achievers in the 16 EU countries for which data is available is 19.8% - approximately the same level as is found in the US (19.4%) and Japan (19%).**
- **The only countries of the EU to improve their mean performance significantly from 2000-03 were Latvia, Luxembourg and Poland.**
- **The performance gap between the highest and lowest scoring pupils in individual countries is small in Finland, the Netherlands, Italy and Spain. (However, Finland and the Netherlands have low ratios of low-achievers, whereas Italy and Spain have relatively high ratios.) The performance gap is relatively small in Japan, but wide in the US.**

## Completion of upper-secondary education

### European Benchmark

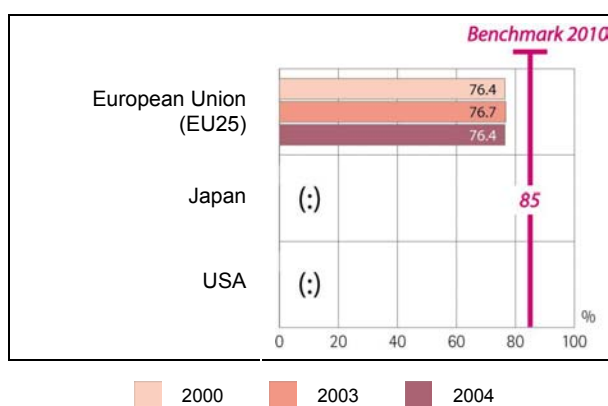
By 2010, at least 85% of 22-year-olds in the EU should have completed upper-secondary education.

Completing upper-secondary education is increasingly important not just for successful entry into the labour market, but also to allow students access to the learning and training opportunities offered by higher education. It will take considerable efforts to raise the completion rate from its present level of 76.4% to the target of 85%, given that the completion rate has hovered

between 76 and 77 % since 2000. The completion rate would have to improve by 1.5 percentage points per year in order to reach 85% by 2010.

### Completion of upper-secondary education

Percentage of those aged 20-24 who have successfully completed at least upper-secondary education (ISCED 3)



Source: DG EAC. Data source: Eurostat (Labour Force Survey).

- Youth education attainment levels hardly changed between 2000 and 2004, yet would have to increase by 1.5 percentage points per year in order to reach the benchmark by 2010.
- The new Member States have particularly high completion rates, with the Czech Republic and Slovakia at over 90%.
- Portugal and Malta have low completion rates but have made rapid progress in recent years.



## Mathematics, science and technology graduates

### European Benchmark

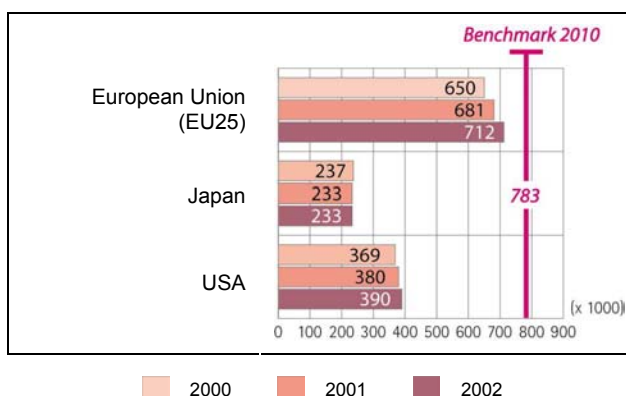
The total number of graduates in maths, science and technology in the EU should increase by at least 15% by 2010, while at the same time the level of gender imbalance should decrease.

Europe's future competitiveness in the global market will depend to a great extent on its supply of scientific specialists. Since 2000, the numbers of graduates in mathematics, science and technology have been increasing rapidly, indicating that the benchmark will more than likely be met by as early as 2005. However, there are still between two and four times as many men as women graduating in the technological disciplines in European countries, although the imbalance is decreasing. The

EU also has a higher proportion of graduates in these areas than the USA or Japan. However, it is clearly failing to capitalise on this potential, as it has fewer active researchers in the labour force. Europe needs to develop and increase the attractiveness of its research labour market, in order both to retain its own talent and to attract researchers and scientists from abroad.

### Mathematics, science and technology

Total number of tertiary (ISCED 5A, 5B and 6) graduates from mathematics, science and technology fields



Source: DG EAC. Data source: Eurostat (UOE)

Additional note:  
Greece: Data not available.

The tendency of some of the best brains to leave Europe is very likely one of the consequences of the relatively lower levels of funding of Research and Development in the EU, with only 1.9% of GDP allocated to R&D in 2003 (in comparison with a target of 3% by 2010 set by the European Council, and a current US equivalent of 2.9%). To develop the labour market for R&D personnel over the next five years will entail not only redoubled efforts to redress the marked gender imbalance, but they will need to be backed up by higher levels of investment education and research if the EU is to achieve its goal of becoming a more attractive location for researchers.

- If the trend continues, the EU will probably have reached the benchmark in numbers of MST graduates by 2005. However, it may be difficult to maintain these high levels in the future due to demographic changes in the numbers of young people in the EU.
- In 2001, almost 25% of all tertiary graduates were in MST fields, compared to 17% in the US and 22% in Japan.
- At present the gender imbalance in these fields is still pronounced, but improving. In 2001 31% of students graduating in maths, science and computing in the EU are female.

## Participation in lifelong learning

### European Benchmark

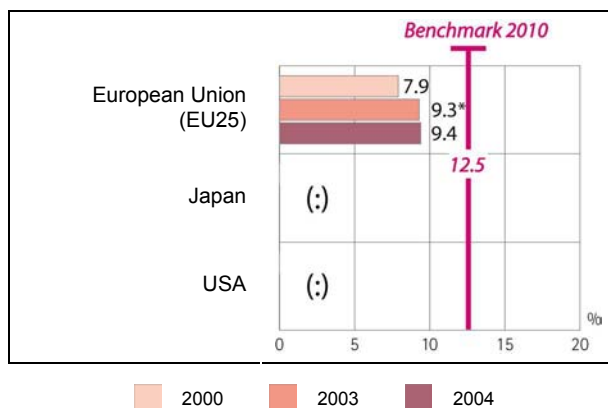
By 2010, the European Union average level of participation in Lifelong Learning should be at least 12.5% of the adult working-age population (age 25-64)

In a knowledge society, individuals must continuously update and complement their knowledge, competencies and skills for personal and professional development. The average level of participation in lifelong learning of the adult working-age population in the EU is 9.4%. This is the proportion of the adult population that has participated in formal or non-formal learning activities within “the last four weeks.” The participation rate is increasing, but not at a sufficient rate to meet the benchmark of

“at least 12.5%” by 2010. In addition, the participation gap between those with high and those with low educational attainment levels has widened. At present, those with a high educational attainment level are more than seven times as likely to participate in lifelong learning than those with low levels.

### Lifelong learning

**Percentage of population aged 25-64 participating in education and training in the four weeks prior to the survey**



Source: DG EAC. Data source: Eurostat (Labour Force Survey)

\* 2003 : change in series

- The yearly increase in lifelong learning participation would have to accelerate from the present 0.1-0.2% to 0.5% in the period 2004-10 to reach the European benchmark of 12.5% by 2010.
- The average level of participation in lifelong learning of the three best performing countries, Sweden, Denmark and Finland, is over 24%.
- The gap between the lifelong learning participation rates of those with high and those with low educational attainment levels has widened.

## Investment in education and training

Between 2000 and 2001 some progress was made in line with the Lisbon ambition of “a substantial annual increase in per capita investment in human resources.” Public expenditure on education as a proportion of GDP has increased across Europe – and the level is generally comparable with that of the US. However, private expenditure on higher education, as a percentage of GDP, is eight times higher in the US and three times higher in Japan, reflecting fundamentally differing approaches to the financing of tertiary education.

- **Public expenditure on education and training as a percentage of GDP and in absolute levels has increased since 2000 in the EU. Especially Member States have made visible efforts to raise expenditure, but spending increased also markedly in Greece, Italy, the Netherlands, Portugal, Finland and the UK. Denmark and Sweden have the highest public spending levels (over 7% of GDP),**
- **However, private expenditure on education and training is far less than in the US. The EU average level of private investment of GDP in the field is 0.6%, in comparison with 2.3% in the US. Only in Cyprus, Latvia and Germany does private investment in education and training amount to 1% or more of GDP.**

### 1.2 Learning from the best performers

The objective of benchmarking of performance and progress in the field of education and training is not to rank Member States, but rather to identify countries which perform well, so that expertise and good practice can be shared with others. This is why the Council, when adopting the Detailed Work Programme on the follow-up of the objectives of education and training systems in Europe,<sup>10</sup> asked for the identification of the three leading countries in the objective areas.

Almost half of Member States are among the three leading countries in at least one of the five areas. Good practice and expertise in the field of education and training are not, therefore, confined to a few countries of the Union. The Scandinavian countries (Sweden, Denmark and Finland, but also Norway, as non-member), though often cited with reference to the quality of their education and training systems, are not the only countries reaching standards of excellence in education – several new Member States (Poland, the Czech Republic, Lithuania, Slovakia and Slovenia) are also performing on that level in certain areas.

<sup>10</sup> Detailed Work Programme, 2002, p. 45.

## 1.3 Best performers in the five benchmark areas

Benchmark area	Concrete Target 2010	Three best performers in the EU			EU25 average	USA	Japan
Share of early school leavers (18-24) in EU.	No more than 10%	2004					
		Poland 5.7%	Czech Rep. 6.1%	Slovakia 7.1%	15.9%	(:)	(:)
Ratio of low-achieving 15-year-olds in reading literacy in EU.	At least 20% decrease (to reach 15.5%)	Change in the share of low achievers in %, 2000-2003					
		Latvia -40.2%	Poland -27.6%	Finland -18.6%	+2.1%	+8.4%	+88.1%
		% of low achievers in 2003					
		Finland 5.7%	Ireland 11.0%	Netherlands 11.5%	19.8%	19.4%	19.0%
Upper-secondary completion rate in EU (20-24).	At least 85%	2004					
		Slovakia 91.3%	Czech Rep. 90.9%	Slovenia 89.7%	76.4%	(:)	(:)
Graduates in MST in EU	Increase of at least 15% (=100,000 graduates or 1.6% annual increase in period 2001-2010)	Average annual increase 2001 and 2002					
		Slovakia +22.6%	Poland +12.7%	Spain +10.4%	+4.6%	+2.7%	-0.8%
		Graduates per 1000 population in 2001					
		Ireland 21.7	France 20.2	UK 19.5	10.9	9.9	12.8
Adult participation in Lifelong Learning in EU (25-64).	At least 12.5%	2004					
		Sweden 35.8%	Denmark 27.6%	Finland 24.6%	9.4%	(:)	(:)

In the three benchmark areas which target school education (early school leavers, upper-secondary education and low achievers), we find strong performances in the new Member States (Poland, Czech Republic, Slovenia and Slovakia, as regards reducing the share of low achievers also Latvia), and in Finland, the Netherlands and Ireland. In post-compulsory education, the leading countries are Finland, Ireland, Sweden, Denmark, France and the UK (as regards increasing the number of MST graduates also Slovakia and Poland). Only Finland and Ireland are among the best performers in both school and post-compulsory education areas.

## II. EDUCATION AND TRAINING 2010

When European Heads of State and Government met at the European Council in Lisbon in March 2000, most European countries were experiencing moderate to high economic growth and were generally optimistic that information and communication technologies (ICT) could provide new opportunities and a new way of organising the economy.

However, there were also some worrying signs, in terms of low employment rates, high long-term structural unemployment, an underdeveloped service sector, and widening skills gaps, especially in information technology. Most importantly, in terms of key economic variables, the EU was being outperformed by the US. The US had a faster economic growth rate, as well as higher employment rates and labour productivity. In spite of the completion of the internal market, the successful introduction of the Euro and strengthened co-ordination of employment and economic policies, Europe seemed to be at risk of falling behind in the long-term.

The rapid and accelerating pace of change meant that it was urgent for the Union to act without delay. The European Council at Lisbon drew up a pro-active programme of radical economic and social reforms, respecting the imperatives of both competitiveness and social cohesion, to provide impetus to a number of policy areas, including employment, the information society, research, and education and training.<sup>11</sup> The strategy adopted at the European Council Spring Summit set a new goal for the European Union, namely that of becoming:

“the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth, with more and better jobs and greater social cohesion.”<sup>12</sup>

The Lisbon strategy was a balanced strategy, which on one hand endeavoured to respond to the challenges of globalisation and the new knowledge revolution, and on the other, was consistent with European values and the European social model. Furthermore, the European Council committed itself to a more coherent effort, and a more effective monitoring of progress towards its goals, by agreeing that the Lisbon agenda would henceforth be discussed at every Spring European Council.

The European Council clearly recognised the need to build knowledge-economy infrastructures, to promote innovation and economic reform and to modernise social welfare and education systems.<sup>13</sup> The broad scope of the strategy can be appreciated from the examples below of concrete benchmarks formulated at subsequent European Council meetings.

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<sup>11</sup> See Presidency Conclusions, Lisbon, paragraph 4.

<sup>12</sup> Presidency Conclusions, Lisbon, paragraph 5.

<sup>13</sup> Presidency Conclusions, Lisbon, p.1.

**Examples of benchmarks formulated by  
the first three Spring European Council meetings**

*Lisbon (2000)*

- Ensure generalised electronic access to main basic public services by 2003
- Ensure that all schools have access to the Internet and multimedia resources by the end of 2001
- Implement the Financial Services Action Plan by 2005
- A substantial annual increase in the per capita investment in human resources
- Halve by 2010 the number of 18-24 years old with only lower-secondary level education
- Raise the overall employment rate to 70% by 2010 and to 60% for women.

*Stockholm (2001)*

- By 2010 increasing the average EU employment rate among older workers (55-64 years old) to 50%
- Transposition target of 98.5% of internal market directives
- Downward trend in state aid by 2003

*Barcelona (2002)*

- Substantial progress in enhancing energy efficiency by 2010
- Significantly reduce the number of people at risk of poverty and social exclusion by 2010
- Provide childcare by 2010 to at least 90% of children between 3 years old and the mandatory school age and at least 33% of children under 3 years of age.
- A progressive increase of about 5 years in the effective average age at which people stop working in the EU before 2010.
- Overall spending on R&D and innovation in the Union should be increased with the aim of approaching 3% of GDP by 2010. Two-thirds of this new investment should come from the private sector.

## **2.1 Implementation of the Lisbon strategy through the Open Method of Co-ordination**

The Lisbon European Council also outlined a new method of European co-operation to realize the strategic goal:

“Implementation of the strategic goal will be facilitated by applying a new open method of co-ordination as the means of spreading best practice and achieving greater convergence towards the main EU goals. This method, which is designed to help Member States to progressively develop their own policies, involves:

- fixing guidelines for the Union combined with specific timetables for achieving the goals which they set, in the short, medium and long term;
- establishing, where appropriate, quantitative and qualitative indicators and benchmarks against the best in the world and tailored to the needs of different Member States and sectors as a means of comparing best practice;
- translating these European guidelines into national and regional policies by setting specific targets and adopting measures, taking into account national and regional differences;
- periodic monitoring, evaluation and peer review, organised as mutual learning processes.”<sup>14</sup>

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<sup>14</sup> Presidency Conclusions, Lisbon, paragraph 37.

On one hand, this open method of co-ordination (OMC) provides orientation towards common outcomes or objectives in a given policy area; on the other, the OMC is an instrument for identifying good policy practice from among the grand reservoir of diverse policy approaches in the European area. It is a soft-law approach in sensitive policy areas where Member States do not want to cede power to the EU, but agree that mutual learning processes at international level can inspire better legislation at national level. The OMC is also a way of bringing international peer pressure to bear on national reform processes, and of increasing momentum in processes of mutual accountability. This might be particularly important in cases where reforms that are deemed necessary cannot garner enough public support.

The OMC is inspired by economic policy co-ordination. Since 1993, with the entry into force of the Maastricht Treaty, and in preparation of the Economic and Monetary Union, this has taken place through the broad economic policy guidelines.<sup>15</sup> Moreover, the European Employment strategy, which was launched by the Luxembourg European Council in 1997 and codified in the Amsterdam Treaty, offers another early example of the OMC.<sup>16</sup> In these two areas, however, the open method of co-ordination is enshrined in the Treaty. In the Lisbon strategy the institutional framework is not as clear – the Lisbon and subsequent Spring Summit conclusions provide general policy directions, but there is no clear mechanism for “translating” the European Council conclusions into operational community policies or implementing them at national level.

As noted in the Report from the High Level Group<sup>17</sup> chaired by Wim Kok, former president of the Netherlands, the open method of co-ordination, as the central tool for the implementation of the Lisbon strategy, has fallen short of expectations. The Kok Report locates the weakness of the OMC in the failure of Member States to enter fully into the spirit of mutual benchmarking.

In its Communication to the Spring European Council<sup>18</sup>, the Commission confirms the criticism levelled by the Kok Report, and responds by suggesting a new start for the Lisbon strategy. The renewed Lisbon strategy should focus on growth and jobs, and ensure that “knowledge and innovation are the beating heart of European growth”. Remedial actions include more focussed actions on policies that will have greatest impact, the establishment of a broad and effective ownership of the Lisbon goals in order to mobilise support for change, and a simplified and streamlined strategy which clearly clarifies who does what, simplifies reporting requirement and backs up delivery by National Lisbon Action Programmes.

## 2.2 Indicators and Benchmarks within the Open Method of Co-ordination

Presidency Conclusions at Lisbon and at subsequent Councils accorded a central role to indicators and benchmarks within the open method of co-ordination (OMC). Indicators have several functions. They reveal disparities in performance levels between and within states and encourage constructive dialogue on the underlying reasons for those disparities. They can thus be used as an instrument to stimulate the exchange of expertise and policy approaches. This function is even more pertinent considering that a number of Member States are already achieving world-best performances in a number of objective areas, whereas others are faced with serious challenges.

In the OMC, indicators are also used as instruments for monitoring progress towards common objectives and benchmarks where these have been adopted. The stated ambition of becoming the most dynamic knowledge-based economy in the world would be hollow if it did not entail the measurement of progress. Therefore a range of guidelines and benchmarks are utilised to break

<sup>15</sup> For the 2004 Broad Economic Policy Guidelines, see:

[http://europa.eu.int/comm/economy\\_finance/publications/broadeconomypolicyguidelines\\_en.htm](http://europa.eu.int/comm/economy_finance/publications/broadeconomypolicyguidelines_en.htm)

<sup>16</sup> For 2003 guidelines in the area of employment, see:

[http://europa.eu.int/comm/employment\\_social/employment\\_strategy/guidelines\\_en.htm](http://europa.eu.int/comm/employment_social/employment_strategy/guidelines_en.htm)

<sup>17</sup> *Facing the Challenge: the Lisbon strategy for growth and employment*, November 2004, pp.42-43.

<sup>18</sup> Communication to the Spring European Council “Working together for growth and jobs- a new start for the Lisbon strategy” COM (2005) 24, 2 February 2005.

down the overall ambition into manageable goals in different policy areas. The Commission reports to the Spring summits, the so-called Synthesis reports, present an analysis of progress using a framework of structural indicators (including a short-list of 14 headline indicators<sup>19</sup> and a longer list<sup>20</sup> of 42 indicators in 2004).<sup>21</sup>

### 2.3 “Education and Training 2010” within the Lisbon strategy

The Lisbon strategy and the open method of co-ordination radically changed European policy co-operation in the area of education and training. Until the European Council meeting in Lisbon, the main focus of European co-operation in the area of education and training had been the implementation of the Socrates and Leonardo programmes. The Lisbon strategy provided a platform to discuss education and training policies at European level, and the OMC offered the opportunity to build a coherent policy framework without impinging on national interests.

Recognising the pivotal role of education and training in the knowledge society, the European Council (Lisbon) invited Ministers of Education “to reflect on the concrete future objectives of education systems,” and to concentrate on “common concerns and priorities.” A year later, the European Council in Stockholm endorsed a report on the “concrete future objectives” in the field of education and training.<sup>22</sup> It furthermore requested the Council (Education and Youth) and the Commission to present jointly to the Spring European Council in 2002 (Barcelona) a detailed work programme on the implementation of education and training “objectives,” including “an assessment of their achievement in a world-wide perspective.”<sup>23</sup> In Barcelona the European Council approved the “Detailed Work Programme on the follow-up of the objectives of education and training systems” for 2010<sup>24</sup> and set the objective of “making [European] education and training systems a world quality reference by 2010.”<sup>25</sup>

Following the adoption of the Detailed Work Programme, eight working groups were set up to focus on one or more of the 13 concrete objectives. Comprising experts from 31 European countries, as well as other stakeholders and interested EU and international organisations, their role is to support the national implementation of the common objectives set for education and training systems, through exchange of good practice, study visits, peer learning activities, etc. Moreover, a Standing Group on Indicators and Benchmarks was set up to assess progress towards the objectives, and to identify models of successful policy practice with the aid of indicators.

The Joint Interim Report, *“Education and Training 2010: the success of the Lisbon strategy hinges on urgent reforms”*, adopted by the Commission and the Council in February 2004, was the first evaluation of progress in terms of the implementation of the Detailed Work Programme. The report identifies three levers as crucial to reaching the goal of making education and training systems in Europe a world-wide quality reference: firstly, focusing reform and investment on the key areas for the knowledge society; secondly, making lifelong learning a concrete reality; and thirdly, establishing a “Europe of Education and Training.” It is a sign of the willingness of

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<sup>19</sup> This shortlist has been agreed with the Council and allows for a more concise presentation and a better assessment of achievements over time vis à vis the Lisbon agenda. In keeping with the recent streamlining of procedures in the wider context of the Lisbon strategy, it is intended to keep this list stable for three years.

<sup>20</sup> Cf. Communication from the European Commission on “Structural Indicators.”

<sup>21</sup> In this short-list of indicators, one is of particular relevance in the area of education and training, namely educational attainment of those aged 20-24. In the long list of structural indicators there are five which are relevant for education and training. These cover: Spending on human resources, lifelong learning, science and technology graduates, early school leavers and educational attainment.

<sup>22</sup> Report from the Education Council to the European Council, 14 February 2001.

<sup>23</sup> Presidency Conclusions, Stockholm, paragraph 11.

<sup>24</sup> Detailed Work Programme.

<sup>25</sup> Presidency Conclusions, Barcelona, paragraph 43.



Member States to discuss education policies at European level that two of these priority areas are clearly national policy domains.

If the Lisbon Strategy changed policy cooperation in the area of education and training, in no area is this more apparent than in terms of the increased focus on the use of indicators and benchmarks in education and training policy at European level.

Firstly, the Education Council has clearly stated its intention to monitor and measure the contribution of education and training to the overall Lisbon strategy through the use of indicators and benchmarks. The Detailed Work Programme, which provides a coherent framework of 13 concrete objectives for supporting and guiding education and training policy-making at national level, was presented jointly by the Commission and the Council<sup>26</sup> to the European Council meeting in Barcelona in 2002 with an indicative list of 33 indicators for measuring progress towards the agreed objectives.

Secondly, the Joint Interim Report of February 2004 discusses EU performance, and provides evidence of the accomplishments of individual countries on the basis of indicators. Moreover, the report points to a number of warning signs in areas such as early school leavers, key competencies, investment in human resources, etc.

Thirdly, the Education Council of May 2003 strengthened the role of indicators and benchmarks when, on the basis of a proposal<sup>27</sup> from the Commission, it adopted a list of five reference levels of European average performance ("benchmarks").<sup>28</sup> In its conclusions the Council reaffirmed the central role of indicators and benchmarks in setting objectives and measuring progress towards the Lisbon goals.

Lastly, the Joint Interim Report underlined the need to improve the quality and comparability of existing indicators, particularly in the field of lifelong learning. Consequently, it requested the Standing Group on Indicators and Benchmarks and all existing Working Groups to propose, by the end of 2004, a limited list of new indicators for development. In response to these requests, and with the assistance of the Standing Group on Indicators and Benchmarks (SGIB) and of Objective Working Groups composed of experts from all Member States, the Commission established a framework of 29 indicators for measuring progress towards the Common Objectives.

This is the second progress report measuring performance and progress towards the common objectives in education and training.<sup>29</sup> Moreover, since the current indicators give a very partial picture of progress, a Staff Working Paper on the development of new indicators, "New Indicators on Education and training," (composed in response to a request in the Joint Interim Report), suggests strategies for the development of new indicators in nine areas of relevance for the *Education & Training 2010* process. In each of the following chapters detailing the 29 indicators, an analysis is given of the indicators currently in use, as well as an indication of those which are foreseen for the future.

<sup>26</sup> Presidency Conclusions, Stockholm, paragraph 11.

<sup>27</sup> "European benchmarks in education and training: follow-up to the Lisbon European Council."

<sup>28</sup> Council Conclusions of 5 May 2003. The five benchmarks adopted cover: early school leavers; graduates in mathematics, science and technology; population having completed upper-secondary education; key competencies; and lifelong learning.

<sup>29</sup> A first annual report, "Progress towards the Common Objectives in Education and Training," was published in January 2004.



## **PART B**

### **PERFORMANCE AND PROGRESS**

## **I. IMPROVING THE QUALITY OF TEACHERS AND TRAINERS**

### **Main messages**

- An increasing proportion of teachers in the EU is aged over 50 – in Sweden and Germany more than 40% of teachers in both primary and secondary education are above this age. Policies and initiatives are being developed to motivate older teachers to remain in the profession and to integrate them into a dynamic of continuous professional development.
- Pupil-teacher ratios vary substantially within the EU, from 9:1 in Lithuania to almost 20:1 in the UK. The majority of EU countries have pupil-teacher ratios below 15:1.
- The high proportion of older teachers in school education in the EU implies that within the period 2005-2015 more than one million teachers in Europe will have to be replaced. High-quality initial teacher training, in conjunction with a process of continuous professional development are necessary to equip the teaching body with skills and competencies for its role in the knowledge society over the coming decades.

### **1.1 Introduction**

“Improving education and training for teachers and trainers” is the first of the thirteen concrete objectives in education and training systems in Europe.<sup>30</sup> It is the sine qua non of measures to improve the quality and effectiveness of education systems, and in turn to strengthen Europe’s position in the modern knowledge economy. As acknowledged in the Joint Interim Report of 2004,<sup>31</sup> the success of reforms undertaken in education and training systems hinges on the motivation and quality of teaching staff.

Teachers and trainers are traditionally one of the most important interfaces between individuals and society. They have always played a crucial role in the transmission of knowledge and cultural values. However, the economic and social changes in Europe proceeding from the knowledge revolution are placing increasingly complex demands on the teaching body, in terms of its required new skills profile, especially in the areas of information and communication technologies, foreign languages and European culture and citizenship, which are all essential skills and competencies for the next generation of Europeans.

Moreover, the current state of affairs in the employment of teachers and trainers has implications for Europe’s economic and social ambitions. As the Detailed Work Programme points out, “attracting and retaining well-qualified and motivated people in the teaching profession, which is faced with massive recruitment needs due to the ageing of the teaching population, is a short- and medium-term priority in most European countries.”<sup>32</sup>

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<sup>30</sup> See Report from the Education Council to the European Council: “The concrete future objectives of education and training systems,” 2001.

<sup>31</sup> “*Education & Training 2010: the success of the Lisbon strategy hinges on urgent reforms*, p.24.

<sup>32</sup> Detailed Work Programme, p. 15.

The ageing of the labour force affects all sectors of the economy and has been addressed repeatedly by the European Council (for example in Barcelona<sup>33</sup> and Brussels<sup>34</sup>). An older teaching body implies relatively more experienced teachers, but also signifies that a wave of recruitment to replace retirees will be necessary. As a consequence, many countries will have the opportunity to exploit imminent changes in the teaching force. Much will depend on the capabilities of teacher training institutions to answer the challenges ahead.<sup>35</sup>

The Commission's expert Working Group on Improving the Education of Teachers and Trainers has made a number of policy recommendations on the question of how to ensure that the teaching profession is made more attractive, and that teachers and trainers are adequately supported for their role in the knowledge society.<sup>36</sup> These recommendations range from the development of coherent lifelong teacher education and professional development processes, quality assurance and accreditation systems, to partnership between schools and teacher-education institutions, research-based teacher education and increased mobility. A common European framework for teacher and trainer competencies and qualifications will now be elaborated. The purpose of the framework is to stimulate and support the development of policies at national level, which should increase the quality of teacher and trainer education and the capacity for innovation, thereby helping to retain well-qualified and highly-motivated teachers in the profession.<sup>37</sup>

### Indicators for monitoring performance and progress

Three indicators have been selected in the objective area of teachers and trainers to monitor progress:

- *Number of young people in the 0-14 and 15-19 age groups and as percentage of total population*
- *Age distribution of teachers together with upper and lower retirement age*
- *Ratio of pupils to teaching staff by education level*

### Quality and availability of data and indicators

The indicators address the most easily quantifiable aspect of the objective, namely the shortage or surplus of teachers in a country. Data on the age distribution of teachers and the pupil-teacher ratio allows a certain insight into the future need for teachers and trainers, and hence the need for policy development in relation to retention, retirement, and recruitment of teaching staff. The ratio of pupils to teaching staff is also an indicator of the resources devoted to education.

However, these indicators do not capture the complexity of the objective area.<sup>38</sup> Firstly, the three indicators do not address the very important matter of the quality and content of teaching, or of the quality of teacher-training and support systems. Secondly, the only levers

<sup>33</sup> "Efforts should be stepped up to increase opportunities for older workers to remain in the labour market, for instance, through flexible and gradual retirement formulas and guaranteeing real access to lifelong learning. A progressive increase of about 5 years in the effective average age at which people stop working in the European Union should be sought by 2010." Presidency Conclusions, Barcelona, p.12.

<sup>34</sup> "The European Union is facing a pension problem, which should be redressed by encouraging active ageing and by discouraging early retirement incentives." Presidency Conclusions, Brussels, p.20.

<sup>35</sup> On this subject see also OECD, "Teachers Matter: Attracting, Developing and Retaining Effective Teachers," November 2004, p. 13.

<sup>36</sup> Working Group Progress Report, "Improving the education of teachers and trainers," (2004)

<sup>37</sup> *ibid.*

<sup>38</sup> For a comprehensive analysis, see Eurydice, *The Teaching Profession in Europe: Profile, Trends and Concerns*.

policy makers have in relation to these indicators is the pupil-teacher ratio, through policies related to retention, retirement and recruitment of staff.

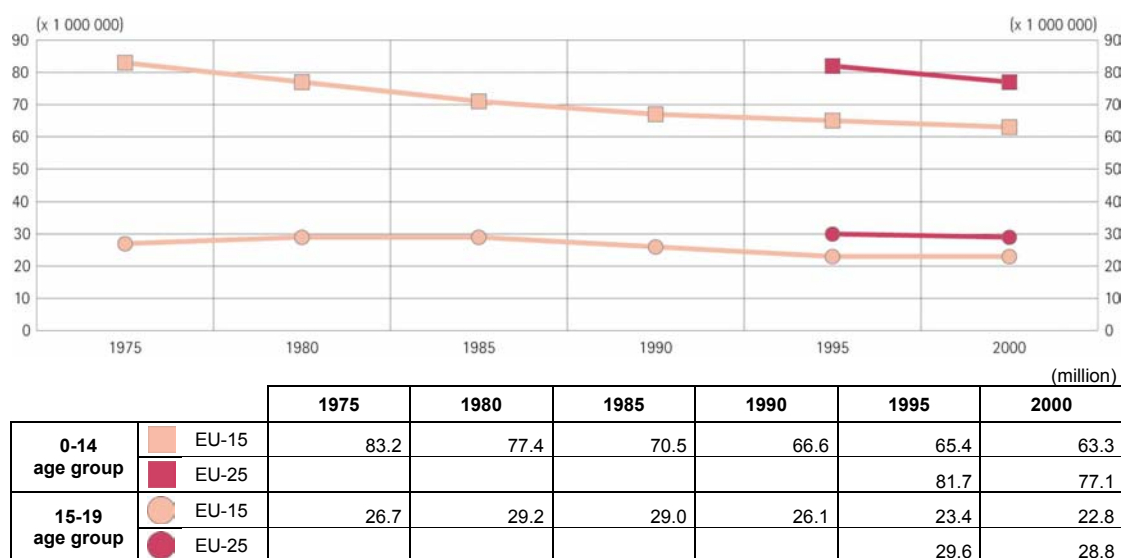
The Commission, in co-operation with experts from Member States, has devised a plan to respond to these insufficiencies. In the short term, Eurydice will undertake a survey on the evaluation of teacher training institutions in Member States in 2005, based on official policy documents. In the medium term, the Commission will examine the option of collecting empirical information on the learning environment of students and teachers at school level through other vehicles (for example, through the planned OECD teacher survey).<sup>39</sup>

## 1.2 Performance and progress in Improving the Quality of teachers and Trainers

### 1.2.1 Number of young people in the population

The number of young people in the European Union is declining steadily. The number of young people in the EU15 (figures for the EU25 are only available after 1995) aged 0-14 has decreased by almost a quarter since 1975 (from 83 million in 1975 to 63 million in 2000).

**Figure 1.1: Numbers of young people in the 0-14 and 15-19 age groups in the European Union, 1975 to 2000.**



Source: DG EAC. Data source: Eurostat (Population Statistics)

Between 1995 and 2000, the population aged 0-14 years in the EU25 decreased by 5% and the population aged 15-19 by 2.5%. Projections indicate a continuing downward trend for 0-19 year olds over the period 2000-2010.

<sup>39</sup> See Commission Staff Working Paper, *New Indicators on Education and Training*, 2004.

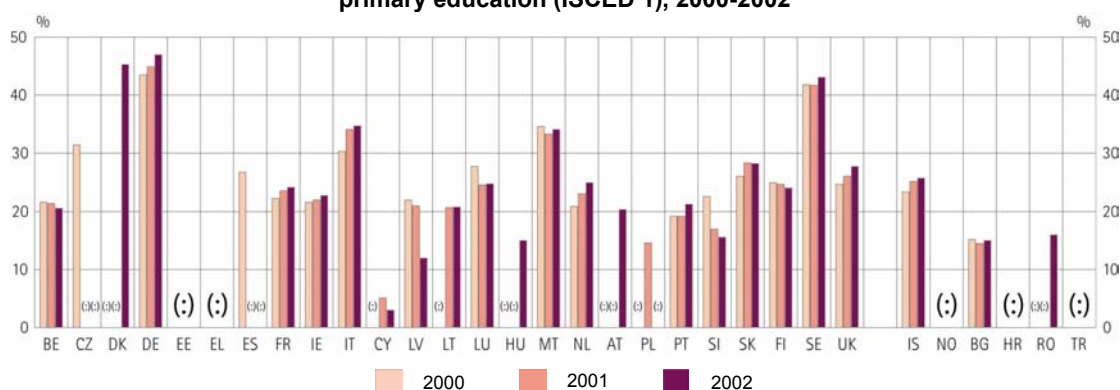
### 1.2.2 Age of teachers

A high proportion of older teachers implies a relatively more experienced teaching body, but also one which will be increasingly out of touch with new developments in the field if adequate provision of continuing teacher education for teachers is not made. The measures taken by various countries to retain older teachers range from bonus pay to reduction of teaching hours and changes in job profiles (for instance giving tutorship roles to experienced teachers so they can support inexperienced colleagues in a final on-the-job qualifying phase).<sup>40</sup>

As a consequence of the ageing of the teaching profession, a potentially serious shortage of staff may materialize when the current generation of older teachers reaches retirement age.<sup>41</sup> This is a matter of some concern, considering that most teachers leave the profession before 'normal' retirement age,<sup>42</sup> and that some countries experience significant difficulties in attracting qualified new teachers and trainers.<sup>43</sup> At present the Union counts around six million teachers (2001)<sup>44</sup> in primary and secondary education; assuming a constant pupil-teacher ratio, and taking into consideration demographic trends and projections, a minimum of one million new teachers will have to be recruited over the period 2005-2015 to satisfy replacement needs.

#### Primary level

**Figure 1.2: Percentage of teachers aged over 50, primary education (ISCED 1), 2000-2002**



	BE	CZ	DK	DE	EE	EL	ES	FR	IE	IT	CY	LV	LT	LU	HU	MT
2000	21.6	31.4	:	43.5	:	:	26.7	22.3	21.6	30.3	:	22.0	:	27.7	:	34.6
2001	21.4	:	:	44.9	:	:	:	23.6	22.0	34.1	5.1	21.0	20.7	24.5	:	33.3
2002	20.6	:	45.3	47.0	:	:	:	24.1	22.8	34.7	3.0	12.0	20.8	24.7	15.0	34.1

	NL	AT	PL	PT	SI	SK	FI	SE	UK	IS	NO	BG	HR	RO	TR
2000	20.9	:	:	19.2	22.6	26.0	24.9	41.8	24.6	23.4	:	15.2	:	:	:
2001	23.1	:	14.6	19.2	17.0	28.3	24.6	41.7	26.0	25.1	:	14.5	:	:	:
2002	24.9	20.4	:	21.3	15.6	28.2	24.0	43.1	27.7	25.7	:	15.0	:	16.0	:

Source: DG EAC. Data source: Eurostat (UOE)

<sup>40</sup> See also Eurydice, *The teaching profession in Europe: profile, trends and concerns*, report IV, chapter 6.

<sup>41</sup> In most Eastern and Central European Countries, measures have been taken recently to postpone teachers' official retirement age. Reforms are increasing the age gradually over the next two decades until it is brought in accordance with the retirement age in the "old" EU member states. Often the retirement age of women are brought into line at the same time-see also Eurydice "The teaching profession in Europe: profile, trends and concerns" report IV chapter 6. For an analysis of official retirement age please see the statistical annex.

<sup>42</sup> Eurydice, *Key Data on Education in Europe*, p. 142.

<sup>43</sup> "The concrete future objectives of education and training systems" 2001.

<sup>44</sup> Eurostat, UOE data collection, 2001.

Additional notes:

2002: BE Data excludes German community

2002: DK ISCED 1 includes ISCED 2

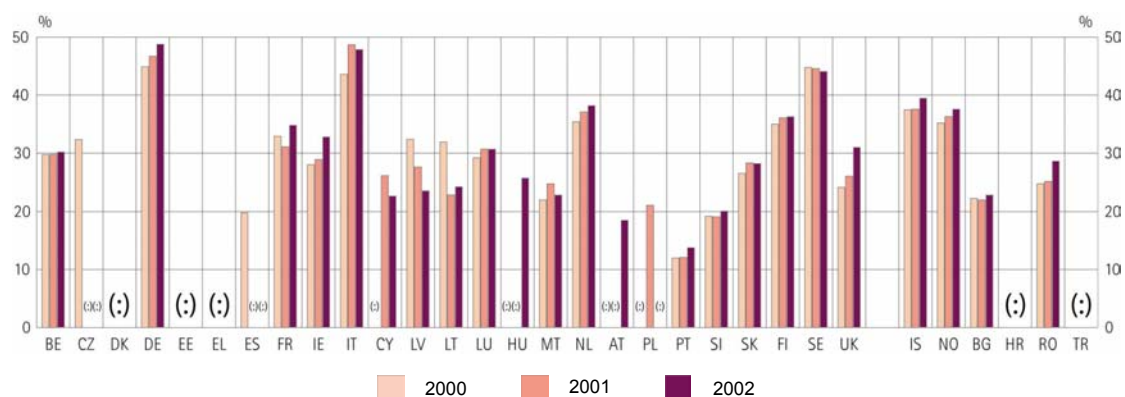
2000-02: LU Public sector only; NL ISCED 1 includes ISCED 0; IS ISCED 1 includes ISCED 2; BE Data excludes independent private institutions

Germany, Denmark and Sweden have a high proportion of older teachers at primary level, with 40% of teachers being over 50 years old (Figure 1.2). Conversely, Cyprus has an extremely low proportion of older teachers in primary education (3%), followed by Latvia (12%), with Hungary, Bulgaria and Romania all at around 15%.

Over the period 2000-2002 the proportion of teachers older than 50 at primary level increased significantly in the Netherlands, the UK, Germany and Italy, whereas it decreased in Belgium, Latvia, Slovenia, Finland, Luxembourg, Cyprus and Malta.

**Secondary level**

**Figure 1.3: Percentage of teachers aged over 50, secondary education (ISCED 2-3), 2000-2002**



	BE	CZ	DK	DE	EE	EL	ES	FR	IE	IT	CY	LV	LT	LU	HU	MT
2000	29.7	32.3	:	44.9	:	:	19.8	32.9	28.0	43.6	:	32.4	31.9	29.2	:	22.0
2001	29.8	:	:	46.7	:	:	:	31.1	28.9	48.7	26.1	27.6	22.9	30.7	:	24.7
2002	30.2	:	:	48.8	:	:	:	34.8	32.8	47.9	22.7	23.6	24.2	30.7	25.7	22.9

	NL	AT	PL	PT	SI	SK	FI	SE	UK		IS	NO	BG	HR	RO	TR
2000	35.4	:	:	12.0	19.2	26.5	35.0	44.8	24.1		37.5	35.2	22.3	:	24.7	:
2001	37.1	:	21.1	12.1	19.1	28.3	36.1	44.6	26.0		37.6	36.3	22.0	:	25.1	:
2002	38.2	18.5	:	13.8	20.1	28.2	36.3	44.1	31.0		39.5	37.6	22.9	:	28.6	:

Source: DG EAC. Data source: Eurostat (UOE)

Additional notes:

2000-2001: BE Data excludes independent private institutions. Teachers in social advancement education in the French Community not included. ISCED 3 includes ISCED 4. 2002 BE Data excludes German community.

2000: ES ISCED 3 includes ISCED 4

2000-2002: IE ISCED 4 included; LU Public sector only; FI ISCED 3 includes ISCED 4 and 5 vocational and technical programmes;

UK ISCED 3 includes ISCED 4; IS ISCED 4 partly included in ISCED 3; NO ISCED 3 includes ISCED 4.

At secondary level, more than 40% of teachers in Germany, Sweden and Italy were over 50 in 2002, while in Austria (18.5%), and especially in Portugal (13.8%), teachers were on average significantly younger (Figure 1.3).

Over the period 2000-02, the proportion of teachers older than 50 increased most (in relative terms) in Ireland, Germany, the UK, Portugal, and Romania. It decreased in only three countries: Cyprus, Latvia, and Sweden.



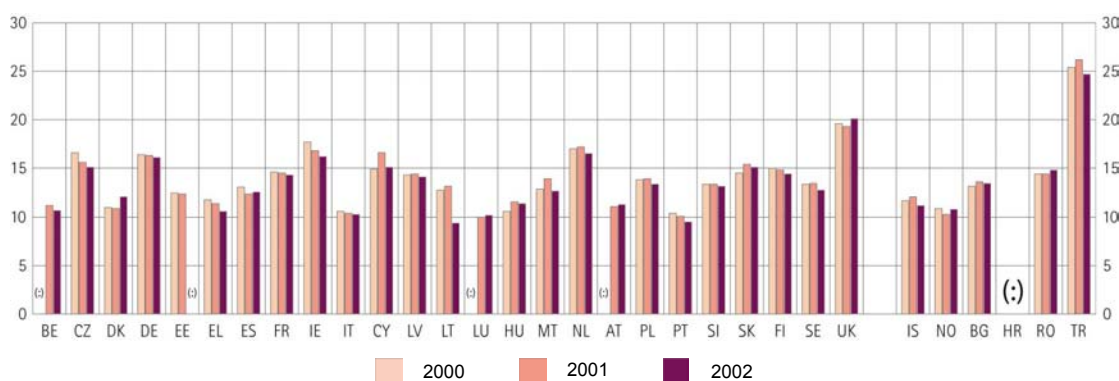
In general, the proportion of older teachers is higher in secondary education (ISCED 2-3) than in primary education (ISCED 1). This could be the consequence of longer initial education, and hence later entry into the profession.<sup>45</sup>

### 1.2.3 Ratio of pupils to teaching staff

The ratio of pupils to teaching staff ratio is an important indicator of the resources devoted to education and is often treated as a measure of the quality of the learning environment, in the assumption that a smaller pupil-teacher ratio means a greater share of teaching resources per pupil.

However, the ratio of pupils to teaching staff is not the same as actual class size,<sup>46</sup> which in the logic of teaching resources per pupil might be a more correct measure to analyse. Nevertheless, there is a close relationship between these two measures. Class size is a consequence of the resources devoted to education, but a number of organisational and pedagogical choices on all levels of the education system have an impact on class size as well: for instance, the proportion of time teachers spend teaching, the use of team teaching, different grouping of pupils according to the subjects taught. The level of education also has a bearing on class size – as pupils' freedom of choice in terms of subject areas increases in secondary education, the concept of class also changes, since class size may vary from lesson to lesson.

**Figure 1.4: Ratio of pupils to teaching staff, primary and secondary education combined (ISCED 1-3), 2000-2002**



	BE	CZ	DK	DE	EE	EL	ES	FR	IE	IT	CY	LV	LT	LU	HU	MT
2000	:	16.6	11.0	16.4	12.5	11.8	13.1	14.6	17.7	10.6	14.9	14.3	12.8	:	10.6	12.9
2001	11.2	15.6	10.9	16.3	12.4	11.4	12.4	14.5	16.8	10.4	16.6	14.4	13.2	10.0	11.6	13.9
2002	10.7	15.1	11.7	16.1	:	10.6	12.6	14.3	16.2	10.3	15.1	14.1	9.4	10.2	11.4	12.7

	NL	AT	PL	PT	SI	SK	FI	SE	UK		IS	NO	BG	HR	RO	TR
2000	17.0	:	13.8	10.4	13.4	14.5	15.0	13.4	19.6		11.7	10.9	13.2	:	14.4	25.4
2001	17.2	11.1	13.9	10.1	13.4	15.4	14.8	13.5	19.3		12.1	10.3	13.6	:	14.4	26.2
2002	16.5	11.3	13.4	9.5	13.2	15.1	14.4	12.8	20.1		11.2	10.8	13.5	:	14.8	24.7

Source: DG EAC. Data source: Eurostat (UOE)

**Additional notes:**

See table above. Plus:

2002: LT Methodology to calculate full-time equivalent teachers improved 2002, data not comparable with previous years.

2002: NL Methodology for statistics on personnel in secondary education has changed 2002.

2000-01: NL ISCED 1 includes ISCED 0.

2001: HU Calculation of full-time equivalent teachers improved 2001 compared to previous years.

<sup>45</sup> In most EU countries the initial education period for becoming a secondary school teacher is longer than for primary education.

<sup>46</sup> For an analysis of national regulations in relation to class size in primary education see Eurydice, *Key data on education in Europe, 2002*. For a general discussion of issues related to differences between class size and pupil teacher ratios see OECD, *Education at a glance*, (2004).

Pupil-teacher ratios vary considerably within the EU (Figure 1.4).<sup>47</sup> In Lithuania the ratio is just over 9 to 1, while in the UK it is almost 20 to 1. In Turkey the rate is almost 25 to 1. The majority of EU countries have pupil-teacher ratios below 15. Five EU countries registered an overall increase in the ratio over the period 2000-2002 (with Hungary recording the greatest increase, from 10.6 to 11.4), while Ireland and the Czech Republic recorded the greatest falls.

### **1.3 Conclusion**

According to demographic trends, more than one million teachers will have to be recruited in primary and secondary education over the ten-year period 2005-2015, simply to replace retirees. Pupil-teacher ratios will rise in Europe if sufficient numbers of new teachers are not recruited, notwithstanding an expected decrease in the number of pupils in the coming years.

However, the anticipated shortage of teachers should inspire policy measures to motivate and retain older, experienced teachers through the provision of new challenges and responsibilities, as well as the establishment of a coherent continuous professional development strategy, to increase the attractiveness of the profession and enhance the quality of the teaching and learning environment for all. Long-term policies in terms of recruitment, retention and retirement will ensure that 'quick-fix' emergency measures, such as wide-spread recruitment of under-qualified personnel, will not become the norm. Long term policies are also important in terms of maintaining the status of the profession, and ensuring its attractiveness.

The required volume of recruitment represents a major challenge to most European countries. However, it may also represent an unparalleled opportunity to put together a young, dynamic and diverse teaching force, equipped with the most up-to-date professional skills and resources and fully prepared for its role in the new knowledge-based economy.

The common European framework for teachers' and trainer's competences and qualifications, currently being developed by the Working Group on teachers and trainers, will be a tool to support Member States to develop policies that respond to these challenges. As such, it should make a considerable contribution to improving working conditions and increasing the long-term attractiveness of the profession, to new graduates and horizontal movers in the labour force, as well as to the current teaching body.

The Commission strategy on new indicators implies that better data on key issues in this area should be available in the short to medium term.

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<sup>47</sup> Please see the statistical annex for data on ratio of pupils to teaching staff at different ISCED levels. The data shows that the pupil-teacher ratio is lower at secondary level than at primary. This is due to a combination of factors, including specialisation by subject at secondary level, the element of choice of subjects on the part of pupils, and the time-tabling of classes, all of which create a situation in which more teachers are needed than at primary level.

## II. DEVELOPING SKILLS FOR THE KNOWLEDGE SOCIETY

### Main messages

#### Key competencies

- There was no progress over the period 2000-2003 in terms of the European Benchmark of a 20% reduction in the percentage of low achievers in reading literacy by 2010 (i.e. to 15.5%). The average percentage of low achievers in reading literacy in the 16 EU countries for which comparable data is available was 19.4% in 2000 and 19.8% in 2003.
- In 2003, Finland had the lowest proportion of low-achievers in reading literacy (5.7%), followed by Ireland, the Netherlands and Sweden. EU countries with a high proportion of low-achievers included Greece, Slovakia, Italy, Luxembourg, Germany, Portugal and Spain. The USA and Japan have similar levels of low-achievers to the EU, in both countries the proportion has increased compared to 2000. In all countries girls are performing better in reading than boys.
- Finland is both a European and a world leader in reading literacy. It also has the smallest performance gap between the best and weakest pupils.
- Compared to 2000 the EU score in maths and science literacy improved considerably in 2003, while results for Japan and the USA remained stable. Greatest progress was made in Poland, followed by the Czech Republic, Germany, Belgium and Portugal.

#### Upper-secondary attainment

- The European Benchmark of an educational attainment level of 85% at upper-secondary level by 2010, for those aged 20-24, poses a significant challenge for the majority of Member States. The present average level in the Union is 76.4% (2004) and has not improved since 2000.
- Eight EU countries are at present achieving completion rates beyond the benchmark of 85%, among which two countries (Czech Republic and Slovakia) have rates of over 90%.

### 2.1 Introduction

Key competencies designate a set of transferable, multifunctional skills and qualities that all individuals need for personal fulfilment and development, social inclusion and employability.<sup>48</sup> These competencies should be developed by the end of compulsory education and should form the foundation for more advanced or specialised training, either in higher education or through lifelong learning activities. Data from the European Labour Force Survey shows that participation in lifelong learning is strongly correlated to attainment levels achieved in formal education (see also Chapter V: Open learning environment). Completing upper-secondary education is therefore very important for participation in the knowledge society.

<sup>48</sup> The Working Group on basic skills has decided on the term “key competency” to refer to the knowledge, skills, aptitudes and attitudes necessary for personal fulfilment, social inclusion and employability.

There are high personal returns from education, including, for example, higher salaries, higher labour force participation and a lower risk of unemployment. In 2003 (second quarter), the average unemployment rate in the EU15 was 12.6% for people with less than upper-secondary education, but only 9.7% for those with upper-secondary (and 5.0% for those with tertiary qualifications). In 2000-02 the earnings of people in OECD countries with less than upper-secondary education ranged from 60-90% of the earnings of those with upper-secondary and post-secondary non-tertiary graduates.<sup>49</sup> Life expectancy and health are also positively correlated to education levels.

The Detailed Work Programme enumerates the following key competency areas:

- Numeracy and literacy (foundation skills)
- Basic competencies in mathematics, science and technology
- Foreign languages
- Information and communication technologies (ICT)
- Learning-to-learn
- Social skills
- Entrepreneurship
- General culture

#### **Indicators for monitoring performance and progress**

In this area two sets of indicators have been used. A first set of four indicators addresses the measurement of skills of 15-year-old pupils:

- *Percentage of pupils with reading literacy proficiency “level 1 and lower” on the PISA reading literacy scale.*
- *Distribution and mean performance of students, per country, on the PISA reading literacy scale.*
- *Distribution and mean performance of students, per country, on the PISA mathematical literacy scale.*
- *Distribution and mean performance of students, per country, on the PISA science literacy scale.*

A second set of two indicators monitors successful completion of upper-secondary education and adult participation in education and training:

- *Percentage of those aged 22 who have successfully completed at least upper-secondary education (ISCED 3).*
- *Percentage of adults with less than upper-secondary education who have participated in any form of education or training in the last 4 weeks, by age group (25-34, 35-54 and 55-64).*

#### **Quality and availability of data and indicators.**

These indicators cover to some extent the issue of the acquisition of key competencies, by taking into account performance in the PISA study, participation in education and lifelong learning and completion of upper-secondary education. They are also broken down by gender and in some cases by socio-economic group.

The Council has set two benchmarks in this area, one of which is supported by existing data from the OECD PISA survey.<sup>50</sup> The new phases of PISA already in preparation will ensure

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<sup>49</sup> See OECD, *Education at a Glance 2004*, page 172.

<sup>50</sup> OECD, *Learning for Tomorrow's World: New OECD PISA results*, 2004.

the delivery of new data until at least 2009, making it possible to measure progress in this field in the participating countries. However, the geographical coverage of PISA is partial and subject to change. Not all EU countries participated in the first two PISA rounds (19 EU countries in PISA 2000 and 20 EU countries in PISA 2003), and for some countries results were not reliable. There are only 16 EU countries for which the results for 2000 and 2003 can be compared. Furthermore, in the field of mathematics, two out of four survey scales have changed between the 2000 and the 2003 survey rounds, so that only the results for two scales in mathematics are comparable between the two surveys. Moreover, small changes in the results cannot be considered as significant, as they are the result of normal sampling error.

A survey which might be used to complement the PISA-based analysis is the Trends in Mathematics and Science Study (TIMSS), which is organised by the IEA (International Association for the Evaluation of Educational Achievement). The last round of TIMSS was carried out in 2003 and results became available at the end of 2004. Eleven EU countries participated in the 2003 survey round, amongst them several new Member States, which have so far not participated in PISA (Cyprus, Estonia, Lithuania and Slovenia), plus the Candidate countries Bulgaria and Romania.<sup>51</sup>

However, the two surveys listed above do not cover all data needs in the field of key competencies. This is especially the case for learning-to-learn skills and foreign language proficiency. Learning-to-learn should be considered a prerequisite for skills-oriented education and training approaches. Although some attempts have been made to address this within the PISA survey, a systematic approach should be adopted in order to develop a comprehensive tool to be used across a wide age range.<sup>52</sup> Language competence is also a priority in a Union which values linguistic diversity. The Barcelona European Council has called for the development of a language competence indicator and work is in progress within the Commission to ensure its development (more information is available in Chapter VII: Improving foreign language learning<sup>53</sup>).

Much also remains to be done in the field of adult competencies, to ensure satisfactory coverage of the skills levels of the adult population. In the International Adult Literacy Survey (IALS), which was organised by the OECD and Statistics Canada and carried out in three waves between 1994 and 1998, only 13 of the current EU Member States participated (in some cases only regions of countries).<sup>54</sup> The Adult Literacy and Lifeskills Survey (ALL), organised by OECD and North American Statistical bodies and carried out in 2003/04, covered only one EU country (Italy). The Eurostat Adult Education Survey should provide information on self-assessed skills in foreign languages and ICT. (The reference year for the survey will be 2006, but countries will be allowed to carry out the survey one year before or after the reference year.) However, direct assessment of skills remains crucial. Some long-term initiatives are already in preparation, in both the OECD and the European Commission, to develop a new adults' skills survey for launch around the year 2010.

Fostering the spirit of enterprise was a priority when defining the package of key competencies for the knowledge society. The Commission's DG Enterprise has conducted a project on best practice in education and training for entrepreneurship,<sup>55</sup> with an indicative list of possible qualitative and quantitative indicators to measure progress in teaching

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<sup>51</sup> See <http://www.iea.nl/iea/hq/>

<sup>52</sup> See Commission Staff Working Paper, "New Indicators on Education and Training," pp.5-7

<sup>53</sup> See also "New Indicators on Education and Training," pp.14-17

<sup>54</sup> See OECD/Statistics Canada, "Literacy in the Information Age: Final report of the International Adult Literacy Survey," 2000.

<sup>55</sup> European Commission final report of the Expert Group, "Best procedure." Project on Education and Training for Entrepreneurship. European Commission, November 2002.  
[http://europa.eu.int/comm/enterprise/entrepreneurship/support\\_measures/index.htm](http://europa.eu.int/comm/enterprise/entrepreneurship/support_measures/index.htm)

entrepreneurship at various levels of education. The best ways to measure progress in this area are currently being analysed in co-operation with the Commission working group responsible for key competencies.

## 2.2 Performance and progress in the field of skills for the knowledge society

### 2.2.1 Developing key competencies

At present, the OECD PISA 2003 survey, which covers skills assessment in reading literacy, science and mathematics for 15-year-olds, is the most comprehensive and up-to-date survey in this complex area. The data it provides gives information on some of the foundation skills for the knowledge society.<sup>56</sup>

The PISA survey makes it possible to identify population groups which are inadequately prepared for the challenges of the knowledge society and for lifelong learning, in terms of a lack of foundation skills such as literacy and numeracy. It is on the basis of such considerations that the Ministers for Education adopted a specific benchmark targeting low performance in reading literacy.

**European Benchmark 2010**  
**By 2010, the percentage of low-achieving 15-year-olds in reading literacy in the European Union should have decreased by at least 20% compared to the year 2000.**

This benchmark, adopted by the Council in May 2003, is based on an indicator taken from the PISA survey, namely the percentage of pupils with reading literacy proficiency level 1 or lower in the PISA reading literacy scale.

Students who reach the highest proficiency level (5) are expected to be capable “of completing sophisticated reading tasks, such as managing information that is difficult to find in unfamiliar texts; showing detailed understanding of such texts and inferring which information in the text is relevant to the task; and being able to evaluate critically and build hypotheses, draw on specialised knowledge, and accommodate concepts that may be contrary to expectations” (OECD, 2004). At the lowest level of proficiency (1), students are capable of “completing only the least complex reading tasks developed for PISA, such as locating a single piece of information, identifying the main theme of a text, or making a simple connection with everyday knowledge.”<sup>57</sup> Students performing below level 1 are not likely to be competent at even the most basic type of reading. While performance at level 1 or below cannot be directly equated with illiteracy, it is safe to assume that students at this level of attainment (especially those below 1) will experience serious difficulties when dealing with written information and thus with any learning process dependent upon written material.

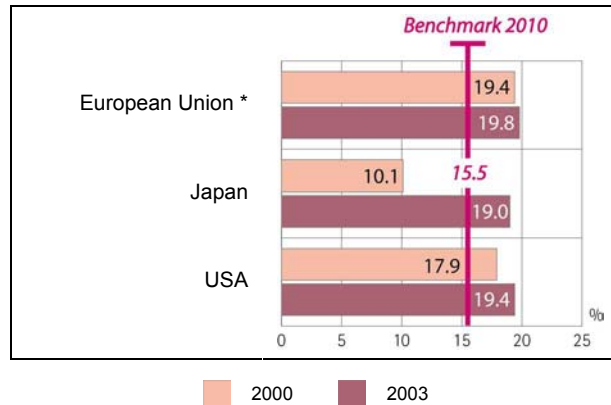
The average percentage of low performers in the 16 EU countries for which comparable PISA data is available for 2000 and 2003 was 19.8% in 2003, and thus did not improve from 2000 (see Figure 2.1). The PISA 2003 results also show that 7% of pupils (4.1% of girls, but 10.4% of boys) in the EU countries participating in the survey do not reach even the lowest proficiency level (1).

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<sup>57</sup> OECD, *Learning for Tomorrow's World*, 2004.

**Figure 2.1: Key Competencies**

Indicator: Percentage of pupils with reading literacy proficiency level 1 and lower on the PISA reading literacy scale



Source: DG EAC. Data source: OECD, PISA 2003 database.

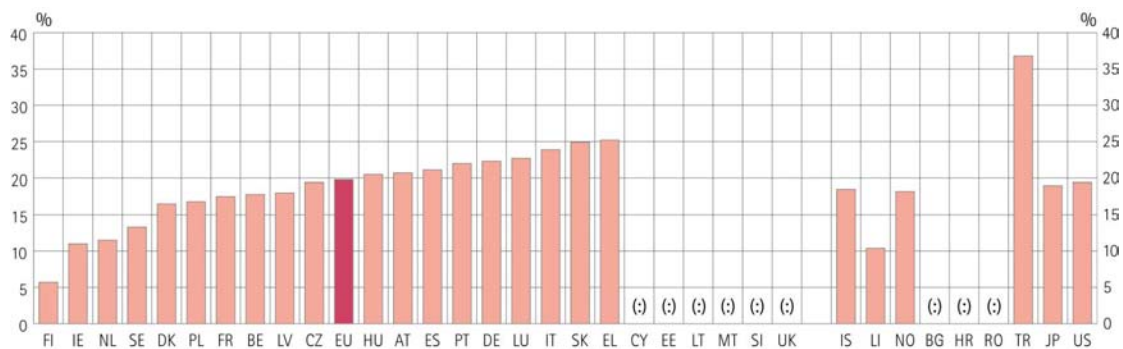
Explanatory note

\* In 2000, in the 16 EU countries for which comparable data was available both for 2000 and 2003, the percentage of 15 years old in level 1 or below was 19.4. This implies a benchmark of 15.5 (- 20%).

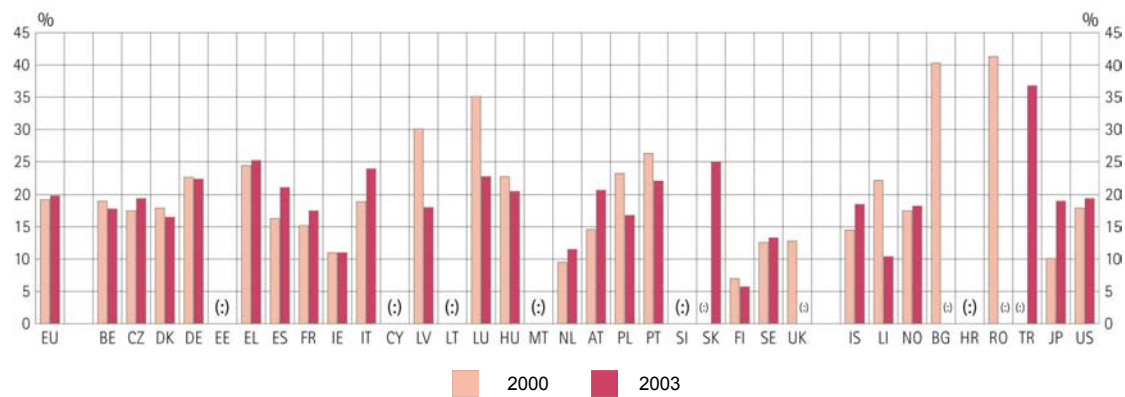
Following the European benchmark adopted by the Council, this proportion (19.8%) should decrease by 20%, to reach 15.5% by 2010. In view of the fact that no progress was made between 2000 and 2003, it will be a major challenge for many countries to improve their performance sufficiently by 2010. However, it is expected that some of the reforms which were instigated by the PISA 2000 results will bear fruit in the next survey round in 2006.<sup>58</sup>

In 2003 Finland was the country with the lowest proportion of low achievers in reading literacy, followed by Ireland, the Netherlands and Sweden (Figure 2.2). EU countries with a high share of low achievers (greater than 21%) include Greece, Slovakia, Italy, Luxembourg, Germany, Portugal and Spain.

**Figure 2.2: Percentage of pupils with reading literacy proficiency level 1 and lower in the PISA reading literacy scale, 2003**



<sup>58</sup> The analysis of the 2000 results began at the end of 2001 and there was thus not much time to implement reforms before the new survey round in 2003.



	EU		BE	CZ	DK	DE	EE	EL	ES	FR	IE	IT	CY	LV	LT	LU	HU	MT
2000	19.4		19.0	17.5	17.9	22.6	:	24.4	16.3	15.2	11.0	18.9	:	30.1	:	35.1	22.7	:
2003	19.8		17.8	19.4	16.5	22.3	:	25.2	21.1	17.5	11.0	23.9	:	18.0	:	22.7	20.5	:
Breakdown of 2003 results																		
Boys	25.6		22.4	23.5	20.5	28.0	:	32.6	27.9	23.5	14.3	31.0	:	25.0	:	28.6	25.6	:
Girls	14.0		12.9	14.9	12.7	16.3	:	18.5	14.5	12.1	7.7	17.2	:	11.6	:	17.2	14.9	:
<1	7.3		7.8	6.5	4.6	9.3	:	10.2	7.4	6.3	2.7	9.1	:	13.0	:	8.7	6.1	:
1	12.5		10.0	12.9	11.9	13.0	:	15.0	13.7	11.2	8.3	14.8	:	5.0	:	14.0	14.4	:

	NL	AT	PL	PT	SI	SK	FI	SE	UK	IS	LI	NO	BG	HR	RO	TR	JP	US
2000	9.5	14.6	23.2	26.3	:	:	7.0	12.6	12.8	14.5	22.1	17.5	40.3	:	41.3	:	10.1	17.9
2003	11.5	20.7	16.8	22.0	:	24.9	5.7	13.3	:	18.5	10.4	18.2	:	:	:	36.8	19.0	19.4
Breakdown of 2003 results																		
Boys	14.3	28.2	23.4	29.4	:	31.0	9.0	17.7	:	26.9	12.6	24.8	:	:	:	44.1	23.2	24.3
Girls	8.6	13.1	10.2	15.1	:	18.5	2.4	8.7	:	9.5	8.0	11.3	:	:	:	27.8	15.1	14.4
<1	2.1	7.3	5.3	7.6	:	8.0	1.1	3.9	:	6.7	2.5	6.4	:	:	:	12.5	7.4	6.5
1	9.4	13.4	11.5	14.4	:	16.9	4.6	9.4	:	12.8	7.9	11.8	:	:	:	24.3	11.6	12.9

Source: DG EAC. Data source: OECD PISA database

**Additional notes:**

EU figure: weighted average based on number of pupils enrolled and data for 16 countries (NL, LU not representative in 2000, UK in 2003, SK not participating in 2000)

Countries which improved their performance significantly include Poland and Latvia. The improvement in Poland is considered to be the result of reforms in the school system implemented in Poland in 1999. There was a considerable increase in the numbers of low achievers in Austria and Italy (results for Luxembourg, where the numbers decreased, and for the Netherlands, where they increased, are not fully comparable between the two surveys).<sup>59</sup>

It is also notable that the proportion of low achievers is much higher for boys than for girls. On an EU level the difference is more than 11 percentage points. Special attention has thus to be given to the poor performance of boys in order to reach the benchmark set by the Council. Girls have, on average, already passed the benchmark level.

<sup>59</sup> In the Netherlands the response rate was too low in 2000 to ensure comparability; in Luxembourg the reasons for the incomparability of the results lie in the mode of implementation in 2000; in Austria the weighting of vocational schools changed between the two surveys.

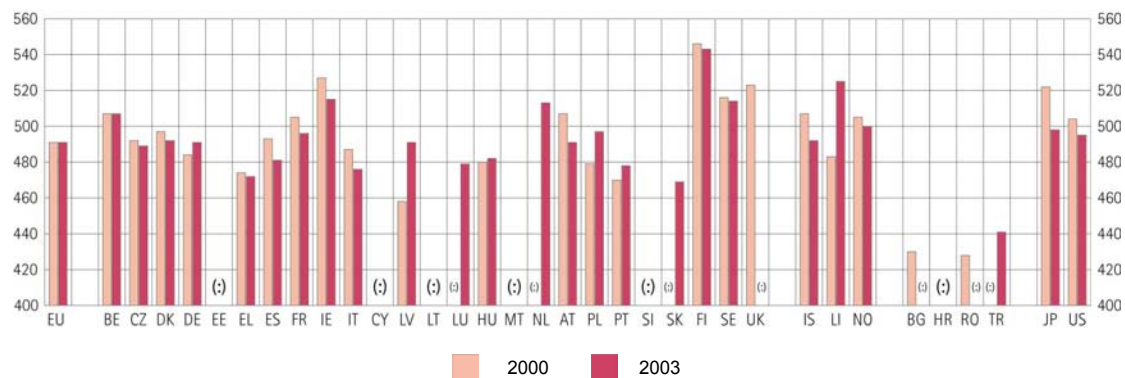


### 2.2.2 Distribution and mean performance of students

According to the results of the PISA 2003 survey, Finland, with a mean score of over 540, is not only the leading country in Europe, but also a world leader (Figure 2.3). Finland also has the smallest performance gap between the strongest and weakest pupils (204 points between the 10<sup>th</sup> and the 90<sup>th</sup> percentile), followed by Ireland, the Netherlands and Denmark. The gap is relatively wide in Belgium and Germany. However, the case of Finland indicates that it is possible to combine high performance standards with an equitable distribution of learning outcomes.

The USA and Japan have similar levels of low performers to the EU, and in both countries the proportion has increased compared to 2000.

**Figure 2.3: Distribution and mean performance of students, per country, on the PISA reading literacy scale, 2003**



	EU		BE	CZ	DK	DE	EE	EL	ES	FR	IE	IT	CY	LV	LT	LU	HU	MT
2000	491		507	492	497	484	:	474	493	505	527	487	:	458	:	(441)	480	:
2003	491		507	489	492	491	:	472	481	496	515	476	:	491	:	479	482	:
Breakdown of 2003 results by sex																		
Boys	471		489	473	479	471	:	453	461	476	501	455	:	470	:	463	467	:
Girls	511		526	504	505	513	:	490	500	514	530	495	:	509	:	496	498	:

	NL	AT	PL	PT	SI	SK	FI	SE	UK	IS	LI	NO	BG	HR	RO	TR	JP	US
2000	(532)	507	479	470	:	:	546	516	523	507	483	505	430	:	428	:	522	504
2003	513	491	497	478	:	469	543	514	:	492	525	500	:	:	:	441	498	495
Breakdown of 2003 results by sex																		
Boys	503	467	477	459	:	453	521	496	:	464	517	475	:	:	:	426	487	479
Girls	524	514	516	495	:	486	565	533	:	522	534	525	:	:	:	459	509	511

Source: DG EAC. Data source: OECD PISA database

**Additional notes:**

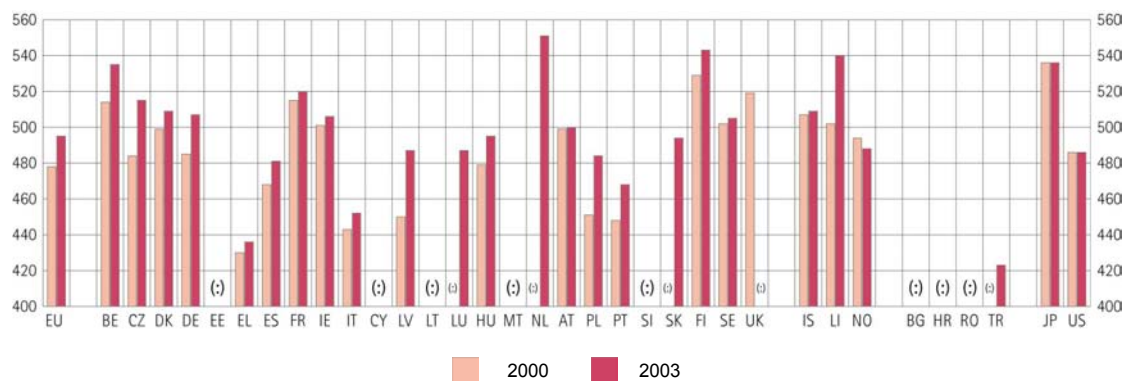
EU figure: weighted average based on number of pupils enrolled and data for 16 countries (NL, LU not representative in 2000, UK in 2003, SK not participating in 2000)

### 2.2.3 Mathematics and science

#### Mathematics

In mathematics Finland is the best performing EU and OECD country, followed closely by the Netherlands (Table 2.4). Belgium also performed relatively well (the Flemish community had even better results than Finland). Outside the EU, Liechtenstein is a strong performer in Europe. Results for Japan are on a similar level as for the leading countries in Europe, while the US is below the EU average. The EU country with the weakest performance in 2003 was Greece.

**Table 2.4: Performance of students, per country, on the PISA mathematics literacy scale**



	EU		BE	CZ	DK	DE	EE	EL	ES	FR	IE	IT	CY	LV	LT	LU	HU	MT
Results for the 2 scales (change and relationship) which can be compared in both surveys																		
2000	478		514	484	499	485	:	430	468	515	501	443	:	450	:	(424)	479	:
2003	495		535	515	509	507	:	436	481	520	506	452	:	487	:	487	495	:
Results for all 4 scales, 2003 and by sex																		
2003	495		529	516	514	503	:	445	485	511	503	466	:	483	:	493	490	:
Boys	500		533	524	523	508	:	455	490	515	510	475	:	485	:	502	494	:
Girls	490		525	509	506	499	:	436	481	507	495	457	:	482	:	485	486	:

	NL	AT	PL	PT	SI	SK	FI	SE	UK	IS	LI	NO	BG	HR	RO	TR	JP	US
Results for the 2 scales (change and relationship) which can be compared in both surveys																		
2000	:	499	451	448	:	:	529	502	519	507	502	494	:	:	:	:	536	486
2003	551	500	484	468	:	494	543	505	:	509	540	488	:	:	:	423	536	486
Results for all 4 scales, 2003 and by sex																		
2003	538	506	490	466	:	498	544	509	:	515	536	495	:	:	:	423	534	483
Boys	540	509	493	472	:	507	548	512	:	508	550	498	:	:	:	430	539	486
Girls	535	502	487	460	:	489	541	506	:	523	521	492	:	:	:	415	530	480

Source: DG EAC. Data source: OECD PISA database

#### Additional notes:

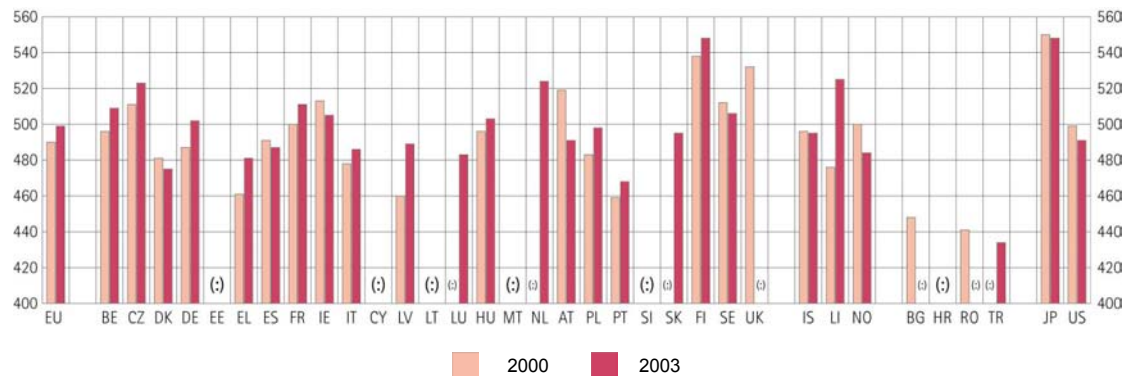
EU figure: weighted average based on number of pupils enrolled and data for 16 countries (NL, LU not representative in 2000, UK in 2003, SK not participating in 2000)

If only those two scales are considered for which results are comparable between the two survey rounds (the scales change and relationship), the Netherlands head the table, followed by Finland and Belgium. Compared to 2000, the EU results (for the two comparable scales) improved considerably, while results for Japan and the USA remained stable. Greatest progress was made in Latvia (37 points) and Poland, followed by the Czech Republic, Germany, Belgium and Portugal. While girls in the 16 EU countries for which comparable information is available perform on average 40 points better in reading, boys perform about 10 points better in mathematics. The only country in which girls perform better than boys in mathematics is Iceland.

## Science

On the science literacy scale Finland once more achieved the best results in 2003 (tied with Japan), followed by the Netherlands and the Czech Republic (Table 2.5). Portugal recorded the worst average performance. The world-wide comparison shows that Japan is performing at the same level as Finland, whereas the US results are below the EU average.

**Table 2.5: Performance of students, per country, on the PISA science literacy scale, 2003**



	EU		BE	CZ	DK	DE	EE	EL	ES	FR	IE	IT	CY	LV	LT	LU	HU	MT
2000	490		496	511	481	487	:	461	491	500	513	478	:	460	:	(443)	496	:
2003	499		509	523	475	502	:	481	487	511	505	486	:	489	:	483	503	:
Performance in 2003 by sex																		
Boys	502		509	526	484	506	:	487	489	511	506	490	:	487	:	489	503	:
Girls	497		509	520	467	500	:	475	485	511	504	484	:	491	:	477	504	:

	NL	AT	PL	PT	SI	SK	FI	SE	UK	IS	LI	NO	BG	HR	RO	TR	JP	US
2000	(529)	519	483	459	:	:	538	512	532	496	476	500	448	:	441	:	550	499
2003	524	491	498	468	:	495	548	506	:	495	525	484	:	:	:	434	548	491
Performance in 2003 by sex																		
Boys	527	490	501	471	:	502	545	509	:	490	538	485	:	:	:	434	550	494
Girls	522	492	494	465	:	487	551	504	:	500	512	483	:	:	:	434	546	489

Source: DG EAC. Data source: OECD PISA database

### Additional notes:

EU figure: weighted average based on number of pupils enrolled and data for 16 countries (NL, LU not representative in 2000, UK in 2003, SK not participating in 2000)

The EU average performance improved significantly from 2000, with the strongest progress (15 points and more) made in Latvia, Greece, Poland and Germany. Outside the EU, Liechtenstein registered a considerable improvement of results, while the average performance in the US deteriorated. Males performed on average slightly better than females in 2003, but the difference is smaller than in mathematics.

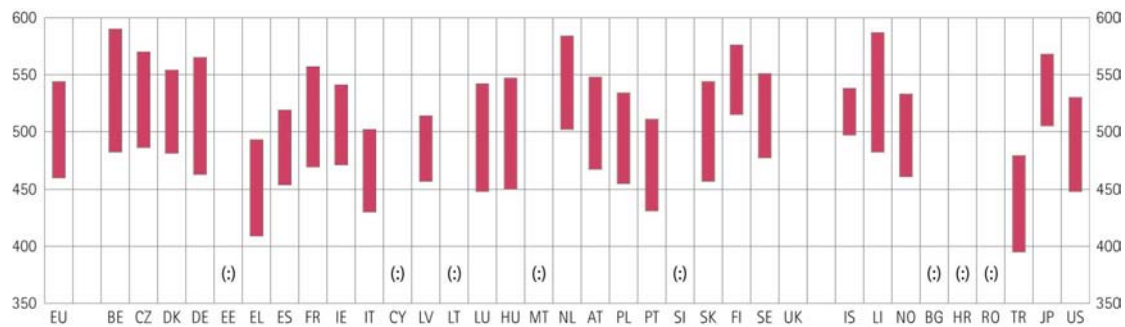
The variation in performance in mathematical, scientific and reading literacy *within countries* makes it possible to determine the countries' relative strengths in the different domains. Many countries achieved similar results in reading, mathematical and scientific literacy. There are, however, some exceptions. Belgium, the Czech Republic, Denmark and Slovakia performed much better in mathematical than in reading literacy. Countries with relative strength in reading rather than in maths include Greece, Italy and Portugal. The Czech Republic, France, Hungary and Slovakia perform considerably better in science than in reading.

The comparison also shows that it seems to be more difficult to improve performance in reading than in maths and sciences. It seems that family background has a greater influence on reading skills than on the other areas, which are more determined by what is actually taught in schools.

### 2.2.4 Literacy and socio-economic background

School performance is closely linked to the socio-economic background of young people. In the 19 EU countries for which 2003 data was available (excluding the UK, for which the results were not representative), the average performance gap between the bottom and the top quarter of the socio-economic index amounts to 81 points on the PISA mathematical scale. Belgium has the largest gap (108), followed by Denmark and Hungary. Latvia, on the other hand, has the smallest gap (57), while Finland has the next smallest performance gap and at the same time, the best performance of the bottom quarter (515).

**Figure 2.6: Performance on the PISA mathematical literacy scale by quarters of socio-economic index of occupational status, 2003.**  
(length of bar shows difference in performance between bottom quarter and top quarter)



	EU	BE	CZ	DK	DE	EE	EL	ES	FR	IE	IT	CY	LV	LT	LU	HU	MT
Bottom quarter	460	482	486	481	463	:	409	454	469	471	430	:	457	:	448	450	:
Top quarter	544	590	570	554	565	:	493	519	557	541	502	:	514	:	542	547	:
Difference	84	108	84	73	102	:	84	65	88	70	72	:	57	:	94	97	:

	NL	AT	PL	PT	SI	SK	FI	SE	UK	IS	LI	NO	BG	HR	RO	TR	JP	US
Bottom quarter	502	467	455	431	:	457	515	477	:	497	482	461	:	:	:	395	505	448
Top quarter	584	548	534	511	:	544	576	551	:	538	587	533	:	:	:	479	568	530
Difference	82	81	79	80	:	87	61	74	:	41	105	72	:	:	:	84	63	82

Source: DG EAC. Data source: OECD, Pisa (2003)

Additional notes: EU figure: weighted average based on number of pupils enrolled and data for 19 countries

The data also shows a considerable difference in performance between native students (students born in the country of assessment, with at least one parent born in the same country), first-generation students (born in the country of assessment but whose parents were born in another country) and non-native students (born in another country and whose parents were also born in another country).

**Table 2.7: Performance on the PISA reading literacy scale by students' nationality and the nationality of parents, 2003**

	EU	BE	CZ	DK	DE	EE	EL	ES	FR	IE	IT	CY	LV	LT	LU	HU	MT
Native students	:	523	497	497	517	:	477	483	505	516	478	:	492	:	500	482	:
1 <sup>st</sup> generation students	:	439	:	440	420	:	:	:	458	:	:	:	477	:	454	:	:
Non-native students	:	407	:	454	431	:	429	:	426	:	:	:	:	:	431	:	:

	NL	AT	PL	PT	SI	SK	FI	SE	UK	IS	LI	NO	BG	HR	RO	TR	JP	US
Native students	524	501	497	481	:	470	546	522	:	494	534	505	:	:	:	442	499	503
1 <sup>st</sup> generation students	475	428	:	471	:	:	:	502	:	:	503	:	:	:	:	:	:	481
Non-native students	463	425	:	:	:	:	:	433	:	:	467	436	:	:	:	:	:	453

Source: DG EAC. Data source: OECD, Pisa (2003)

Data on PISA reading performance by nationality is only available for 8 EU countries. Out of these Belgium showed the biggest gap between native and non-native students. Sweden and Germany have also relatively large gaps, while Denmark records relatively small performance gaps between these groups.

### 2.3 Performance and progress in the completion of upper-secondary education

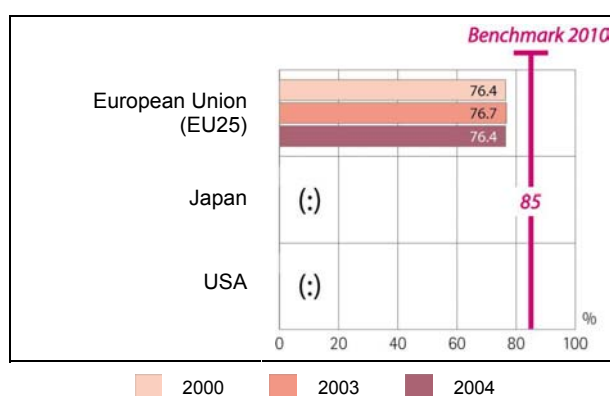
A high level of general educational attainment among the working population is a prerequisite for a dynamic and competitive European economy, and is also held to be essential for personal fulfilment. Completion of upper-secondary education was therefore selected by the Ministers for Education for a European Benchmark.

**European Benchmark 2010**  
**By 2010, at least 85% of 22-year-olds in the European Union should have completed upper-secondary education.<sup>60</sup>**

This target poses a significant challenge for the majority of Member countries (Figure 2.7). The present average rate in the Union is 76.4% (2004). It should be borne in mind that while several countries have improved these figures only slightly in recent years, others have made good progress, including, for example, Portugal and Malta.<sup>61</sup>

**Figure 2.8: Completion of upper-secondary education**

Indicator: Percentage of those aged 20-24 who have successfully completed at least upper-secondary education (ISCED 3)



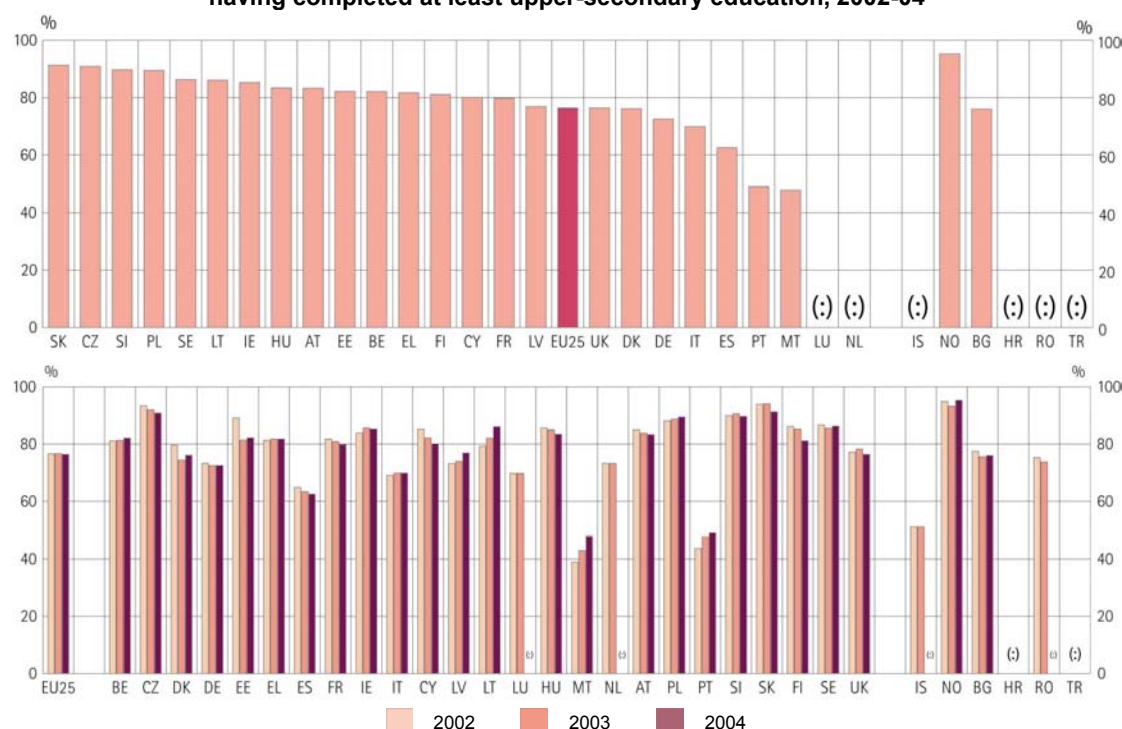
Source: DG EAC. Data source: Eurostat (Labour Force Survey).

Between 2000 and 2004, the upper-secondary completion rate in EU25 hardly changed, although it would have to improve by one and a half percentage points per year in order to reach 85% by 2010. The benchmark of 85% will be difficult to achieve given the slow progress since 2000.

<sup>60</sup> Indicator: *Percentage of those aged 22 who have successfully completed at least upper-secondary education (ISCED 3)*. Due to statistical reasons (the sample size in the Labour Force Survey for a one year cohort is too small to produce reliable results) the following proxy indicator is used in the analysis: *Percentage of those aged 20-24 who have successfully completed at least upper-secondary education (ISCED 3)*.

<sup>61</sup> Upper secondary attainment includes both degrees that give access to further studies in tertiary education and formal qualifications that can be used only in the labour market. Such programmes are relatively common in France, Poland, Slovenia and UK.

**Figure 2.9: Percentage of the population (20-24) having completed at least upper-secondary education, 2002-04**



	EU25	BE	CZ	DK	DE	EE	EL	ES	FR	IE	IT	CY	LV	LT	LU	HU
2002	76.6	81.1	91.7	79.6	73.3	80.4	81.3	64.9	81.7	83.9	69.1	85.3	73.2	79.3	69.8	85.8
2003	76.7	81.3	92.0	74.4	72.5	81.4	81.7	63.4	80.9	85.7	69.9	82.2	74.0	82.1	69.8	85.0
2004	76.4	82.1	90.9	76.1	72.5	82.2	81.7	62.5	79.8	85.3	69.9	80.1	76.9	86.1	:	83.4

	MT	NL	AT	PL	PT	SI	SK	FI	SE	UK	IS	NO	BG	HR	RO	TR
2002	39.0	73.3	85.1	88.1	44.2	90.0	94.0	86.2	86.7	77.2	51.1	94.9	77.5	:	75.3	:
2003	43.0	73.3	83.7	88.8	47.7	90.7	94.1	85.2	85.6	78.2	51.1	93.3	75.6	90.7	73.8	:
2004	47.9	:	85.3	89.5	49.0	89.7	91.3	84.6	86.3	76.4	:	95.3	76.0	:	74.8	:

Source: DG EAC. Data source: Eurostat (Labour Force Survey).

**Additional notes:**

Due to changes in survey characteristics, data lacks comparability with former years in DK and HU (from 2003), AT (2<sup>nd</sup> quarter from 2003; from 2004 continuous survey – covering all weeks of the reference quarter) and FI (1<sup>st</sup> quarter from 2003).

DE, EL, IT (2004), NL, LU (2003): Data is provisional.

CY: Students usually living in the country but studying abroad are not yet covered by the survey.

EU: Aggregate results based on provisional UK data (all GSCE levels excluded until new ISCED 3C definition implemented 2005)

Fourteen EU countries are at present achieving completion rates beyond 80%, of which two countries (the Czech Republic and Slovakia) have rates of over 90% (Figure 2.9). The new Member States have particularly high completion rates. Portugal and Malta have the lowest completion rates in the EU (below 50%), but both have made substantial progress in recent years in improving youth education attainment levels. The other Member States, however, made little progress since 2002.

### 2.3.1 Upper-secondary completion rate by gender

Women have closed the gender gap in recent years and now record higher participation rates and attainment levels in education than men. Table 2.10 shows that women now have, on average, a 5% lead in the completion of upper-secondary education among young people aged 20-24 in the EU25. Countries in which women have more than a 10% lead over men include Estonia, Greece, Spain, Latvia and Portugal. Countries with a better balance between males and females include the UK, Slovakia, and the Czech Republic. Compared to women, young men are much further away from the 85% benchmark set by the Council. Efforts are being



made in several countries to address the issue and improve attainment levels of boys in upper-secondary education.

**Table 2.10: Completion of upper-secondary, by gender, 2004**

	EU25		BE	CZ	DK	DE	EE	EL	ES	FR	IE	IT	CY	LV	LT	LU	HU
<b>Females</b>	79.1		86.8	91.2	78.6	73.4	92.3	86.9	70.0	81.3	88.6	73.4	84.4	83.4	90.1	:	84.9
<b>Males</b>	73.8		77.4	90.5	73.3	71.6	72.5	76.5	55.2	78.3	82.1	66.4	75.4	70.7	82.2	:	81.9

	MT	NL	AT	PL	PT	SI	SK	FI	SE	UK		IS	NO	BG	HR	RO	TR
<b>Females</b>	48.7	:	85.9	91.6	58.8	93.7	91.5	87.9	87.6	76.6		:	96.5	77.2	:	75.8	:
<b>Males</b>	47.1	:	84.6	87.4	39.4	86.0	91.1	81.2	85.1	76.2		:	94.2	74.8	:	73.8	:

Source: DG EAC. Data source: Eurostat (Labour Force Survey)

Additional notes:

DE, EL, IT: Data is provisional.

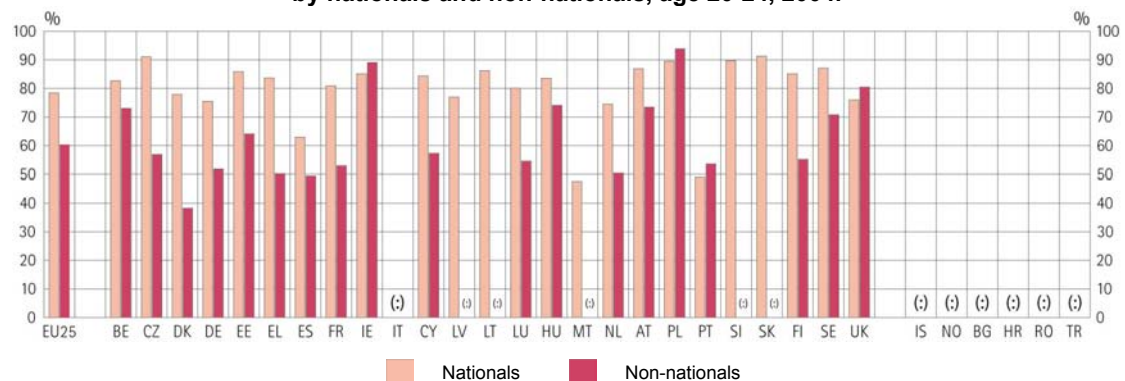
CY: Students usually living in the country but studying abroad are not yet covered by the survey.

EU: Aggregate results based on provisional UK data (all GSCE levels excluded until new ISCED 3C definition implemented 2005)

### 2.3.2 Completion of upper-secondary by non-nationals

Migrants tend to have lower levels of upper-secondary education and to do less well in reading literacy, as shown by the OECD PISA study. In 2004 the gap between the attainment levels of nationals and non-nationals in the EU was 18.1% (compared to 20% in 2003), with larger gaps in Greece, Germany, the Netherlands and Sweden. In some countries (for example, in Portugal), non-nationals seem to achieve higher attainment levels than nationals, but the quality of results in small countries or in countries with a low proportion of non-nationals is affected by small sample size.

**Figure 2.10: Completion of upper-secondary education by nationals and non-nationals, age 20-24, 2004.**



	EU25		BE	CZ	DK	DE	EE	EL	ES	FR	IE	IT	CY	LV	LT	LU	HU
<b>Nationals</b>	78.4		82.7	91.1	77.9	75.5	85.9	83.7	62.9	80.9	85.1	:	84.4	77.0	86.2	80.1	83.5
<b>Non-nat.</b>	60.3		73.0	56.9	38.3	51.8	64.1	50.2	49.3	53.0	89.1	:	57.3	:	:	54.6	74.1

	MT	NL	AT	PL	PT	SI	SK	FI	SE	UK		IS	NO	BG	HR	RO	TR
<b>Nationals</b>	47.6	74.5	86.9	89.5	48.9	89.7	91.3	85.1	87.1	76.0		:	:	:	:	:	:
<b>Non-nat.</b>	:	50.4	73.4	93.9	53.6	:	:	55.2	70.8	80.5		:	:	:	:	:	:

Source: DG EAC. Data source: Eurostat (Labour Force Survey, spring results, except FI, 1st quarter)

Additional notes:

DE, EL, IT: provisional data. NL, IS: 2002 data.

Data in italics: quality affected by small sample size.

CY: Students usually living in the country but studying abroad are not yet covered by the survey.

EU: Aggregate results based on provisional UK data (all GSCE levels excluded until new ISCED 3C definition implemented 2005)

## **2.4 Conclusion**

“Key competencies” are an essential element of the Europe’s education and training strategy. Some 17.9% of 15-year-olds are low achievers in reading literacy in the Member States and reaching the benchmark of a 20% decrease in this figure by 2010 will demand major efforts from all parties. All countries will have to draw on each others’ experience in different domains to tackle the problem of poor performance in basic skills. Countries like Finland and the best performing Asian countries have valuable expertise to share with others. The case of Finland also shows that it is possible to combine high performance standards with an equitable distribution of learning outcomes among pupils.

A further analysis of mathematics and science skills might also be useful to determine strengths and weaknesses in relation to another Commission objective – increasing recruitment to scientific and technical studies – and to identify good practice in these areas.

The area of “key competencies” is clearly one in which new indicators need to be developed. Further work is needed in the areas of adult skills and entrepreneurship, and, as stated above, the development of indicators in learning-to-learn and foreign languages will have to be considered absolute priorities.

The analysis has also shown that European Union countries face a major challenge in relation to the European benchmark of an upper-secondary attainment level of 85% of 22-year-olds. A number of countries are already performing well, especially in the case of new Member States the Czech Republic and Slovakia, which have upper-secondary attainment levels of over 90% (2003). Greater attention will have to be given to the performance of boys, young people with special educational needs and children of foreign origin.



### III. INCREASING RECRUITMENT TO SCIENTIFIC AND TECHNICAL STUDIES

#### Main messages

- With an average annual growth rate of the number of tertiary graduates in mathematics, science and technology (MST) of over 4% in the period 2000-2002 (corresponding to an absolute increase of about 30,000 graduates per year), the EU is well on track to reaching the benchmark of an increase of 15% (100,000 graduates) by 2010.
- On the basis of 2000-2002 trends, the benchmark will already have been achieved by 2005. However, demographic trends could spell a much slower growth in the number of MST graduates in the long term.
- In 2001 the proportion of students graduating in mathematics, science or technology was higher in the EU (24%) than in the USA (17%) or Japan (22%), but the EU had fewer researchers in the labour market.
- There was also some progress in reducing the gender imbalance among MST graduates. The proportion of female students increased from 28% in 2000 to 31% in 2001 and expanded further in 2002.

#### 3.1 Introduction

Higher education is situated at the crossroads of education, research and innovation. The full spectrum of scientific disciplines, from the 'hard' to the 'soft,' including the economic and social sciences and humanities, are implicated in the success of the knowledge economy, and the issue of increasing recruitment to these studies, but particularly to technological fields, has been emphasised on numerous occasions. In the Detailed Work Programme, for instance, it is stressed that:

"Scientific and technological development is fundamental for a competitive knowledge society. [...] All citizens need a basic understanding of mathematics, science and technology. If Europe is to maintain, let alone to improve, its position in the world, and to meet the Lisbon targets, it must do more to encourage children and young people to take a greater interest in science and mathematics [...]"<sup>62</sup>

The Council underlined the importance of this goal when it adopted a benchmark in this area in May 2003. Furthermore, it underlined that the education of an adequate supply of scientific specialists was all the more important in the light of the Barcelona European Council goal of increasing the overall spending on research and development (R&D) to the level of 3% of GDP by 2010.<sup>63</sup> The Communication "Investment in research: an action plan for Europe,"<sup>64</sup> which evaluates the future requirements in R&D in 2010, estimates that an increase of 1.2 million R&D staff, including 700,000 researchers, will be needed by that date. To meet this target, it will be necessary to recruit more women into the scientific and technological professions.<sup>65</sup> The European Council has declared that, "special attention must be given to

<sup>62</sup> Detailed Work Programme, p.9.

<sup>63</sup> See European Commission, "Third European Report on Science and Technology indicators," 2003.

<sup>64</sup> Communication (2003)

<sup>65</sup> European Commission, *She Figures 2003*. The role of women in science was also addressed in the latest update of the statistics and indicators on women in science.

ways and means of encouraging young people, especially women, in scientific and technical studies as well as ensuring the long-term recruitment of qualified teachers in these fields.”<sup>66</sup>

**European Benchmark 2010<sup>67</sup>**  
**The total number of graduates in mathematics, science and technology in the European Union should increase by at least 15% by 2010 while at the same time the level of gender imbalance should decrease.<sup>68</sup>**

Europe produces more science graduates than the United States, but has significantly fewer researchers in the labour market (1.08 million in the EU25 in 2001, compared to 1.26 million in the USA).<sup>69</sup> This is partly a result of the comparatively high amount of financing available for research activities and higher education in the US and the related ‘brain drain’ from the EU (about 85,000 EU-born S&E employees work in the US).<sup>70</sup> In order to have the same proportion of researchers in the labour force as the US, the EU would need an additional 550,000 researchers by 2010.<sup>71</sup>

It seems that the way in which research careers are structured and organised in Europe does not allow Europe to fully exploit its potential in this field. The Commission has analysed the structural weaknesses which undermine research careers in Europe and determined that these, together with the various administrative, cultural, geographical and legal environments in which researchers work, have in the past prevented the development of adequate career paths at European level, as well as the emergence of a real employment market for researchers in Europe.<sup>72</sup> In response, the Commission has proposed a range of concrete measures to improve recognition of the researcher’s profession in Europe.<sup>73</sup>

#### **Indicators for monitoring Performance and Progress**

Mathematics, science and technology (MST) includes the following: life sciences, physical sciences, mathematics and statistics, computing, engineering, manufacturing, construction.<sup>74</sup>

The following indicators have been selected to monitor progress in the area:

- *Students enrolled in mathematics, science and technology as a proportion of all students in tertiary education (ISCED 5A, 5B and 6).*
- *Total number of tertiary (ISCED 5A, 5B and 6) graduates from mathematics, science and technology fields.*
- *Graduates in mathematics, science and technology (ISCED 5A, 5B and 6) as percentage of all graduates (ISCED 5A, 5B and 6).*
- *Number of tertiary graduates in mathematics, science and technology per 1000 inhabitants aged 20-29, by ISCED levels 5A, 5B and 6.*

<sup>66</sup> Presidency Conclusions, Stockholm, 2001.

<sup>67</sup> Council Conclusions (2003/C 134/02).

<sup>68</sup> Indicator: “Total number of tertiary (ISCED 5A, 5B and 6) graduates from mathematics, science and technology fields.”

<sup>69</sup> See DG Research, “Key Figures 2003-2004,” p.43.

<sup>70</sup> *ibid.*, p.46

<sup>71</sup> “Third European Report on Science and Technology Indicators 2003,” p.189.

<sup>72</sup> See Communication, “Researchers in the European Research area: One profession, multiple careers” (2003).

<sup>73</sup> See Communication, “Investing in research: an action plan for Europe,” (2003), pp.11-12.

<sup>74</sup> ISCED fields of education 42, 44, 46, 48, 52, 54, 58.

### Quality and availability of data and indicators

The selected indicators address mainly the key aspects of motivating more young people to choose studies and careers in the field of MST (in particular research careers and scientific disciplines) and improving the gender balance. However, the objective of increasing interest in mathematics, science and technology from an early age is covered indirectly, since an increase in interest or motivation is expected to increase the number of graduates.

It should be noted that double counting of graduates is a problem in some countries because of the specific features of the educational system (for instance in France). Both first and second degrees are included in the indicators. The indicators thus cover the total number of graduates during the actual year and not the number of first time graduates. Data on the number of first-time graduates is collected, but many countries cannot provide the unduplicated count. Data on first-time graduates by field of studies is *not* collected, mainly because information on it is not available, but also because the interest of policy-makers is in the number of people qualified in a particular field, regardless of the fact that a person may be qualified in more than one area. In addition, because of differences in the degree structures there is no full comparability of data between countries.<sup>75</sup>

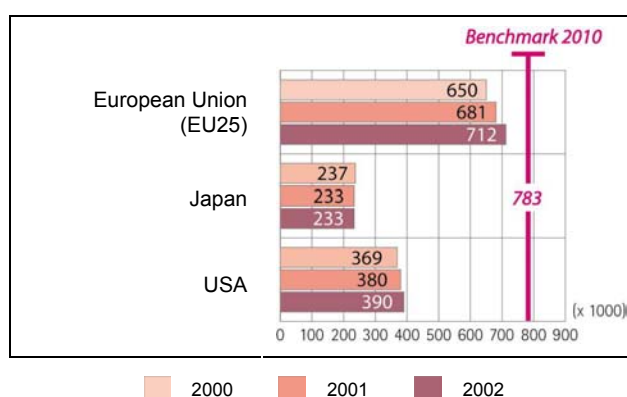
Mathematics, science and technology appear to be an area in which new indicators are not required at the moment. The existing data should allow Member States to identify countries where good policy practices prevail. It is, however, still important to improve the comparability and completeness of data.

## 3.2 Performance and Progress in the field of increasing recruitment to scientific and technical studies

### 3.2.1 Total number of graduates in mathematics, science and technology

Based on a current EU growth rate of about 4% per year, the EU is already on track to achieving the European benchmark of a 15% increase as early as 2005. There was a growth of 4.7% in 2001 alone and of 4.6% in 2002, bringing the total to about 712,000 graduates (Estimate for 2003: ca. 740,000 graduates). If 2001 is used as a base year (with 681,000 graduates), the target growth of 15% implies an absolute increase of some 100,000 graduates by 2010, or of about 11,000 graduates per year. However, in 2002 alone there was a real increase of over 30,000 MST graduates (estimate based on results for 21 EU countries). Going by current trends, the EU will have achieved the benchmark by as early as 2005.

**Figure 3.1: Total number of tertiary (ISCED 5A, 5B and 6) graduates from mathematics, science and technology fields**



Source: DG EAC. Data source: Eurostat (UOE)

Additional notes: EU total does not include Greece. EU total 2000 includes national UK data.

<sup>75</sup> Furthermore, data on graduates by field is not available for Greece and not yet available for 2002 for some countries, therefore the EU figure is an estimate.

The EU is well-positioned in comparison with other regions, producing nearly one fifth of the 3.5 to 4 million MST graduates worldwide every year. In 2002 the 712,000 MST graduates in the EU compared to 390,000 graduates in the USA and 233,000 in Japan.<sup>76</sup> However, the number of MST graduates is rising quickly in countries like China (590,000 graduates in 2002, of which 460,000 in engineering) and India. In 2002 China already had more engineering graduates than the EU and in 2003 (810,000 graduates) has overtaken Europe in total numbers of MST graduates.

**Table 3.1: Total number of tertiary graduates from mathematics, science and technology fields, 2000-2002 (x1000)**

	EU 25	BE	CZ	DK	DE	EE	EL	ES	FR	IE	IT	CY	LV	LT	LU	HU	MT
2000	650.2	12.9	9.4	8.5	80.0	1.3	:	65.1	154.8	14.5	46.6	0.34	2.4	6.6	0.10	7.2	0.19
2001	680.7	13.2	9.6	8.7	76.6	1.4	:	74.3	158.6	14.0	48.4	0.37	2.5	7.0	:	5.8	0.16
2002	712.0	13.7	10.1	:	76.7	1.3	:	79.3	:	13.0	56.6	0.38	2.6	6.9	:	7.8	0.18
2003	740.0	:	10.7	:	80.3	1.7	:	:	171.4	15.7	:	:	2.8	7.7	:	7.6	:

	NL	AT	PL	PT	SI	SK	FI	SE	UK	IS	LI	NO	BG	HR	RO	TR	JP	US
2000	12.5	7.5	39.2	10.1	2.6	4.7	10.1	13.0	140.6	0.35	:	4.8	8.1	:	17.1	57.1	236.7	369.4
2001	12.7	7.4	44.8	10.4	2.4	6.7	10.9	13.7	150.9	0.39	:	5.2	9.1	:	18.4	61.5	233.4	379.7
2002	13.6	8.0	49.8	11.7	2.8	7.1	11.1	14.5	150.9	0.40	:	4.6	13.4	:	20.4	65.9	232.9	389.6
2003	14.6	8.3	55.2	13.0	2.6	7.7	:	15.1	:	:	0.03	5.4	9.6	3.4	30.6	69.6	229.7	430.7

Source: DG EAC. Data source: Eurostat (UOE), EU figure for 2002 and 2003: DG EAC estimate

Additional notes:

BE: Data for the Flemish community exclude second qualifications in non-university tertiary education

LU: Luxembourg does not have a complete university system, most students study abroad.

EE: Data exclude Master degrees (ISCED 5A)

CY: Data exclude tertiary students graduating abroad. The number of students studying abroad accounts

for over half of the total number of Cypriot tertiary students. The fields of study in Cyprus are limited

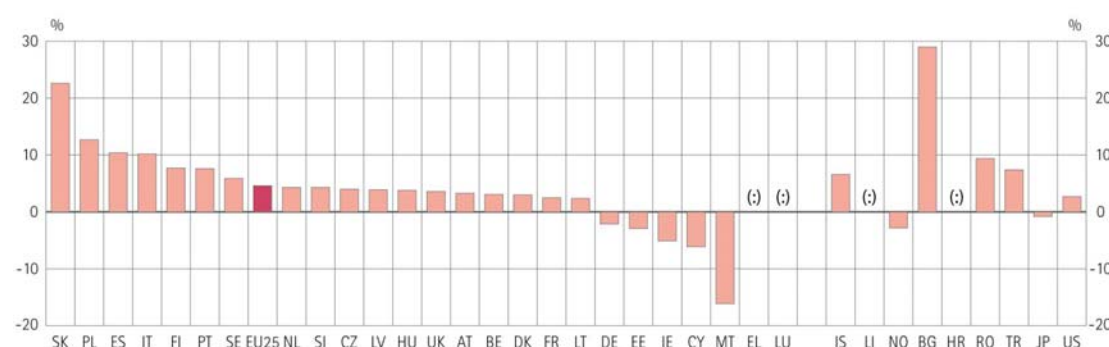
PL: Data for 2000 exclude advanced research programmes (ISCED level 6)

RO: Data exclude second qualifications and advanced research programmes (ISCED level 6)

UK: National data

**Figure 3.2: Growth of tertiary graduates from mathematics, science and technology fields in %, 2000-2002**

Average annual growth rate 2000-2002



EU 25	BE	CZ	DK	DE	EE	EL	ES	FR	IE	IT	CY	LV	LT	LU	HU	MT
4.6	3.1	4.0	3.0	-2.1	-2.9	:	10.4	2.5	-5.1	10.2	-6.1	3.9	2.4	:	3.8	-16.1

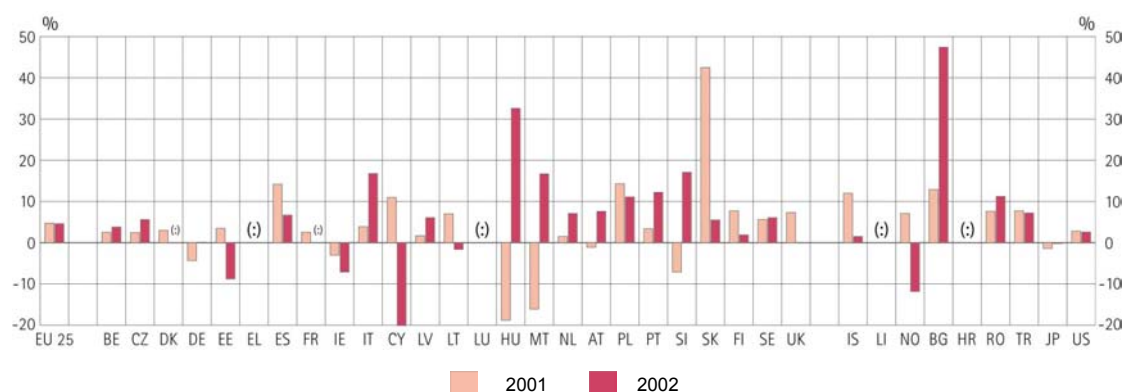
NL	AT	PL	PT	SI	SK	FI	SE	UK	IS	LI	NO	BG	HR	RO	TR	JP	US
4.3	3.3	12.7	7.6	4.3	22.6	7.7	5.9	3.6	6.6	:	-2.8	29.0	:	9.4	7.4	-0.8	2.7

Additional note:

Average based on 2001 growth rate when 2002 data were not available (USA, DK, JP)

<sup>76</sup> World figure represents Commission estimate. Source for China: Statistical Yearbook of China 2004

Annual growth in 2001 and 2002



	EU 25		BE	CZ	DK	DE	EE	EL	ES	FR	IE	IT	CY	LV	LT	LU	HU	MT
2001	4.7		2.5	2.4	3.0	-4.3	3.5	:	14.2	2.5	-3.0	3.9	11.0	1.7	7.0	:	-18.8	-16.1
2002	4.6		3.8	5.6	:	0.1	-8.8	:	6.7	:	-7.1	16.8	-20.1	6.1	-1.6	:	32.6	16.7

	NL	AT	PL	PT	SI	SK	FI	SE	UK	IS	LI	NO	BG	HR	RO	TR	JP	US
2001	1.5	-1.1	14.3	3.4	-7.1	42.5	7.7	5.6	7.3	12.0	:	7.1	12.9	:	7.6	7.7	-1.4	2.8
2002	7.1	7.6	11.1	12.2	17.1	5.5	1.9	6.1	0.0	1.5	:	-11.8	47.4	:	11.2	7.2	-0.2	2.6

Source: DG EAC. Data source: Eurostat (UOE)

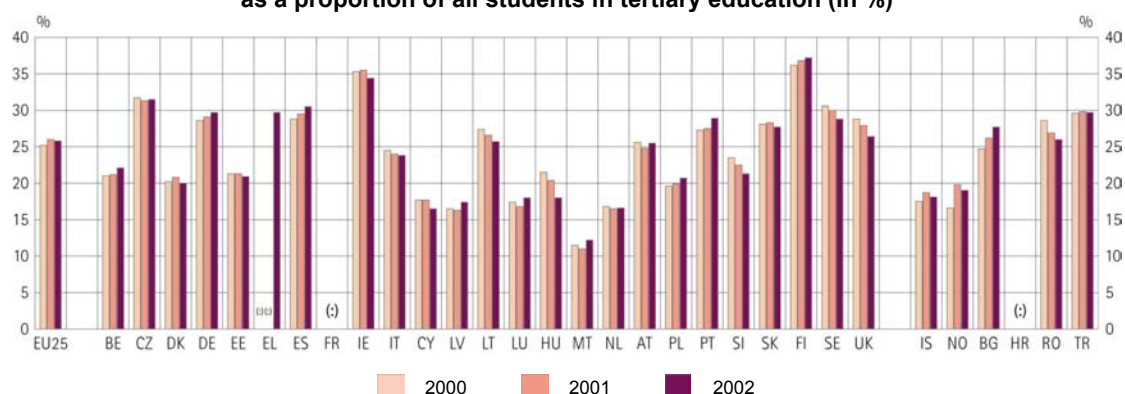
Additional note: See Table 3.1

Despite the general positive trend, Hungary, Malta, Slovenia, Germany, and Ireland showed a decrease in the number of MST graduates in 2001. However, only Ireland showed a decrease in two consecutive years. Spain, Italy, Hungary, Slovenia and Bulgaria recorded a strong increase in 2002, while Estonia, Ireland and Norway showed a remarkable decrease in the same year. The strong growth of the number of graduates in Spain is especially encouraging from the perspective of the European benchmark.

While in overall terms there may seem to be enough graduates in MST in the EU to satisfy the current demands in research and the economy, a more detailed breakdown into discrete disciplines like computing and engineering might signify some gaps in supply for certain years. Demographic trends, especially the strong decline in birth rates in the new Member States after 1989, might also bring the risk of a decline in the number of MST students and graduates after 2010.

### 3.2.2 Students enrolled in MST as a proportion of all students in tertiary education

The number of tertiary students in the EU increased by 3% in 2001 and by 4% in 2002, while the number of MST students increased in the same years by 6% and 4% respectively. The share of tertiary students enrolled in MST thus increased in 2001, while it fell slightly afterwards, to reach about 26% in 2002 (Figure 3.3). In Finland, Ireland, Czech Republic and Spain, this proportion was substantially higher (over 30%), whereas in Cyprus, Latvia, Luxembourg, Malta, and the Netherlands, the proportion was below 20%. A modest growth was registered in Belgium, Germany, Spain, Latvia, Malta, Poland and Portugal, while a strong decrease was recorded in Hungary, Slovenia and the UK. In the EEA and Candidate countries, Norway and Bulgaria recorded a strong relative increase while Romania showed a decline.

**Figure 3.3: Students enrolled in mathematics, science and technology as a proportion of all students in tertiary education (in %)**

	EU25	BE	CZ	DK	DE	EE	EL	ES	FR	IE	IT	CY	LV	LT	LU	HU
2000	25.2	21.0	31.7	20.2	28.6	21.3	:	28.8	:	35.3	24.5	17.7	16.5	27.4	17.4	21.5
2001	26.0	21.2	31.3	20.8	29.1	21.3	:	29.5	:	35.5	24.0	17.7	16.3	26.6	16.8	20.4
2002	25.8	22.1	31.5	20.0	29.7	20.9	29.7	30.5	:	34.4	23.8	16.5	17.4	25.7	18.0	18.0

	MT	NL	AT	PL	PT	SI	SK	FI	SE	UK	IS	NO	BG	HR	RO	TR
2000	11.5	16.8	25.6	19.6	27.3	23.5	28.1	36.2	30.6	28.8	17.5	16.6	24.7	:	28.6	29.6
2001	11.0	16.5	24.8	19.9	27.5	22.5	28.3	36.8	30.0	27.9	18.7	19.8	26.2	:	26.9	29.8
2002	12.2	16.6	25.5	20.7	28.9	21.3	27.7	37.2	28.8	26.4	18.1	19.0	27.7	:	26.0	29.7

Source: DG EAC. Data source: Eurostat (UOE)

Additional notes:

EU25: FR not included, MST students in GR estimated for 2000 and 2001

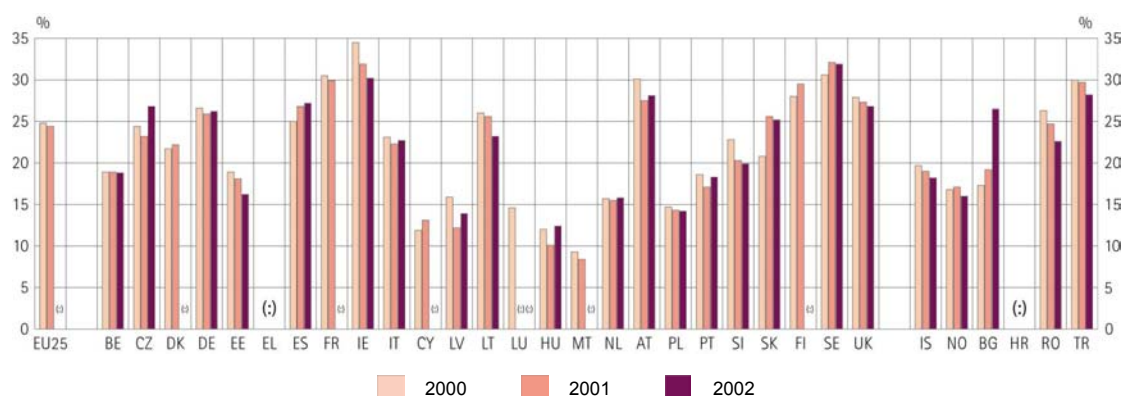
BE: Data exclude independent private institutions

DE, SI, RO: Data excludes ISCED level 6

LU, CY: Most tertiary students study abroad and are not included

### 3.2.3 Graduates in MST as a percentage of all graduates in tertiary education

In 2001, slightly less than a quarter of all graduates in tertiary education in the EU graduated in MST, compared to 17% in the USA and 22% in Japan (Figure 3.4). The share of graduates in MST is lower than the share of students enrolled in MST – a result of faster growth in the number of MST students compared to other areas and probably also linked to higher dropout rates. EU countries which scored more than 5 percentage points higher than the EU average are France, Ireland, Finland and Sweden. The candidate country Turkey also has a share of over 28%.

**Figure 3.4: Graduates in mathematics, science and technology as a percentage of all graduates in tertiary education**

	EU25		BE	CZ	DK	DE	EE	EL	ES	FR	IE	IT	CY	LV	LT	LU	HU
2000	24.8		18.9	24.4	21.7	26.6	18.9	:	25.0	30.5	34.5	23.1	11.9	15.9	26.0	14.6	12.0
2001	24.4		18.9	23.2	22.2	25.9	18.1	:	26.8	29.9	31.9	22.3	13.1	12.2	25.6	:	10.1
2002	:		18.8	26.8	:	26.2	16.2	:	27.2	:	30.2	22.7	12.8	13.9	23.2	:	12.4

	MT	NL	AT	PL	PT	SI	SK	FI	SE	UK		IS	NO	BG	HR	RO	TR
2000	9.3	15.7	30.1	14.7	18.6	22.8	20.8	28.0	30.6	27.9		19.7	16.8	17.3	:	26.3	30.0
2001	8.4	15.5	27.5	14.3	17.1	20.3	25.6	29.5	32.1	27.3		19.0	17.1	19.2	:	24.7	29.7
2002	8.9	15.8	28.1	14.2	18.3	19.9	25.2	28.7	31.9	26.8		18.2	16.0	26.5	:	22.6	28.2

Source: DG EAC. Data source: Eurostat (UOE)

Additional note: See Table 3.1

From 2000 to 2001 the EU average share of graduates in MST fell slightly (–0.4 percentage points), despite an increase in the number of MST students. This is a result of an increase in the numbers of graduates in other disciplines. (The increase in the number of MST graduates in 2001 was 4.7%, compared to a 7.9% increase in the total number of graduates.)<sup>77</sup> Among EU countries, the decrease was greater than one percentage point in Ireland, Latvia, Hungary, Austria, Portugal and Slovenia. Of the Candidate Countries, only Romania experienced a significant decrease.

Spain and Bulgaria are the only countries in which the share increased both in 2001 and in 2002. In Estonia, Ireland, Lithuania, Poland, Slovenia and the UK and in the Candidate countries Romania, and Turkey there was a decrease in both years. In Slovakia and Sweden growth in 2000/01 reversed to a decrease in 2002.

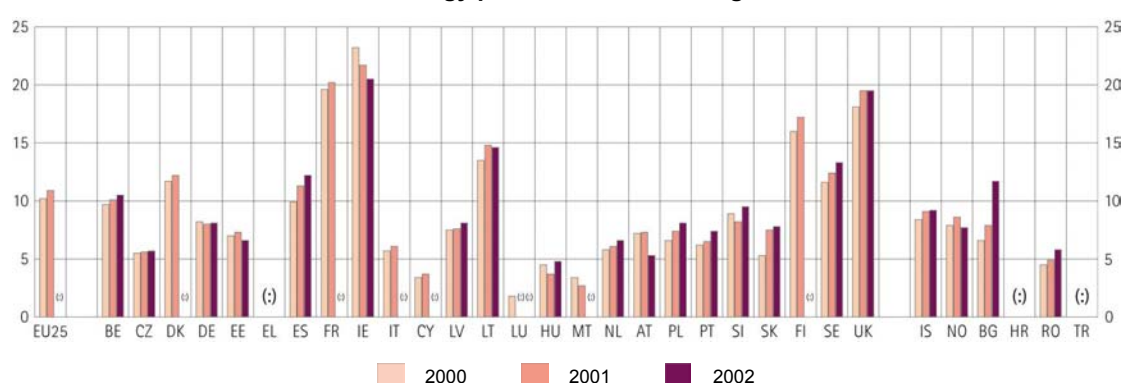
### 3.2.4 Number of tertiary graduates in MST per 1000 inhabitants aged 20-29

The average number of tertiary graduates in mathematics, science and technology per 1000 inhabitants aged 20-29 (ISCED levels 5A, 5B and 6) in the EU was 10.2 in 2000 and 10.9 in 2001. France, Ireland, Finland and the UK showed a relatively high proportion at over 15%, whereas the Czech Republic, Italy, Hungary, Malta and the Netherlands recorded relatively low proportions of less than 7%.

In 2001, growth in Slovakia, Spain and Poland was relatively strong, whereas in Germany, Ireland, Hungary, Malta and Slovenia, the proportion declined. In 2002, the figure increased in 16 out of the 20 countries for which data is available. Countries with strong growth rates included Portugal and Slovenia, as well as Bulgaria and Romania. In 2003 there was a further increase in 12 out of the 13 countries which have released data.

<sup>77</sup> Greece not included in the 2001 figure for increase in total students, as data from 2000 is missing.



**Figure 3.5: Number of tertiary graduates in mathematics, science and technology per 1000 inhabitants aged 20-29**

	EU25	BE	CZ	DK	DE	EE	EL	ES	FR	IE	IT	CY	LV	LT	LU	HU
2000	10.2	9.7	5.5	11.7	8.2	7.0	:	9.9	19.6	23.2	5.7	3.4	7.5	13.5	1.8	4.5
2001	10.9	10.1	5.6	12.2	8.0	7.3	:	11.3	20.2	21.7	6.1	3.7	7.6	14.8	:	3.7
2002	:	10.5	5.7	:	8.1	6.6	:	12.2	:	20.5	7.4	3.8	8.1	14.6	:	4.8
2003	:	:	6.4	:	8.4	:	:	:	22.2	24.2	:	:	8.6	16.3	:	4.8

	MT	NL	AT	PL	PT	SI	SK	FI	SE	UK	IS	NO	BG	HR	RO	TR
2000	3.4	5.8	7.2	6.6	6.2	8.9	5.3	16.0	11.6	18.1	8.4	7.9	6.6	:	4.5	:
2001	2.7	6.1	7.3	7.4	6.5	8.2	7.5	17.2	12.4	19.5	9.1	8.6	7.9	:	4.9	:
2002	2.1	6.6	5.3	8.1	7.4	9.5	7.8	17.4	13.3	19.5	9.2	7.7	11.7	:	5.8	:
2003	:	7.3	8.3	9.0	8.2	8.7	8.3	:	13.9	:	:	9.3	8.3	:	8.8	:

Source: DG EAC. Data source: Eurostat (UOE)

Additional notes: see table 3.1

RO: 2003 data includes ISCED 6 and 2<sup>nd</sup> degrees, which are missing in previous years.

Compared to 2000 the proportion increased in all countries in later years, except Estonia. In Ireland and Germany growth in 2003 compensated for the fall in the share in previous years.

### 3.2.5 Gender imbalance among graduates

To measure the gender imbalance among MST graduates the share of female MST graduates as a proportion of all MST graduates was calculated (table 3.6). Portugal, Estonia and Latvia have the highest proportions, while the increase since 2000 was greatest in Latvia, Hungary, Slovakia and Estonia. At EU level the female share of MST graduates increased from 28% in 2000 to 31% in 2001, and a further improvement can be expected for 2002.

While males predominate in MST fields, it should be noted that there is an imbalance in favour of women in the student population as a whole (in 2002 women represented 54% of tertiary students in the EU – they thus outnumbered men by 1.3 million; in education, health and welfare fields over 70% of students are women).<sup>78</sup> This imbalance is even more pronounced among graduates – 55% of graduates in 2000 in the EU25 were female, and 57.6% in 2001.<sup>79</sup>

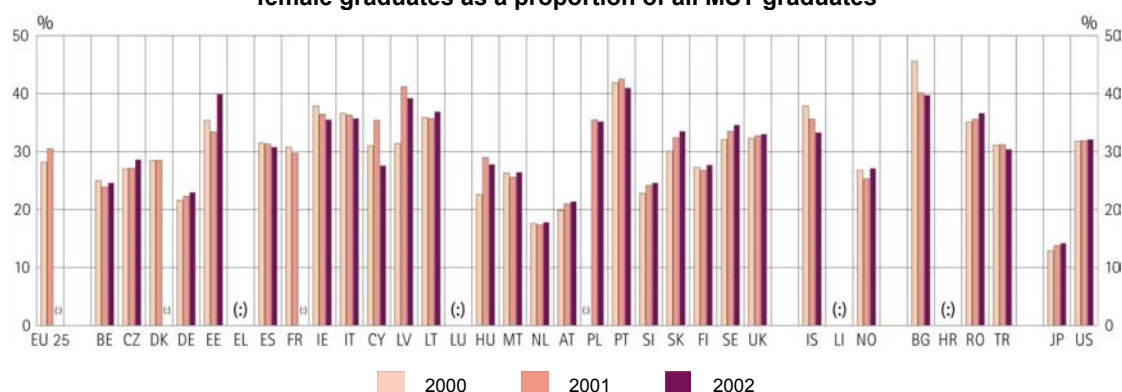
It is also notable that gender imbalance is much less predominant in the broad field of “mathematics, science and computing” than in “engineering, manufacturing and construction.” In 2001 the female share of students in these fields was 42% and 22% respectively.

<sup>78</sup> In EU-15 in 2000/01 about 70% of students in education and 80% in health and welfare were women. In the field of education the female share of students was even higher than 70% in the new Member States. Source: Eurostat, ‘Education across Europe 2003,’ p. 100.

<sup>79</sup> Data for Greece and Poland missing in 2000 and for Greece in 2001.



**Figure 3.6: Sex imbalance among MST graduates:  
female graduates as a proportion of all MST graduates**



	EU 25	BE	CZ	DK	DE	EE	EL	ES	FR	IE	IT	CY	LV	LT	LU	HU	MT
2000	28.2	25.0	27.0	28.5	21.6	35.4	:	31.5	30.8	37.9	36.6	31.0	31.4	35.9	:	22.6	26.3
2001	30.5	23.9	27.1	28.5	22.3	33.4	:	31.3	29.7	36.4	36.3	35.4	41.2	35.7	:	29.0	25.6
2002	:	24.6	28.6	:	23.0	39.9	:	30.8	:	35.5	35.7	27.6	39.2	36.9	:	27.8	26.4

	NL	AT	PL	PT	SI	SK	FI	SE	UK	IS	LI	NO	BG	HR	RO	TR	JP	US
2000	17.6	19.9	:	41.9	22.8	30.1	27.3	32.1	32.3	37.9	:	26.8	45.6	:	35.1	31.1	12.9	31.8
2001	17.4	21.0	35.5	42.5	24.2	32.4	26.8	33.5	32.7	35.6	:	25.3	40.1	:	35.6	31.2	13.8	31.9
2002	17.8	21.4	35.2	41.0	24.6	33.5	27.7	34.6	33.0	33.3	:	27.1	39.7	:	36.6	30.4	14.2	32.1

Source: DG EAC. Data source: Eurostat (UOE)

Additional note: See table 3.1

### 3.3 Conclusion

The trends over the period 2000-02 show that the EU is on track to achieving the benchmark set by the Council for 2010, of increasing the number of graduates in mathematics, science and technology by 15%. If the trends observed in 2000-02 have continued, it implies that the EU will achieve the 15% increase (or, in absolute terms about 100,000 graduates) as early as 2005. However, demographic developments could signify a much slower growth in the number of graduates in the long term. It is also important to avoid a brain drain of European graduates in MST to other economic sectors and world regions and to create conditions conducive to a thriving research environment in Europe.

Another challenge lies in redressing the gender imbalance among graduates in these fields. Several countries show a serious disparity between the numbers of female and male graduates. The data shows, however, that the gender balance is actually improving on an EU level, but not all countries are making progress. In these cases it will be necessary to identify innovative methods to motivate women to pursue studies in mathematics, science and technology. Attracting more women to this field will also contribute to the objective of increasing the overall number of graduates in these fields.

## IV MAKING BEST USE OF RESOURCES

### Main messages

- Public expenditure on education as a percentage of GDP increased in 2000-01 in the majority of Member States. On an EU level it increased from 4.94% of GDP in 2000 to 5.10 % in 2001. However, growth in education spending seems to have slowed down after 2001.
- In particular the new Member States made efforts to increase public expenditure on education and training in 2001, with Cyprus and Hungary showing an increase of more than 0.5% of GDP. Of the old Member States, Italy and Portugal recorded the largest increase in spending.
- Private expenditure on tertiary education as a percentage of GDP is eight times higher in the USA than in the EU, and three times higher in Japan.
- Total expenditure per tertiary student is more than twice as high in the US as in the EU.

### 4.1 Introduction

Investment in human capital through the medium of education and training is the key to strengthening Europe's position in the knowledge economy and to increasing social cohesion in the 21st century. The European Council of March 2000 in Lisbon acknowledged this by calling for "a substantial annual increase in per capita investment in human resources."<sup>80</sup>

In March 2003 (Brussels), the European Council asserted that, "investing in human capital is a prerequisite for the promotion of European competitiveness, for achieving high rates in growth and employment and moving to a knowledge-based economy." The Council also approved of the use of "benchmarks to identify best practice and to ensure efficient and effective investment in human resources."<sup>81</sup> The Joint Interim Report (January 2004) identified the concentration of reforms and investment in certain key areas as one of the three levers for success.<sup>82</sup> And more recently, the Kok Report<sup>83</sup> (November 2004) gave a clear admonitory message to the Union on "insufficient investment in research and development and education" and called on Europe to "invest more on its most precious asset – its people."

The level of investment in this sector has implications for all 13 concrete objectives and most of the key issues in the Detailed Work Programme. However, financial resources are limited. The Commission Communication "Investing efficiently in education and training: an imperative for Europe," therefore explored key facets of efficient investment in human resources and identified signs of inefficiency.

<sup>80</sup> Presidency Conclusions, Lisbon, paragraph 26.

<sup>81</sup> Presidency Conclusions, Brussels, paragraph 40.

<sup>82</sup> "Education and Training 2010," p. 22. The reports of the Commission Working Groups on Education and Training 2010 provided input for this report. See "Making Best use of resources," Working Group Progress Report, Nov 2003.

<sup>83</sup> *Facing the Challenge-The Lisbon Strategy for Growth and Employment*, Nov 2004.

Research points to a very positive relationship between investment in education and actual economic growth.<sup>84</sup> However, such investment is a long-term venture with returns which are difficult to calculate. In most countries, such long-term “general interest” investment is largely the responsibility of the public sector. Since public budgets are tight and private returns are high in certain areas of education, there is now increasing emphasis in political discourse on the pressing need for increased private investment in education, both from the individual and from enterprise.

In addition to the economic aspects and dimensions of educational returns on a social and private level there are also benefits for the individual in terms of higher quality of life, better welfare, stronger integration and a more active role in society. Decisions on personal investment of time and money in education are taken on the basis of a wide set of returns, some non-economic and subjective, such as the joy of learning.

### Indicators for monitoring performance and progress

The following indicators are currently used for monitoring progress:

- *Public expenditure on education as a percentage of GDP.*
- *Private expenditure on educational institutions as a percentage of GDP.*
- *Enterprise expenditure on continuing vocational training courses as a percentage of total labour costs.*
- *Total expenditure on educational institutions per pupil/student by level of education (PPS).*
- *Total expenditure on educational institutions per pupil/student by level of education relative to GDP per capita.*

These five indicators cover what the Lisbon Presidency Conclusions explicitly mentioned, namely “levels of investment in human resources.” However, indicators to cover the aspect of *efficiency* of investment are still under development (for example, costs per graduate) and will be included in future updates of this report.<sup>85</sup>

### Quality and availability of data and indicators

When analysing and comparing data for different countries, a number of factors which affect comparability have to be taken into consideration:

- Demographics: the proportion of young people (pupils and students) differs between countries, which has an impact on expenditure levels.
- Differences in teacher salaries compared to GDP per capita: about 70% of total education expenditure is made up of salaries.
- The difficulty of measuring private investment in education and training may lead to an under-estimate of private investment in some countries.
- The difference between Gross Domestic Product and Gross National Product. Some Member States have a large gap between Gross Domestic Product (all income *before* adjustment for net factor income flows in and out of a country) and Gross National Product (all income *after* adjustment for net factor income flows in and out of a country). Therefore, when dividing expenditure by GDP, Member States results are not necessarily fully comparable.<sup>86</sup>

<sup>84</sup> See for instance: *The EU Economic Review* 2003, pp. 159-176 and De la Fuente and Ciccone, *Human Capital in a global and knowledge-based economy*, Final report for DG Employment, European Commission, 2002.

<sup>85</sup> See Commission Staff Working Paper, “New Indicators on Education and Training,” Nov 2004.

<sup>86</sup> For example, in Ireland in 1993, 5.9% of GNP and 5.3% of GDP was spent on education (from public sources). In 2003 these figures are 5.1 and 4.1% respectively (Ireland’s own estimates). The decline of share of GDP has to do with the strong economic growth in Ireland in the ’90s. The growing gap

Improving the collection and quality of data on private expenditure on education and training is a priority in the follow-up of the Lisbon process and the Commission Communication on “Investing efficiently in education and training.” It is important to note that educational spending is usually treated as “current expenditure” in most statistics.<sup>87</sup> However, in the White Paper “Teaching and Learning” of 1995,<sup>88</sup> the Commission invited Member States to approach the spending on education from the point of view of investment. Such an approach would have important consequences for accounting and fiscal practices in the Member States. Since education and training yield returns in the future, spending in this sector could be considered a form of investment, with the corollary that people and their skills are a form of human capital and an asset. In the following analysis, all spending on education and training, from public or private resources sources, is thus considered investment in human capital.

## 4.2 Performance and progress on best use of resources

Progress in the area of making best use of resources is mainly monitored by financial input indicators. Because of the high returns on investment in education and training, high financial investment in education and training could be seen as good utilisation of resources. The first indicator, *public expenditure on education as a percentage of GDP*, is also one of the Structural Indicators used to measure progress towards the Lisbon Objectives.<sup>89</sup> This is complemented by indicators on private spending on educational institutions and on enterprise spending on continuing vocational education and training. The latter two indicators show spending per pupil/student in purchasing power parities (PPS) and relative to GDP, to take into account differences in price, in wealth levels and in age structures between countries.

### 4.2.1 Public expenditure on education and training

Investment in education and training can benefit society in terms of lower unemployment rates, higher labour force participation rates (thus allowing for savings in social welfare expenditure, which currently represents about 40% of government expenditure in the EU25)<sup>90</sup> and higher productivity. Investment in education is itself a high priority and also a major spending item in public budgets. In 2001, 10.9% of public budgets in the EU were devoted to education, compared to 10.8% in 2000 and 10.4 % in 1997.<sup>91</sup>

There were considerable variations between countries in their levels of *public expenditure on education and training as a percentage of GDP* in 2001 (Figure 4.1). Denmark has the highest relative spending at more than 8% of GDP, followed by Sweden at over 7%. While most countries fall within the 4-6% bracket, in two countries, Greece and Luxembourg, public spending on education amounts to less than 4% of GDP.<sup>92</sup>

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between the two figures lies in the fact that the gap between GDP and GNP has grown from 10% of GDP in 1993 to 20% in 2003, due to profit repatriations by overseas companies in Ireland.

<sup>87</sup> Goods and services that have a lifetime of less than one year are statistically normally considered as current expenditure, and those with a lifetime of more than one year as investment.

<sup>88</sup> European Commission, “Teaching and Learning: towards the learning society,” 1995.

<sup>89</sup> See List of Structural Indicators, <http://europe.eu.int/eurostat>

<sup>90</sup> See European Commission, “Public Finances in the EMU,” p. 173.

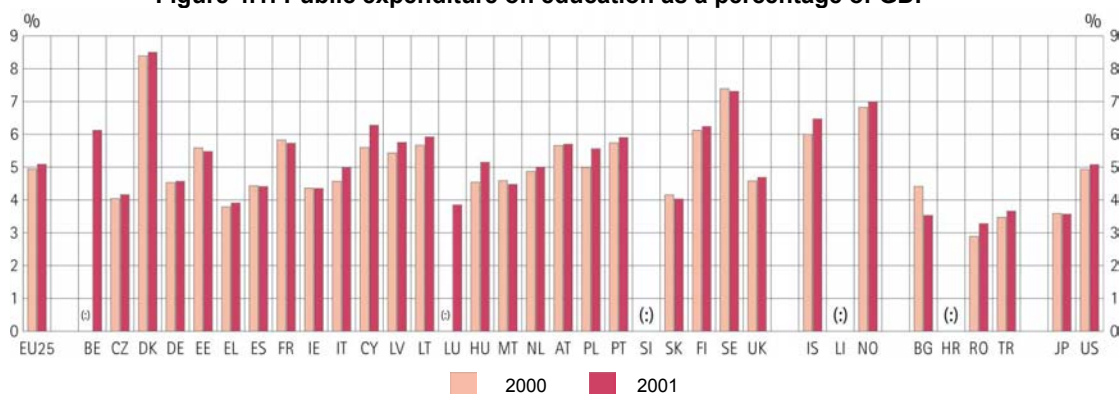
<sup>91</sup> In 2001 total public expenditure in the EU25 amounted to 48.1% of GDP. Generally, the public sector finances the education system, either directly, by bearing the current and capital costs of educational institutions (direct expenditure for educational institutions), or through financial support for students and their families with scholarships and public loans as well as by transferring public subsidies for educational activities to private firms or non-profit organisations (transfers to private households and firms). Both types of transaction combined are recorded under total public expenditure on education.

<sup>92</sup> In Luxembourg as a result of a high per capita GDP, the relatively low share still means that per capita spending in absolute terms is still high. In addition, the fact that there is no fully-fledged university in the country and mobility of pupils at primary and secondary level, contribute to a high level of expenditure per pupil (as shown in Table 4).

Compared to 2000, expenditure as a percentage of GDP increased in 13 EU countries in 2001, while decreasing in only five. In the other EU countries spending remained more or less stable (a change of less than 0.05 percentage points), or information on trends was not available. In particular the new Member States made an effort to increase public spending on education and training, with Cyprus and Hungary showing an increase of more than 0.5% percentage points of GDP (the increase in Poland was due to a break in time series). Of the old Member States, Italy displayed the greatest growth in spending (the fact that teachers in ISCED 0-3 public institutions received salary arrears relating to 2000 contributed to this). Spending in the EU25 increased from 4.9% of GDP in 2000 to 5.1% in 2001. It thus amounted to about 490 billion EUR in 2001, a real increase of 4% compared to 2000 (if based on constant 1995 prices). Spending in the Candidate Countries was at less than 4% of GDP in 2001 below the EU average. Compared to the year before, it had increased in Romania and Turkey but declined in Bulgaria (where it increased again in 2002).

In the light of the trend of an overall increase in spending of 0.16 percentage points in the EU, it may be concluded that in 2001 the EU made progress towards the Lisbon objective of ensuring “a substantial annual increase in per capita investment in human resources.” However, provisional data available for 2002 for 18 EU countries and from national budget plans shows that spending growth has slowed down since 2001. In 2002 spending as a percentage of GDP increased in eight of 18 countries, stagnated in four and declined in five.

**Figure 4.1: Public expenditure on education as a percentage of GDP**



	EU25	BE	CZ	DK	DE	EE	EL	ES	FR	IE	IT	CY	LV	LT	LU	HU	MT
2000	4.94	:	4.04	8.39	4.53	5.59	3.79	4.43	5.83	4.36	4.57	5.60	5.43	5.67	:	4.54	4.59
2001	5.10	6.11	4.16	8.50	4.57	5.48	3.90	4.41	5.76	4.35	4.98	6.28	5.75	5.92	3.84	5.15	4.47
2002	:	:	4.41	8.51	:	:	3.96	4.44	5.81	:	4.75	6.83	5.82	5.89	3.99	5.39	4.54

	NL	AT	PL	PT	SI	SK	FI	SE	UK	IS	LI	NO	BG	HR	RO	TR	JP	US
2000	4.87	5.66	4.99	5.74	:	4.15	6.12	7.39	4.58	6.00	:	6.82	4.41	:	2.89	3.47	3.59	4.93
2001	4.99	5.70	5.56	5.91	6.13	4.03	6.24	7.31	4.69	6.47	:	7.00	3.53	:	3.28	3.65	3.57	5.08
2002	5.08	:	5.41	5.83	6.02	:	6.39	7.66	:	:	:	7.57	3.57	:	3.53	3.56	3.60	5.35

Source: DG EAC. Data source: Eurostat (UOE data collection)

Additional notes

Data for 2002 are provisional

DK : Expenditure at post secondary non-tertiary levels of education is not available

FR: Without French Overseas Departments

LU: expenditure at tertiary level of education not included.

PT: expenditure at local level of government not included.

UK, JP, US: adjustment of GDP to the financial year, which differs from the calendar year.

TR, IS: expenditure at pre-primary level not included, TR: expenditure at regional and local levels of government not included.

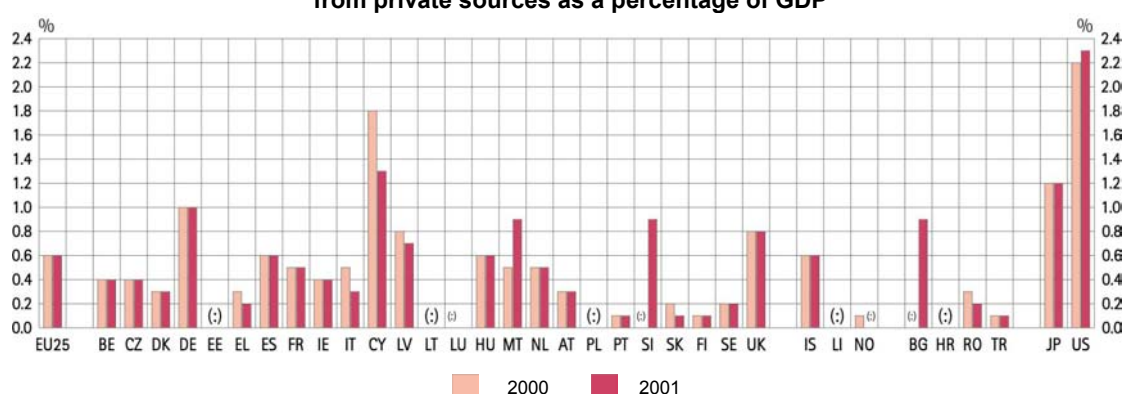
US: Expenditure on educational institutions from public sources

### 4.2.2 Private expenditure on education and training

Private expenditure on educational institutions, as a percentage of GDP (Figure 4.2), remained stable at 0.6% in 2001 (or about 55 billion Euro at current prices). This proportion of GDP compares unfavourably with the corresponding figures of 1.2% in Japan and 2.3% in the US. While the GDP share of private spending for pre-primary, primary and secondary education is broadly similar in the US and the EU, private spending on higher education in the US, as a percentage of GDP, is eight times the European level. In Japan private spending on compulsory education is slightly higher than in Europe, but private spending on tertiary education is nearly three times the EU level<sup>93</sup>. In only three EU countries – Cyprus, Latvia and Germany – did private spending on educational institutions amount to 1% or more of GDP. In the new Member States the figure was lower than in the old EU15.

It must be taken into consideration that private investment is likely to be underestimated in many countries because of incomplete reporting of data. Not all countries can provide data on private schools, private household expenditure on educational materials and services, enterprise expenditure on initial training of the dual-system type, etc.

**Figure 4.2: Expenditure on education institutions from private sources as a percentage of GDP**



	EU25		BE	CZ	DK	DE	EE	EL	ES	FR	IE	IT	CY	LV	LT	LU	HU	MT
2000	0.6		0.4	0.4	0.3	1.0	:	0.3	0.6	0.5	0.4	0.5	1.8	0.8	:	:	0.6	0.5
2001	0.6		0.4	0.4	0.3	1.0	:	0.2	0.6	0.5	0.4	0.3	1.3	0.7	:	0.0	0.6	0.9
	NL	AT	PL	PT	SI	SK	FI	SE	UK	IS	LI	NO	BG	HR	RO	TR	JP	US
2000	0.5	0.3	:	0.1	:	0.2	0.1	0.2	0.8	0.6	:	0.1	:	:	0.3	0.1	1.2	2.2
2001	0.5	0.3	:	0.1	0.9	0.1	0.1	0.2	0.8	0.6	:	:	0.9	:	0.2	0.1	1.2	2.3

Source: DG EAC. Data source: Eurostat (UOE data collection), OECD

#### Additional notes

DK, GR, LU, LV, MT, PT, SK, IS, NO, BG, RO, TR: Payments from other private entities (firms, non-profit organisations etc.) are not available.

FR: Without French Overseas Departments.

LU: Expenditure at tertiary level of education is not available.

UK JP, US: Adjustment of GDP to financial year which differs from calendar year. IS, TR: Expenditure at pre-primary level not available.

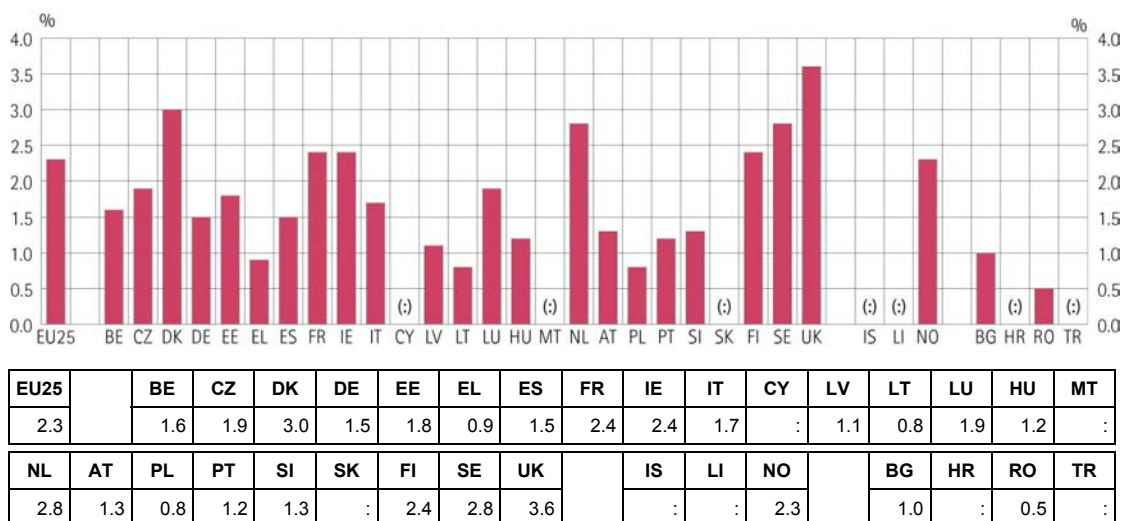
The question of private investment in education and training is politically sensitive. Private investment can help increase the availability of resources and by changing the incentive and reward structure (for example by reducing overlong duration of studies or increasing learner motivation) can contribute to efficiency of spending. The high private returns on non-compulsory education could also justify private contributions, even from the perspective of social equity. Nevertheless, it is uncertain how much can be demanded of the individual in terms of a private financial contribution to education without creating a disincentive to attainment or compromising general social principles like equal access.

<sup>93</sup> OECD, *Education at a Glance 2004*, p. 229.

### 4.2.3 Enterprise expenditure on continuing vocational training

An analysis of *enterprise expenditure on continuing vocational training (as a percentage of labour costs)*<sup>94</sup> shows great variations between countries (Figure 4.3). In 1999, in the UK, Denmark, the Netherlands and Sweden, industry devoted nearly 3% of labour costs to continuing vocational training (CVT). In Greece, Lithuania and Poland, conversely, spending amounted to less than 1%. In the Candidate Countries, spending also amounted to less than 1%.<sup>95</sup>

**Figure 4.3: Enterprise expenditure on continuing vocational training courses as a percentage of total labour costs, 1999**



Source: DG EAC. Data source: Eurostat (CVTS2)

Additional notes

UK: The UK figure is not comparable with other countries as the labour cost includes the direct labour cost only.

PL: Pomorskie region only.

In the EU25, average enterprise expenditure on continuing vocational training amounted in 1999 to about 2.3 % of labour costs (this represents slightly more than 1% of GDP or about 100 billion Euro). While small enterprises (10-19 employees) spent an average of 1.5% of labour costs on continuing vocational training, large enterprises (more than 250 employees) spent on average 2.5 % of labour costs on the same.

New data will become available only after 2006, when CVTS3, the third wave of the European Continuing Vocational Training Survey, will have been carried out.

### 4.2.4 Expenditure on educational institutions per pupil/student

The indicator *annual expenditure on public and private educational institutions per pupil/student in EUR PPS* attempts to address the European Council's call for a substantial annual increase in per capita investment in human resources (Figure 4.4).

Total expenditure per student at primary, secondary and tertiary level measures how much all levels of government, firms, non-profit organisations and private households spend on education in public and private institutions. It includes expenditure for personnel and other current and capital expenditure. It is expressed here in purchasing power standards (PPS) in

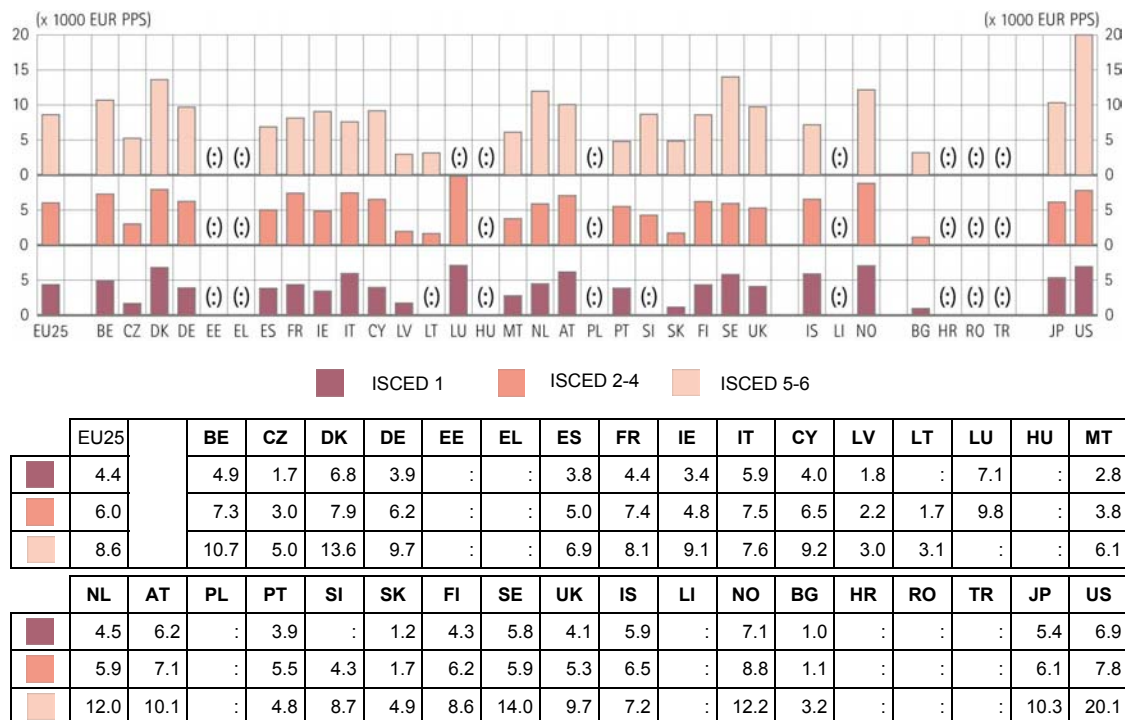
<sup>94</sup> Total expenditure on CVT courses is the sum of direct costs, staff time costs and the balance of contributions to national or regional training funds and receipts from national or other funding arrangements.

<sup>95</sup> See also Chapter IV: Making learning more attractive, in which the number of course hours per 1000 working hours is analysed.



order to filter out differences in price levels between countries. A euro-based PPS unit buys the same amount of goods and services in each country.

**Figure 4.4: Total expenditure on public and private educational institutions per pupil/student in EUR PPS, by level of education, 2001**



Source: DG EAC. Data source: Eurostat (UOE data collection)

Additional notes :

DK: Expenditure at post secondary non-tertiary level of education is not available.

FR: Without French Oversea Departments.

LT: Public expenditure in public & private educational institutions, expenditure on primary level is reported under secondary level

LU: Expenditure at pre-primary level of education is included under primary level. Expenditure at tertiary level not available.

MT: Full-time equivalent enrolment is estimated by assuming that it corresponds to full-time enrolment and half of the part-time enrolment.

PT: Expenditure at local level of government is not available, Full-time equivalent enrolment is estimated by assuming that it corresponds to full-time enrolment and half of the part-time enrolment. Enrolment at pre-primary level of education is not available.

UK: Adjustment of expenditure using the GDP-deflator (2001/2000) to adjust the financial year, (1 April to 31 March) to calendar year.

IS: Expenditure at pre-primary level not available. Expenditure at post secondary non-tertiary level partly included under tertiary level.

NO: Expenditure of lower secondary level of education is included under expenditure at primary level of education

In general, expenditure increases with education level. This has to do with *i.a.* pupil-teacher ratios, differences in salaries of teaching staff between education levels and the cost of equipment. In 2001, in the EU25, an average of 4,100 EUR PPS was spent per primary-level, and 5,900 per second-level pupil. In 2001 the average EU third-level student cost 8,600 EUR PPS to educate.<sup>96</sup> Countries with a relatively large disparity in spending between primary and tertiary education include Ireland, Netherlands, Sweden, Germany, the Czech Republic and Slovakia.

Spending per tertiary student in Japan is slightly higher than in the EU; however, in the USA spending per tertiary student is at over 20,000 EUR PPS. The high level of funding of tertiary education in the USA is one of the reasons US institutions top international university ranking lists. It also helps to explain the brain drain of academics to the US. Five EU countries (Belgium, Denmark, the Netherlands, Austria and Sweden) are spending more than 10,000 EUR PPS per student at tertiary level. Among the new Member States, only Cyprus and Malta spent more than 5,000 EUR PPS per student in 2001, while Lithuania and Latvia had the lowest spending of the current EU Member States at around 3,000 EUR PPS per year.

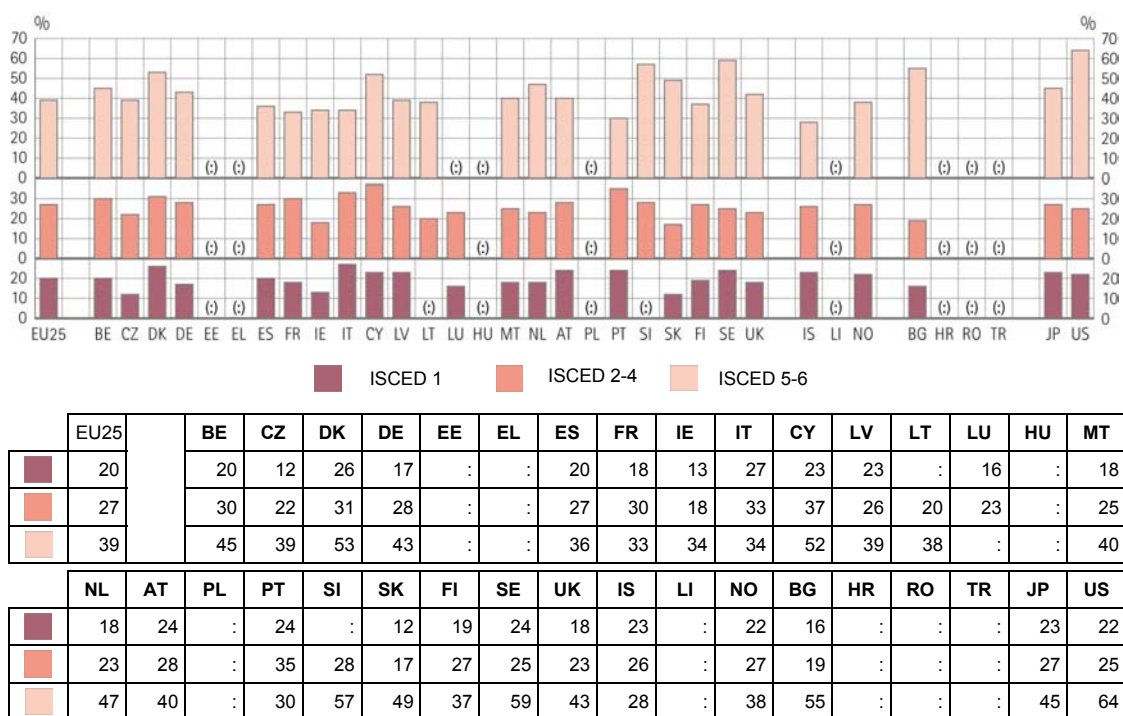
<sup>96</sup> EUR PPS= Euro in Purchasing Power Standards (to take into account differences in price levels between countries)



#### 4.2.5 Expenditure per pupil/student compared to GDP per capita

While the use of purchasing power standards filters out differences in price levels between countries, it does not take into account different levels of GDP per capita. Thus, relating expenditure per pupil/student to GDP per capita shows more clearly the real effort countries are making in providing resources for education.

**Figure 4.5: Total expenditure on public and private educational institutions per pupil/student compared to GDP per capita, by level of education, 2001**



Source: DG EAC. Data source: Eurostat (UOE data collection)

##### Additional notes

DK: Expenditure at post secondary non-tertiary level of education is not available.

FR: Without French Oversea Departments.

LT: Public expenditure in public & private educational institutions, expenditure on primary level is reported under secondary level

LU: Expenditure at pre-primary level of education is included under primary level. Expenditure at tertiary level not available.

MT: Full-time equivalent enrolment is estimated

PT: Expenditure at local level of government is not available. Full-time equivalent enrolment is estimated by assuming that it corresponds to full-time enrolment and half of the part-time enrolment. Enrolment at pre-primary level of education is not available.

UK: Adjustment of expenditure using GDP-deflator (2001/2000) to adjust financial year (1 April to 31 March) to calendar year.

IS: Expenditure at pre-primary level not available. Expenditure at post secondary non-tertiary level partly included under tertiary.

NO: Expenditure at lower-secondary level included under expenditure at primary level of education.

In terms of primary education, Denmark, Italy and Austria show the highest spending levels, amounting to 25% or more of GDP per capita in 2001 (Figure 2.5). Denmark, Cyprus, Portugal, France, Italy and Belgium stand out at secondary level, with expenditure on education of 30% or more of GDP per capita. While relative spending levels for primary and secondary education are similar in the US and Japan, the differences between primary and secondary level are smaller in these countries.

Total expenditure per tertiary student exceeded 50% of GDP per capita in Denmark, Cyprus and Sweden. In the USA it exceeded 60% and was thus 25 percentage points higher than in Europe.

In 2001 there was a slight increase in relative spending per pupil compared to 2000, mainly at primary level. This is probably related to the decline in the number of pupils in primary education by nearly one million between 2000 and 2001 (the EU25 counted 29.6 million

primary pupils in 2000 and 28.5 million in 2001). In the same period, the number of pupils in secondary education increased by 1.8 million and the number of tertiary students by 0.5 million – one of the reasons why spending per student at these levels of education stagnated.

### **4.3 Conclusion**

The data presented above suggests that in 2001 the EU made some progress towards a substantial annual increase in per capita investment in human resources. However, data from national budget plans suggests that spending growth slowed down in subsequent years.

After a decline in the late 1990s, public education expenditure as a percentage of GDP has, in overall terms, recovered since 2000. In combination with a decline in the number of primary pupils, this has led to an improvement in investment per pupil in primary education. However, there has been less progress in investment per pupil or student at secondary and tertiary level, since the numbers of students at these levels has been growing without a corresponding increase in spending in education.

As regards private investment, spending levels on education in almost all Member States are modest compared to the best performing countries in the world. Therefore, there is still room to encourage more private spending as a way of mobilising additional resources.

The above analysis concentrates on the input aspect of the objective “making best use of resources.” Even though investment in education and training is a vital concern, with implications for all 13 objectives and most key issues within the “Detailed Work Programme,” the analysis does not address the aspect of efficiency in the objective of “making best use of resources.”

Member States should intensify their efforts to improve the completeness and validity of data on private investment in education and training. Data on the average duration of tertiary studies and on survival rates in tertiary education, which will be used as a basis for efficiency indicators, will be collected in 2005 through the UOE data collection.

## V OPEN LEARNING ENVIRONMENT, SOCIAL INCLUSION AND ACTIVE CITIZENSHIP

### Main messages

- In 2004 an average of 9.4% of adults aged 25-64 in the EU25 participated in education and training activities. On average women participated more than men.
- The annual increase in the participation rate in lifelong learning will have to accelerate from 0.1-0.2 percentage points in the period 2000-04 to 0.5 percentage points in the period 2004-10 in order to reach the European benchmark of 12.5% by 2010.
- Four countries (Sweden, Denmark, Finland, the UK) had participation rates of above 20%, while much lower levels were registered in most Member States.
- In 2004 only 2.5% of the population aged 25-64 with less than upper-secondary education participated in education and training. Those with a high educational attainment level are more than seven times as likely to participate in lifelong learning. Participation is thus proportionate to the educational attainment level of the population group.

### 5.1 Introduction

If Europe is to be a competitive player in the global knowledge economy, it will need a highly-trained and flexible labour force. However, current demographic trends imply that Europe will not be able to rely solely on well-educated younger generations to replace older workers – rather, it is imperative to boost the labour-market participation of older people, women, migrants and minority groups, to raise overall employment levels. The integration (or re-integration) of these groups into the labour force will entail providing them with the skills and competencies they need to participate in a fast-paced knowledge-based economy. Moreover, all people will need to up-date their skills and qualifications throughout life for continuing personal and professional development. As stated in the recent Report from the Kok Group “lifelong learning is not a luxury, it is a necessity.”<sup>97</sup>

People with high prior educational attainment levels tend to go on to participate more in adult learning activities. This is related to job requirements but also to differences in attitudes and perception of learning possibilities. In view of this, and considering the high private returns from education and training, it is important that access to education be simplified and made more democratic, and that the concept of learning itself be made more attractive to all age and social groups. “Facilitating the access of all to education and training systems” was thus one of the three strategic objectives set by the Stockholm European Council in 2001 and elaborated in the Detailed Work Programme.<sup>98</sup> An expert Working Group has also been examining the issues involved in more detail.<sup>99</sup>

<sup>97</sup> *Facing the Challenge: The Lisbon Strategy for Growth and Employment*, p. 33.

<sup>98</sup> Detailed Work Programme, 2002.

<sup>99</sup> See Working Group Progress Report, “Open Learning Environment, Active Citizenship and Social Inclusion.”

“Open learning environment,” as examined in this chapter, is primarily concerned with learning activities among the adult working-age population (age 25-64). The urgent need: to tackle the large number of poorly-skilled people in the EU, and to promote continuing vocational training (CVT) (including work-based, open and distance learning) was recently stressed at the conference on strengthening European co-operation in vocational education and training in Maastricht in December 2004.<sup>100</sup>

Social inclusion and active citizenship are important policy objectives and central to the achievement of the Lisbon goal of becoming “*the most competitive and dynamic knowledge-based economy in the world, capable of sustaining economic growth, with more and better jobs and greater social cohesion*”<sup>101</sup> The focus within this statement on increasing social cohesion was affirmed by later Councils, especially by the Laeken Council in December 2001 and its follow-up, which resulted in, among other things, a list of social inclusion indicators (the “Laeken indicators”). Social inclusion and active citizenship are therefore reflected in the three strategic goals for European education and training systems adopted by the European Council in March 2001, on quality of, access to and openness to the world of education systems. Strategic Objective 2, “*Facilitating the access of all to education and training systems*” is particularly important.

### Indicators for monitoring Performance and Progress

The indicators in this area are as follows:

- *Percentage of the population aged 25-64 (all levels of educational attainment) participating in education and training in the four weeks prior to the survey.*
- *Percentage of the population aged 25-64 with less than upper-secondary educational attainment participating in education and training in the four weeks prior to the survey.*

Indicators on active citizenship are still under development. The following provisional indicator is used as a proxy:

- *Civic knowledge of pupils (aged 14-15), mean scale score in IEA civic education study of 1999.*

The indicator on participation of the population aged 25-64 in all levels of education and training was also chosen as the basis of a benchmark set by the Council.

**European Benchmark 2010**  
**By 2010, the European Union**  
**average level of participation in**  
**Lifelong Learning should be at**  
**least 12.5% of the adult**  
**working-age population (25-64**  
**age group).<sup>102</sup>**

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<sup>100</sup> See Cedefop, Synthesis of the Maastricht Study, “Vocational education and training – key to the future,” December 2004.

<sup>101</sup> Presidency Conclusions, Lisbon, paragraph 4

<sup>102</sup> Indicator: *Percentage of population aged 25-64 participating in education and training in 4 weeks prior to the survey.*

### Quality and availability of data and indicators

The indicator on participation of the population aged 25-64 in all levels of education and training makes best use of existing data but does not cover related issues like access, guidance, efficient delivery of education and training, provision for flexible learning and the promotion of lifelong learning networks.

The available data refers to persons aged 25 to 64 who answered that they had received education or training in the four weeks preceding the survey. The data source is the quarterly European Community Labour Force Survey (LFS), which covers the whole population living in private households. In 2003 countries began to implement the new standard education variables in the LFS, which are expected to improve the quality of indicators since they make it possible to distinguish clearly between current participation in formal education and participation in non-formal activities. This will inevitably lead to breaks in series for the reference years 2003 to 2005. The chosen indicator also underestimates the absolute level of participation in adult learning because of its short reference period (the four weeks prior to the survey). For example, vocational training may be seasonal in some sectors; it may be provided at regular but widely-spaced intervals, or in one block session during the year. These and other factors might lead to under-reporting of participation in lifelong learning. However, the feasibility of extending the reference period in the future is currently being examined in the connection with the preparation of a new Adult education survey (AES), to be implemented in the EU between 2005 and 2007.

Information on participation in lifelong learning over the 12 months preceding an interview in 2003 was collected through a set of specific questions (in an ad hoc module) introduced into the Labour Force Survey; results from this 2003 ad hoc module on lifelong learning are expected to be published in the 1st semester of 2005 by Eurostat, while a detailed analysis, complementing the statistical data with qualitative information on systems of lifelong learning, will be carried out in the framework of a Leonardo da Vinci project.

The standard LFS, the EU-SILC survey and the ad hoc modules of these surveys (for example LFS 2002 on disabled people, EU SILC 2006 on intergenerational transmission of poverty) will be further exploited in order to improve data availability and quality for the following indicators:

- *Attainment level of disabled people compared to total population*
- *Educational attainment of non-EU nationals.*

Such once-off studies or survey modules cover short term needs, and may be repeated or eventually lead to long-term data collection. There are also plans for a module on “the labour market situation of migrants and their immediate descendants” in the LFS for 2008.

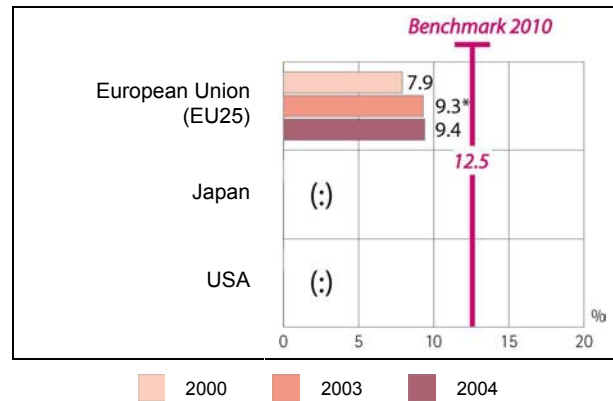
The gender dimension is relatively well covered by the existing data. Data by gender is available for most of the 29 indicators currently used. However, there are still considerable gaps as regards learners with special needs and in relation to indicators on active citizenship. Only some data on the input, output and outcome aspects of active citizenship is available. The IEA Civic Education Study of 1999 provides information for 18 EU countries but the data is relatively old. The European Commission therefore launched a study at the end of 2004 to develop indicators on active citizenship based on available information.

## 5.2 Performance and Progress towards Lifelong Learning

### 5.2.1 Participation in lifelong learning

Over a given period of four weeks in 2004, an average of 9.4% of adults aged 25-64 participated in education and training activities in the EU25 (Figure 5.1).

**Figure 5.1: Percentage of population aged 25-64 participating in education and training in the four weeks prior to the survey, 2004**



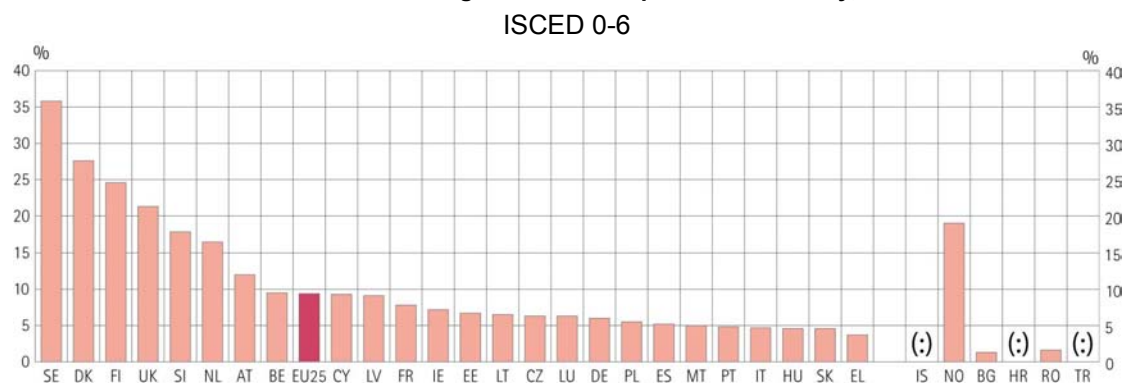
Source: DG EAC. Data source: Eurostat (Labour Force Survey)

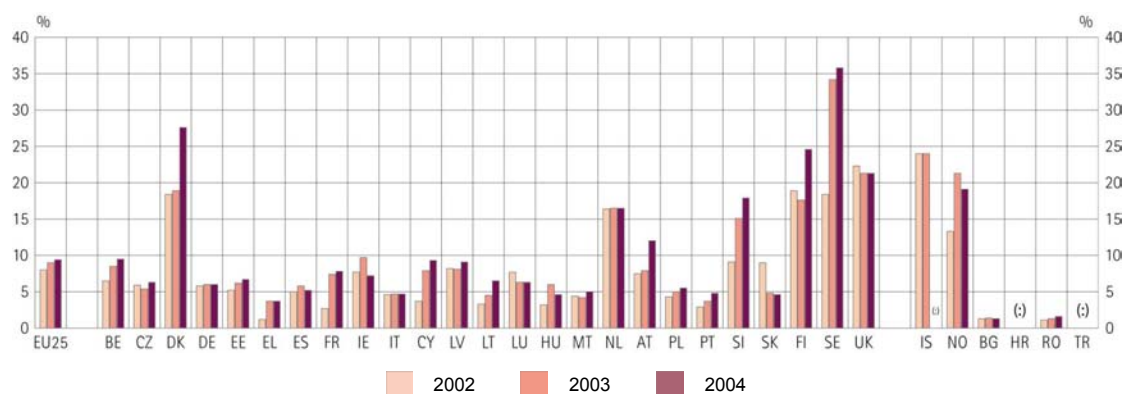
\* 2003 : change in series

When examining progress since 2000 it must be considered that there were breaks in time series in many EU countries, especially between 2002 and 2003, which generally resulted in disproportionately higher figures than in the years before (notably in France, Hungary and Sweden). In the countries in which there was no break in time series, participation rates increased by an average of 0.2 percentage points in 2003, compared to a 0.1 percentage point increase in 2002. The year 2004 was less affected by breaks in time series, and saw an increase of 0.1 percentage points. The rate of progress must increase to about 0.5 percentage points per year, if the benchmark is to be reached by 2010.

The four best performing countries were Sweden, Denmark, Finland and the UK followed closely by Slovenia, the best performing new Member State, and the Netherlands (Figure 5.2). All remaining EU countries are still below the target level of 12.5%. Italy, Greece, Malta, Portugal, Slovakia and Hungary had participation rates at or below 5%. Among the candidate countries, participation rates in Bulgaria and Romania were at the extremely low level of less than 2%. In most countries women participated more in training and education than men.

**Figure 5.2: Percentage of population aged 25-64 participating in education and training in four weeks prior to the survey, 2004**





	EU25	BE	CZ	DK	DE	EE	EL	ES	FR	IE	IT	CY	LV	LT	LU	HU
<b>2002</b>	8.0	6.5	5.9	18.4	5.8	5.2	1.2	5.0	2.7	7.7	4.6	3.7	8.2	3.3	7.7	3.2
<b>2003</b>	9.3	8.5	5.4	25.7	6.0	6.2	3.7	5.8	7.4	9.7	4.7	7.9	8.1	4.5	6.3	6.0
females	10.0	8.7	5.7	28.1	5.6	7.1	3.8	6.3	7.7	11.0	5.2	8.5	10.2	5.7	6.0	6.5
males	8.6	8.3	5.1	23.3	6.4	5.2	3.5	5.3	7.1	8.4	4.2	7.1	5.7	3.3	6.6	5.4
<b>2004</b>	9.4	9.5	6.3	27.6	6.0	6.7	3.7	5.2	7.8	7.2	4.7	9.3	9.1	6.5	6.3	4.6
females	10.2	9.3	6.5	31.9	5.6	7.6	3.8	5.7	7.9	8.4	5.2	9.5	11.8	7.9	6.0	5.3
males	8.6	9.7	6.0	23.4	6.4	5.8	3.5	4.7	7.6	6.1	4.2	9.0	6.1	5.0	6.6	3.9

	MT	NL	AT	PL	PT	SI	SK	FI	SE	UK	IS	NO	BG	HR	RO	TR
<b>2002</b>	4.4	16.4	7.5	4.3	2.9	9.1	9.0	18.9	18.4	22.3	24.0	13.3	1.3	:	1.1	:
<b>2003</b>	4.2	16.5	12.5	5.0	3.7	15.1	4.8	25.3	34.2	21.3	24.0	19.6	1.4	2.1	1.3	:
females	3.6	17.0	12.4	5.5	4.0	16.3	4.7	28.9	37.3	25.3	27.7	20.6	1.6	2.1	1.5	:
males	4.9	16.2	12.6	4.5	3.4	13.9	4.9	21.8	31.3	17.6	20.4	18.6	1.2	2.1	1.1	:
<b>2004</b>	5.0	16.5	12.0	5.5	4.8	17.9	4.6	24.6	35.8	21.3	:	19.1	1.3	:	1.6	:
females	4.4	17.0	12.5	6.3	5.1	19.8	5.2	28.2	40.3	25.3	:	19.9	1.4	:	1.6	:
males	5.5	16.2	11.5	4.7	4.4	16.1	3.9	20.9	31.5	17.6	:	18.2	1.1	:	1.6	:

Source: DG EAC. Data source: Eurostat Labour Force Survey – Spring results 2002-04, except LU 2003 (annual average), DK, FI (1st quarter 2003-04).

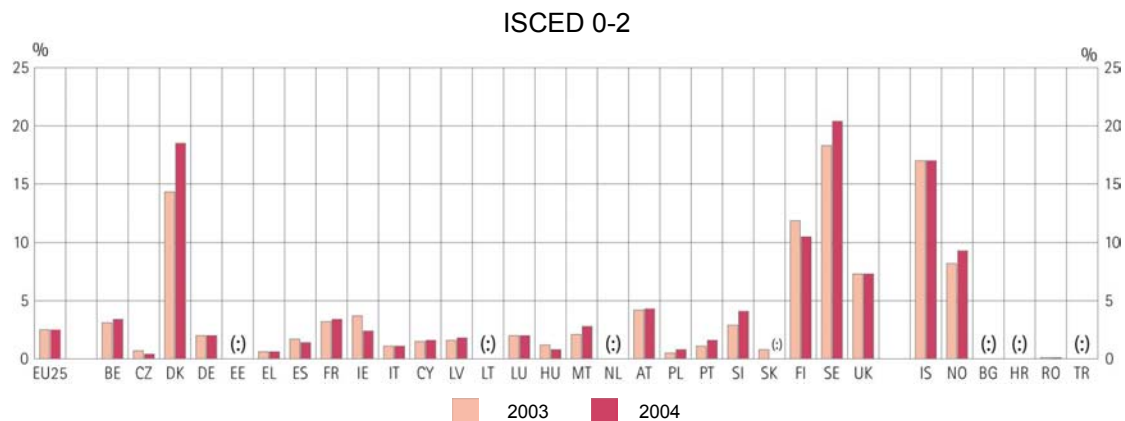
Additional notes:

- Due to implementation of harmonised concepts and definitions in the survey, breaks in time series: CZ, DK, EL, FR, IE, CY, LU, HU, AT, SI, SK, FI, SE, IS, NO (2003) and BE, LT, MT, PL, PT, RO (2004).
- DE, EL, IT, LU, NL (2004): provisional data.

### 5.2.2 Participation of population with low educational attainment

Participation in education and training tends to be proportionate to the level of prior education (Figure 5.3). In 2004 only 2.5% of the population aged 25-64 with less than upper-secondary education participated in education and training in the four weeks prior to the survey, which corresponds to less than one third of the average figure over all levels of education, and less than one seventh of the figure for those with high educational attainment. Moreover, the gap has increased since 2002. Typically, people with higher education levels are more easily reached by, and more receptive to, measures to encourage participation in education and training. The fact that many initiatives do not reach people with a low initial level of education is a key challenge for policy-makers.

**Figure 5.3: Percentage of population aged 25-64 with less than upper-secondary education participating in education and training in the four weeks prior to the survey, 2004**



	EU25	BE	CZ	DK	DE	EE	EL	ES	FR	IE	IT	CY	LV	LT	LU	HU
<b>2002</b>	2.1	2.5	0.7	9.8	2.2	:	0.1	1.2	1.0	3.2	1.0	:	:	:	1.9	0.4
<b>2003</b>	2.5	3.1	0.7	14.3	2.0	:	0.6	1.7	3.2	3.7	1.1	1.5	1.6	:	2.0	1.2
females	2.7	3.2	0.6	16.1	1.8	:	0.6	2.1	3.2	4.6	1.3	1.7	3.3	:	1.7	1.2
males	2.3	2.9	0.9	11.7	2.3	:	0.6	1.4	3.3	2.8	1.0	1.2	:	:	2.4	1.3
<b>2004</b>	2.5	3.4	0.4	18.5	2.0	:	0.6	1.4	3.4	2.4	1.1	1.6	1.8	:	2.0	0.8
females	2.7	3.4	:	20.9	1.8	:	0.6	1.7	3.2	2.9	1.3	1.6	:	:	1.7	0.9
males	2.4	3.5	1.1	15.7	2.3	:	0.6	1.1	3.7	2.0	1.0	1.5	:	:	2.4	0.8

	MT	NL	AT	PL	PT	SI	SK	FI	SE	UK	IS	NO	BG	HR	RO	TR
<b>2002</b>	2.4	9.4	1.7	0.4	0.8	1.9	2.4	8.2	10.5	7.7	17.0	5.5	:	:	:	:
<b>2003</b>	2.1	:	4.2	0.5	1.1	2.9	0.8	11.9	18.3	7.3	17.0	8.2	:	:	0.1	:
females	2.0	:	4.4	0.6	1.2	2.4	:	15.0	20.8	8.1	20.0	7.1	:	:	0.1	:
males	2.2	:	3.7	0.4	0.9	3.5	:	9.3	16.4	6.4	12.3	9.4	:	:	:	:
<b>2004</b>	2.8	:	4.3	0.8	1.6	4.1	:	10.5	20.4	7.3	17.0	9.3	:	:	0.1	:
females	2.2	:	3.9	0.8	1.9	3.7	:	13.7	24.1	8.1	20.0	8.7	:	:	:	:
males	3.4	:	5.1	0.8	1.3	4.7	:	7.9	17.9	6.4	12.3	9.8	:	:	:	:

Source: DG EAC. Data source: Eurostat Labour Force Survey – Spring results 2002-04, except LU 2003 (annual average), DK, FI (1st quarter 2003, 04).

**Additional notes:**

\* Breaks in time-series in 2003: CZ, DK, DE, EL, IE, CY, FR, LU, HU, AT, SI, SK, FI, SE, NO (2003) and BE, LT, MAT, PL, PT, RO (2004).

- DE, EL, IT (2003), LU (2003,04): provisional data

Countries with a high general participation rate in lifelong learning (Denmark, Sweden, Finland and the UK) also register relatively high participation rates of people with low educational attainment.<sup>103</sup> Results for these countries range from 7.3% in the UK to 20.4% in Sweden in 2004. Of the remaining countries, only Belgium, France, Slovenia and Austria exceed a participation rate of 3%. Because of breaks in time series, it is difficult to analyse trends over 2002-04. Moreover, because of insufficient sample sizes, results are not available for all countries. However, participation increased in the majority of countries for which data is available.

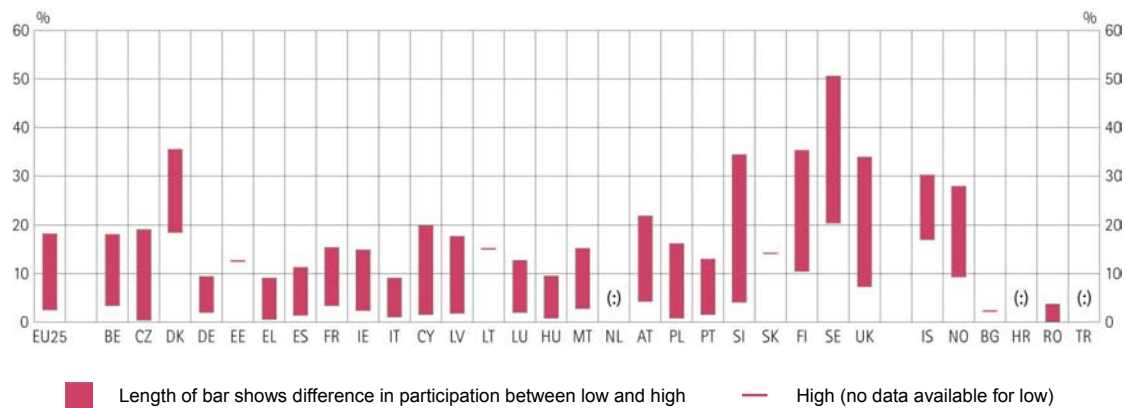
Countries with a high general participation rate in lifelong learning have relatively small participation gaps between those with high and those with low prior educational attainment levels, while countries with low overall participation rates have wider gaps (Figure 5.4).

<sup>103</sup> No 2003 or 2004 data available for the Netherlands, which performed well in 2002.



Denmark and Sweden show the highest participation rate among people with a low education level and at the same time the smallest relative gap between the ISCED groups.

**Figure 5.4: Participation of population aged 25-64 in education and training in the 4 weeks prior to the survey, by education level attained (low = ISCED 0-2, high = ISCED 5-6), 2004.**



	EU25		BE	CZ	DK	DE	EE	EL	ES	FR	IE	IT	CY	LV	LT	LU	HU
Low	2.5		3.4	0.4	18.5	2.0	:	0.6	1.4	3.4	2.4	1.1	1.6	1.8	:	2.0	0.8
High	18.2		18.1	19.1	35.5	9.4	12.7	9.1	11.3	15.4	14.9	9.1	19.9	17.7	15.2	12.7	9.5
Gap	15.7		14.7	18.7	17.0	7.4	:	8.5	9.9	12.0	12.5	8.0	18.3	15.9	:	10.7	8.7
Relative gap	7.3		5.3	47.8	1.9	4.7	:	15.2	8.1	4.5	6.2	8.3	12.4	9.8	:	6.4	11.9

	MT	NL	AT	PL	PT	SI	SK	FI	SE	UK		IS	NO	BG	HR	RO	TR
Low	2.8	:	4.3	0.8	1.6	4.1	:	10.5	20.4	7.3		17.0	9.3	:	:	0.1	:
High	15.2	:	21.9	16.2	13.0	34.4	14.3	35.3	50.6	33.9		30.2	28.0	2.4	:	3.7	:
Gap	12.4	:	17.6	15.4	11.4	30.3	:	24.8	30.2	26.6		13.2	18.7	:	:	3.6	:
Relative gap	5.4	:	5.1	20.3	8.1	8.4	:	3.4	2.5	4.6		1.8	3.0	:	:	37.0	:

Source: DG EAC. Data source: Eurostat Labour Force Survey – Spring results 2002-04, except LU 2003 (annual average), DK, FI (1st quarter 2003, 04).

Additional notes:

- Relative gap: figure for high divided by figure for low (factor)
- DE, EL, IT LU: provisional data

### 5.2.3 Participation and performance by gender

The available data shows that women have closed the education gap in past decades and that more recently they have overtaken men in some areas.

Overall boys have been fallen behind girls in school level education. Efforts are needed to improve the attainment levels of boys in upper-secondary education in order to reach the benchmarks. In continuing vocational education and training a gender balance has almost been reached.

The PISA study reveals that girls are doing on average about 30 points better than boys on the reading literacy scale. Boys have a slight advantage as regards mathematical literacy, but results are balanced in scientific literacy.

In higher education there is now also a gender imbalance, with 54.4% of tertiary students in the EU25 being female in 2002. However, there are still twice as many male as female graduates in mathematics, science and technology, and the goal is to reduce this imbalance by 2010 (see Chapter III).

The breakdown of data by gender is included in the appropriate chapters dealing with individual indicators. In this latest Progress Report, gender breakdowns were introduced for these indicators:

- *Completion of upper-secondary education*
- *Low-achieving pupils*
- *Performance in reading literacy*
- *Performance in mathematical literacy*
- *Performance in scientific literacy*
- *Participation in education and training of initially poorly qualified people*
- *Graduates in MST, total*
- *Participation in CVT.*

### 5.3 Active citizenship

The only source of internationally comparable data on education and active citizenship is the IEA Civic Education Study<sup>104</sup> of 1999<sup>105</sup>. In this study covering 28 countries, nationally representative samples of nearly 90,000 students in the conventional grade (age 14) were surveyed on topics ranging from their knowledge of fundamental democratic principles and skills in interpreting political information, to their attitudes toward government and willingness to participate in civic society. Students were assessed on their knowledge of civics, their skills in interpreting civic information, their understanding of the strengths and weaknesses of democracy, their concepts of the role of citizens, their attitudes towards democratic institutions and individual rights, and whether they intended to become involved in civic activities such as national voting when they became adults. Another assumption of the study was that an effective civic education programme must employ a variety of educational approaches, since students learn through diverse channels, including formal instruction, discussion and debate, and through communication with parents, peers and others in their local communities.

Of the Member States participating in the survey, Poland, Finland, Cyprus, Greece, Italy, Slovakia and the Czech Republic achieved national mean scores significantly higher than international mean (111-103), while pupils in the Baltics recorded the lowest mean scale score (94-92).

**Table 5.5: Civic knowledge of pupils (14-15 years), mean scale score in IEA civic education study of 1999**

	EU25		BE	CZ	DK	DE	EE	EL	ES	FR	IE	IT	CY	LV	LT	LU	HU	MT
Mean Score	:		95	103	100	100	94	108	:	:	:	105	108	92	94	:	102	:
	NL	AT	PL	PT	SI	SK	FI	SE	UK	IS	LI	NO	BG	HR	RO	TR	JP	US
Mean Score	:	:	111	96	:	105	109	99	99	:	:	103	98	:	92	:	:	106

Source: DG EAC. Data source: IEA CIVED 1999

**Additional notes :**

International mean = 100. Only results above 102 points can be considered significantly higher than the international mean, and only results below 98 can be considered significantly lower than international.

BE: only French-speaking community.

PT: grade 8 selected instead of grade 9 due to average age. Mean scale score for grade 9 was 106.

UK: England only.

Belgium, Denmark, Norway – countries' overall participation rate after replacement less than 85%.

<sup>104</sup> IEA, "Citizenship and Education in Twenty-Eight Countries: Civic Knowledge and Engagement at Age Fourteen," 2001. IEA- The International Association for the Evaluation of Educational Achievement- is an independent international consortium of national research institutions and governmental research agencies with headquarter in Amsterdam conducting large-scale comparative studies of educational achievement with the aim of gaining more in-depth understanding of the effects of policies and practices within and across systems of education .

Given the increasing heterogeneity of the European population and the concomitant need for integration of migrants and increased social cohesion, education for democracy and active citizenship will be an important task for education and training systems in Europe. The Commission therefore tendered a study in 2004 to explore possible ways of developing indicators on active citizenship in Europe.

## **5.4 Conclusion**

The available data shows that participation rates have increased slightly since 2001. However, it will clearly require a concerted effort on the part of many European countries to reach the European benchmark on participation in lifelong learning. In effect, the annual increase in the average participation rate will have to accelerate from 0.1-0.2% in the period 2001-03 to 0.5% in the period 2004-10. In some countries the necessary increase in the participation rate could only be effected by launching new initiatives, and in some cases might even require the establishment of new institutions.

There are potentially two groups of countries that could provide models of good practice: firstly, countries that already perform well (the Nordic countries, UK, Netherlands, Slovenia); and secondly, countries that have not yet reached the benchmark, but which are quickly catching up, as is the case in Portugal. Both groups might prove a valuable source of inspiration in the development of national strategies for increased participation in lifelong learning.

A key challenge to Europe is not only to increase the basic participation rate, but also to ensure that a coherent lifelong learning culture prevails throughout Europe. Many of the essential and less quantifiable elements of a comprehensive lifelong learning framework, such as access, guidance and the flexibility of learning systems, are not yet covered by appropriate indicators. However, data availability will improve in the future through the Adult Education Survey (AES) which is currently being designed by a Eurostat Task Force. The interpretation of the data already collected through the LFS could also be facilitated if the current “four-week” reference period were extended to one year, since this would mean a shift from the current ‘snapshot view’ of ‘current participation’ to a perspective less subject to seasonal effects. The results could then also be combined more easily with other data on education and training referring to one-year periods (academic or calendar).

Improving the participation and learning outcomes of certain socio-demographic groups is important for reaching the five European education and training benchmarks. The marked differences between EU countries in the participation and attainment rates of certain socio-demographic groups shows that there is still great potential for improvement in many EU countries. Groups that would benefit from special attention include migrants, boys in lower-secondary education and people with a low level of initial education.

In many cases the Nordic countries can be considered a model: they show good results as regards social inclusion and at the same time high average educational performance levels.

In some cases the analysis of the situation and of trends is hampered by a lack of comparable data. Data for additional indicators should be developed in particular in the fields of parental background of tertiary students and the performance of disabled learners. The use and further development of the new EU-SILC survey will be especially important for this. Data is also missing in the field of active (democratic) citizenship. The Commission has launched a study to examine options to develop more data in this area.

## VI

## MAKING LEARNING MORE ATTRACTIVE

### Main messages

- In 2004, the EU average rate of early school leavers was 15.9%, the same as in 2003 and still very much higher than the European benchmark for 2010 of 10%.
- The European benchmark of a rate of early school leaving of no more than 10% was met in 2004 by the Czech Republic, Denmark, Lithuania, Austria, Poland, Slovakia, Finland and Sweden, and Norway.
- Participation rates in post-compulsory education in the EU25 increased by 2.5% from 2000 to 2002 and reached almost 59% of young people (age 15-24). The rate in 2002 was more than 65% in Belgium, Lithuania, Poland, Finland and Sweden.
- Learning should be attractive for the whole population, throughout life. At the moment, progress can be measured only in certain limited areas. The Commission has taken steps towards satisfying the urgent need for new indicators on adult education, including non-formal and informal learning, and on vocational education and training.

### 6.1 Introduction

Making learning attractive means primarily making education and training more attractive to those who do not participate at full capacity at present: young people with only lower-secondary education and not in education and training, disabled persons, and people who fulfil the general conditions for access to tertiary education but who may feel excluded from the system, for example socially disadvantaged groups, boys and women, and others.

Everyone should understand, from as early an age as possible, the importance of education and training in life and its potential to broaden personal and professional horizons. Education and training institutions naturally have an important role to play in communicating this message, but also families, local communities and employers are instrumental in fostering the desire to learn. If people do not appreciate the advantages of continuous learning, they will never make the effort needed to raise their skills levels.<sup>106</sup>

A first building block is, as the Council (Ministers of Education) has underlined, the minimum knowledge base required in order fully to participate in today's knowledge-based society.<sup>107</sup> Those without sufficient levels of knowledge, skills and competencies are less likely to participate effectively in lifelong learning and are in danger of being left behind. Hence, reducing the number of early school leavers is essential for raising employment levels and increasing social cohesion. Young people in the knowledge society need to continue participating in education and training after compulsory schooling.

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<sup>106</sup> Detailed Work Programme, p.29

<sup>107</sup> Council Conclusions of 5 May 2003

**European Benchmark 2010**  
**By 2010, an EU average rate of**  
**no more than 10% early school**  
**leavers should be achieved.<sup>108</sup>**

Pupils may leave education and training early because of low levels of proficiency in foundation skills such as reading literacy and numeracy. There is a high correlation between early school leavers and students performing at the lowest levels of proficiency (level 1 and lower of the PISA survey).<sup>109</sup> Early school leavers are therefore likely to experience serious difficulties when dealing with written information and thus even with the most basic activities associated with lifelong learning in the knowledge society.<sup>110</sup>

However, participating in formal education is not enough. Promoting a culture of lifelong learning will entail giving greater recognition to non-formal and informal learning activities,<sup>111</sup> allowing more flexibility and transferability of qualifications, providing more guidance and counselling, and encouraging the active participation of private enterprise.<sup>112</sup>

### Indicators for monitoring performance and progress

Four indicators are used for measuring progress in the area of making learning more attractive:

- *Share of the population aged 18-24 with only lower-secondary education and not in education or training*
- *Participation rates in education by age and by level of education.*
- *Hours in continuing vocational training (CVT) courses per 1000 working hours (only enterprises with CVT courses), by NACE<sup>113</sup>*
- *Hours in continuing vocational training CVT courses per 1000 working hours (all enterprises), by NACE*

These four indicators are of direct relevance for the key issues identified in the Detailed Work Programme, among them “encouraging young people to remain in education or training after the end of compulsory education, and motivating and enabling adults to participate in learning through later life.”<sup>114</sup> They allow us to identify the countries which seem to have established a culture of learning within the formal education system, and assess the extent to which education and training are promoted beyond this point.

<sup>108</sup> Indicator: *Share of the population aged 18-24 with only lower secondary education and not in education or training*” Labour Force Survey.

<sup>109</sup> OECD, *Knowledge and Skills for Life – First Results from PISA 2000*, 2001.

<sup>110</sup> For a very comprehensive survey on the issue of equity and the educational system, see: Groupe européen de recherche sur l’équité des systèmes éducatifs, “L’équité des systèmes éducatifs européens – un ensemble d’indicateurs.” Survey co-financed by the European Commission, Socrates programme, Liège, 2003.

<sup>111</sup> Informal settings (e.g. home, getting together with other people, leisure activities) come first in the list of environments in which European citizens have learned something in the past 12 months – see Eurobarometer, “Lifelong learning: Citizens’ views,” 2003.

<sup>112</sup> These were among the findings of the recent Maastricht study on vocational education and training. See the Maastricht Communiqué on the future priorities of enhanced European Co-operation in vocational education and training, and Cedefop, *Vocational Education and Training – Key to the Future*, 2004. See also Chapter V above.

<sup>113</sup> NACE: Classification of Economic Activities in the European Community – is a classification which is designed to categorize data that can be related only to the unit of activity, for example an individual plant or group of plants comprising an economic entity such as an enterprise.

<sup>114</sup> Detailed Work Programme, p12.

## Quality and availability of data and indicators

Although there is a large amount of relevant data available, the existing indicators do not capture the entire scope and complexity of this area.

An important source of data is Eurostat's Continuing Vocational Training Survey (CVTS 2). This survey provides comparable statistical data on continuing training at work, the supply of, and demand for vocational training, its form, content and scope, internal training resources and the use of external training providers, and the costs of continuing training.<sup>115</sup> A total of some 50,000 enterprises in EU countries and Norway, and 26,000 enterprises in the new Member States, took part in CVTS2.<sup>116</sup> The next CVTS survey (with a reference year 2005) will be conducted in 2006.

Within the strategy developed by the Commission in order to improve the quality of the data and indicators in this field, the LFS and the EU-SILC survey, and especially the ad hoc module of EU-SILC 2006 on the intergenerational transfer of poverty, will be further exploited in order to develop an indicator on parental background of tertiary students. In the long term, a new indicator on "social background of tertiary students" will be considered.<sup>117</sup>

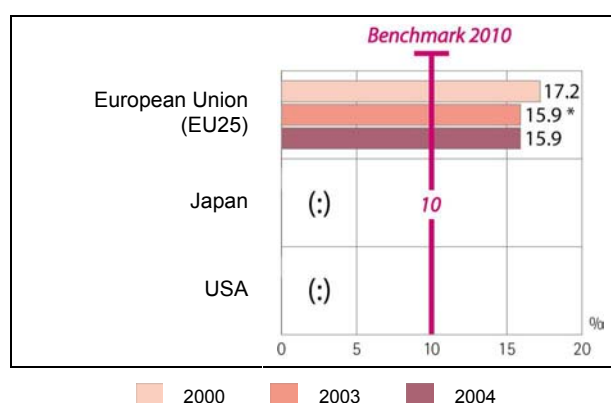
## 6.2 Performance and progress in the field of making learning more attractive

### 6.2.1 Early school leavers

In 2004, the EU average ratio of early school leavers (people aged 18-24 who have left school with only lower-secondary education) was 15.9%, the same as in 2003.

At the current rate of improvement, the ratio of early school leavers will reach approximately 14% in 2010 – meaning that the benchmark of 10% will be not reached by 2010.

**Figure 6.1:** Share of the population aged 18-24 with only lower-secondary education and not in education or training, 2004



Source: DG EAC. Data source: Eurostat (Labour Force Survey)

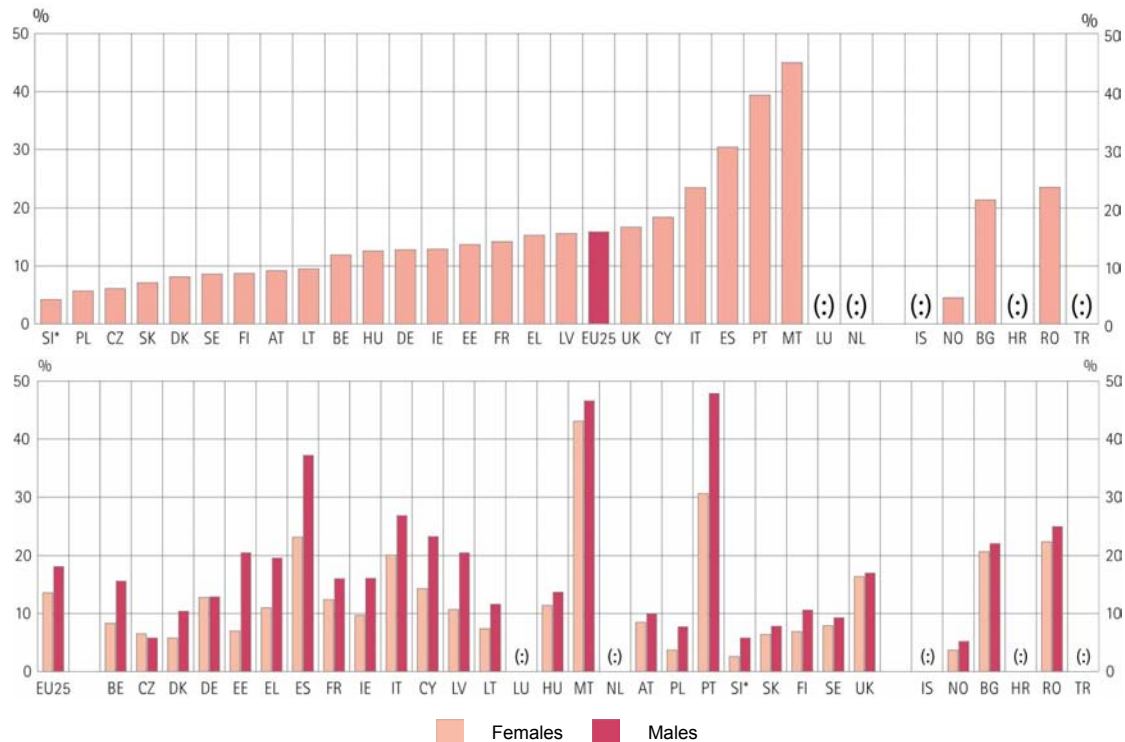
\* 2003 : change in series

For the 23 EU countries for which 2004 data is already available (for certain countries only provisionally), the percentage of early school leavers not in education and training increased in eleven countries and decreased in twelve between 2000 and 2004 (Figure 6.2).

<sup>115</sup> The CVTS 2 survey covered enterprises with ten or more employees in a series of the NACE sections C to K and O. The survey included continuous vocational training measures that enterprises financed either wholly or partly for employees with a working contract. It is intended to carry out the survey every five years.

<sup>116</sup> CVTS 2 (reference year:1999) is the second survey on continuing vocational training, conducted in 2000/2001 in all Member States, Norway and nine new Member States. The first survey was conducted in 1994 in the then twelve Member States of the European Union.

<sup>117</sup> See Commission Staff Working Paper, "New Indicators on Education and Training."

**Figure 6.2 Share of the population aged 18-24 with only lower-secondary education and not in education or training, 2004**

	EU25		BE	CZ	DK	DE	EE	EL	ES	FR	IE	IT	CY	LV	LT	LU	HU
2002	16.4		12.4	5.5	8.4	12.6	12.6	16.1	29.0	13.4	14.7	24.3	14.0	19.5	14.3	17.0	12.2
2003	15.9		12.8	6.0	10.0	12.8	11.8	15.3	29.8	13.7	12.1	23.5	15.1	18.1	11.8	17.0	11.8
2004	15.9		11.9	6.1	8.1	12.8	13.7	15.3	30.4	14.2	12.9	23.5	18.4	15.6	9.5	:	12.6
females	13.6		8.3	6.5	5.8	12.8	:	11.0	23.2	12.4	9.7	20.1	14.3	10.7	7.4	:	11.4
males	18.1		15.6	5.8	10.4	12.9	20.5	19.6	37.2	16.0	16.1	26.8	23.3	20.5	11.6	:	13.7

	MT	NL	AT	PL	PT	SI*	SK	FI	SE	UK		IS	NO	BG	HR	RO	TR
2002	53.2	15.0	9.5	7.6	45.5	4.8	5.6	9.9	10.4	17.7		27.3	14.0	21.0	:	23.2	:
2003	48.2	15.0	9.2	6.3	40.4	4.3	4.9	8.3	9.0	16.7		27.3	6.6	22.4	8.4	23.2	:
2004	45.0	:	9.2	5.7	39.4	4.2	7.1	8.7	8.6	16.7		:	4.5	21.4	:	23.6	:
females	43.1	:	8.5	3.7	30.6	2.6	6.4	6.9	7.9	16.4		:	3.7	20.7	:	22.4	:
males	46.6	:	9.9	7.7	47.9	5.8	7.8	10.6	9.3	17.0		:	5.2	22.1	:	24.9	:

Source: DG EAC. Data source: Eurostat (Labour Force Survey 2002, 2003, 2004)

**Additional notes:**

- Breaks in time-series in 2004: Belgium, Lithuania, Malta, Poland, Portugal, Romania
- Poland: only vocational training included.
- 2004 data provisional for: Germany, Ireland, Italy, UK
- \* data unreliable or uncertain
- FR: changes in the reference period in 2003 (formerly one week preceding the survey).
- SK: restrictions on autonomous learning (2003).
- DE: exclusion of personal interest courses (2003).
- CY: excludes students abroad.
- DK, LU, IS, NO, EE, LV, LT, CY, MT, SI: high degree of variation of results over time partly influenced by a low sample size.
- FI (from 2000), SE, BG (from 2001), LV, LT (from 2002), HU, FI, AT (from 2003): data lacks comparability with former years due to changes in the survey characteristics.
- EU: aggregates provided using the closest available year result in the case of missing or provisional data.

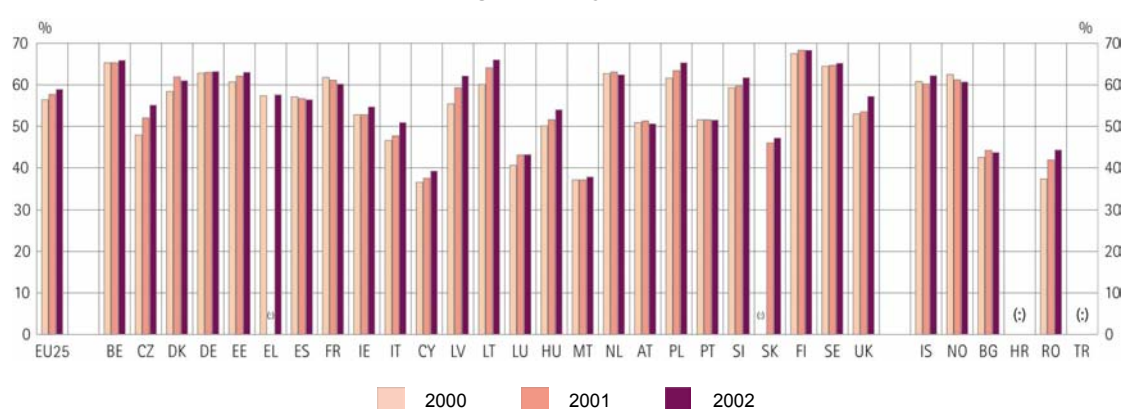
The lowest ratios in 2004 – below the benchmark of 10% – were recorded in Poland, Czech Republic, Slovakia, Denmark, Sweden, Finland, Austria and Lithuania, as well as in Norway. With exception of Denmark and Lithuania, all these countries are also already beyond the benchmark of at least 85% of 22-year-olds successfully completing at least upper-secondary

education.<sup>118</sup> The situation is especially remarkable in Poland, the Czech Republic and Slovakia, which currently register levels of early school leavers as low as 5.7%, 6.1% and 7.1% respectively. The new Member States generally perform much better than average in the area of early school leavers, with an average rate of 7.5%.

### 6.2.2 Participation rates of 15-24-year olds in education

It is clear that achieving the benchmark on early school leavers will require political action and sustained commitment in most EU countries. At the same time, although levels of early school leaving in the EU are relatively high, a substantial and increasing proportion of 15-24 year-olds participate in education. Since upper secondary participation rates did not change much, this increase was caused primarily by a substantial increase in tertiary participation rates. The obvious limitation of the indicator on participation of 15-24-year-olds in education is that it does not provide information on drop-out rates or on successful completion.

**Figure 6.3: Participation rates in education (ISCED 1-6).  
Students aged 15-24 years, 2001/2002**



	EU25	BE	CZ	DK	DE	EE	EL	ES	FR	IE	IT	CY	LV	LT	LU	HU
2000	56.4	65.3	47.9	58.4	62.8	60.7	57.4	57.1	61.8	52.8	46.6	36.5	55.4	60.1	40.6	50.1
2001	57.7	65.3	52.0	61.9	63.0	62.1	:	56.7	61.1	52.8	47.7	37.5	59.3	64.1	43.1	51.6
2002	58.9	65.9	55.1	61.0	63.2	63.0	57.6	56.4	60.2	54.7	50.9	39.2	62.1	66.0	43.2	54.0

	MT	NL	AT	PL	PT	SI	SK	FI	SE	UK	IS	NO	BG	HR	RO	TR
2000	37.1	62.7	50.9	61.6	51.6	59.3	:	67.5	64.5	53.0	60.8	62.5	42.5	:	37.3	:
2001	37.1	63.1	51.3	63.4	51.6	59.7	46.0	68.3	64.7	53.5	60.2	61.2	44.2	:	41.9	:
2002	37.8	62.4	50.6	65.3	51.5	61.7	47.2	68.3	65.2	57.2	62.2	60.7	43.7	:	44.3	:

Source: DG EAC. Data source: Eurostat (UOE, 2001, 2002 and 2003)

**Additional notes:**

BE: Data excludes independent private institutions.

CY: Most tertiary students study abroad and are not included, therefore all participation rates by age are underestimated.

DE: Data excludes ISCED level 6.

LU: Most tertiary students study abroad and are not included. Also many pupils at ISCED levels 1, 2 and 3 study abroad and are not included in enrolment but in population data, therefore all participation rates by age are underestimated. In ISCED 5, data by age is missing.

RO, SI: Data excludes ISCED level 6

UK: Population data for year 2002 refers to 2001

The participation rate in the EU increased by 2.5 percentage points between 2000 and 2002, to reach almost 59% in 2002 (Figure 6.3). Participation rates of over 65% were achieved in Belgium, Lithuania, Poland, Finland and Sweden.

A small decrease in participation rates between 2000 and 2002 (less than 1 percentage point) was observed in four countries (Spain, the Netherlands, Austria and Portugal), while France

<sup>118</sup> See Chapter II: Developing Skills for the Knowledge Society



and Norway recorded more significant decreases (1.6 and 1.8 percentage points respectively). In the majority of countries, women participated more in post-compulsory education than men.

### 6.2.3 Socio-demographic background of students in tertiary education

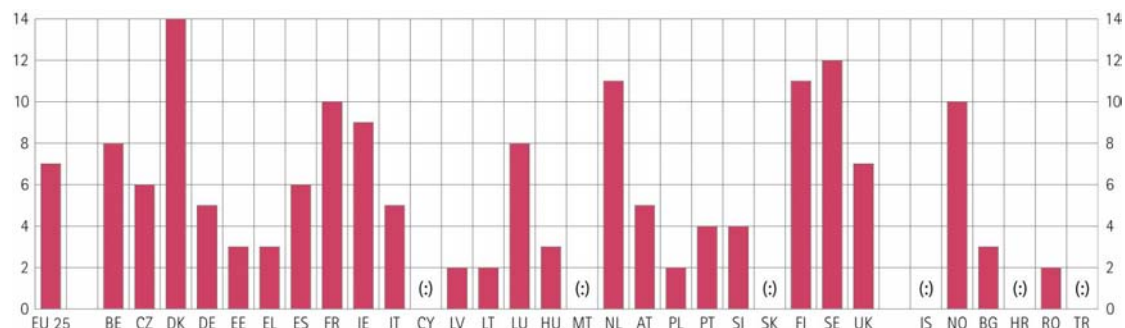
As education level increases, participation rates decline and, more significantly, the participation gap between socio-demographic groups increases. In order to see if education could not be made more attractive for a wider range of the population, it might be more useful to look at the socio-demographic background of students in tertiary education than of those in compulsory education.

Unfortunately, only very limited data is currently available on an international level. An analysis carried out for Austria, Ireland, the UK and Norway, using information on parental occupation, showed a general decline in inequality between 1998 and 2002. There was a slight increase in inequality in Austria in 1999, followed by an improvement, and a slight improvement in Ireland since the early 1990s. The tuition fees introduced in Austria and Ireland (then abolished in Ireland in the late 1990s) seemed to have little impact on this trend. In Norway inequality declined steadily between 1999 and 2002. In the UK there was a decline in the period 2002-2003.

### 6.2.4 Vocational training courses organized by enterprises

Participation in education is also of paramount importance at later stages in life. One way of acquiring relevant knowledge and skills is through vocational training courses organised by enterprises. Therefore, hours spent in continuing training courses as a proportion of total working hours is an important indicator for assessing the overall effort devoted to continuing vocational training in enterprises.<sup>119</sup>

**Figure 6.4: Hours in CVT courses per 1000 working hours (all enterprises), all NACE, 1999**



EU 25	BE	CZ	DK	DE	EE	EL	ES	FR	IE	IT	CY	LV	LT	LU	HU
7	8	6	14	5	3	3	6	10	9	5	:	2	2	8	3
MT	NL	AT	PL	PT	SI	SK	FI	SE	UK	IS	NO	BG	HR	RO	TR
:	11	5	2	4	4	:	11	12	7	:	10	3	:	2	:

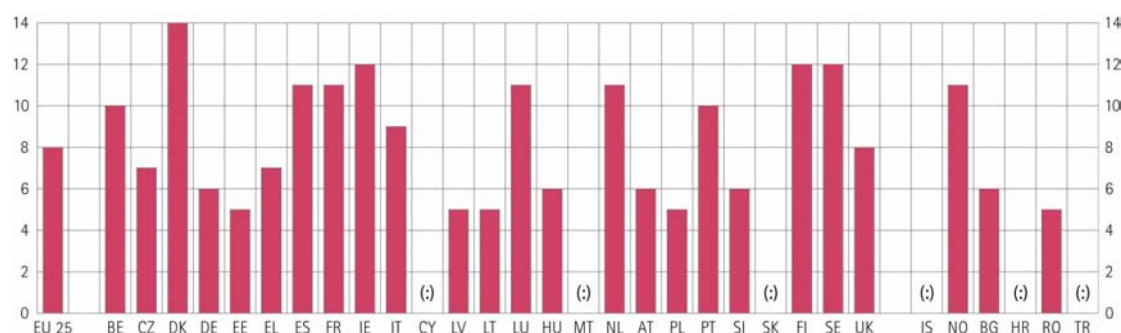
Source: DG EAC. Data source: Eurostat CVTS, 1999.

There are wide variations in the number of hours spent in continuing training courses in different countries. In the Scandinavian countries, in the Netherlands and in France, ten or more hours per 1000 working hours are spent on continuing training courses (the training countries). At the other end of the scale, enterprises in Germany, Greece, Italy, Austria, Portugal and the new Member States (except the Czech Republic) devote five or fewer hours per 1000 working hours to continuing training.

<sup>119</sup> See Eurostat, "Statistics in focus," Theme 3, 2003.

This conclusion must be somewhat qualified when only those enterprises providing training courses are considered (see Figure 6.5). Then countries like Portugal, Spain and Italy perform at more or less at the same level as the leading countries, indicating that when enterprises are actually providing CVT courses, participation rates are acceptable. However, the recent Maastricht study concluded that CVT is at present the weakest link in the lifelong learning chain, since the number of companies in the EU providing continuing training remains low.<sup>120</sup>

**Figure 6.5: Hours in CVT courses per 1000 working hours  
(only enterprises with CVT courses), all NACE, 1999**



EU 25		BE	CZ	DK	DE	EE	EL	ES	FR	IE	IT	CY	LV	LT	LU	HU
8		10	7	14	6	5	7	11	11	12	9	:	5	5	11	6
MT	NL	AT	PL	PT	SI	SK	FI	SE	UK		IS	NO	BG	HR	RO	TR
:	11	6	5	10	6	:	12	12	8		:	11	6	:	5	:

Source: DG EAC. Data source: Eurostat CVTS, 1999.

Additional note

Poland: Pomorskie region only.

### 6.3 Conclusion

Achieving the benchmark of a ratio of early school leavers of 10% by 2010 will require substantial political action and sustained commitment. At European level initiatives like the “second-chance school project” have already served as inspiration for policy development. Lessons can certainly also be learned from the practice of leading countries in this area, such as the new Member States, Denmark and Austria, which have already reached the 2010 benchmark adopted by the Council.

Providing encouragement and momentum for a culture of lifelong learning requires greater recognition of non-formal and informal learning activities and the active participation of private enterprise. Private enterprises are among the main beneficiaries of a skilled work force and are also best placed to reach large numbers of the population after the end of formal education. As stated in the Kok report on the Lisbon strategy, incentives are needed to boost investment in training within individual companies and across sectors, in order to support employers in providing suitable access to learning.<sup>121</sup>

<sup>120</sup> Cedefop, Synthesis of the Maastricht Study, (2004), p. 6.

<sup>121</sup> *Facing the Challenge: The Lisbon strategy for growth and employment*. November 2004

## VII

## IMPROVING FOREIGN LANGUAGE LEARNING

**Main messages**

- An average of 1.3 and 1.6 foreign languages are currently taught per pupil in Member States in general lower- and upper-secondary education respectively. The figures changed little from 1999/2000 to 2001/02.
- The average number of foreign languages taught per pupil will have to increase by at least 25% to raise the European average to the objective of two foreign languages taught per pupil.
- English dominates among the foreign languages taught. 46% of pupils in primary education and 91% in general secondary education in the EU are taught English as a foreign language. It is the most-favoured foreign language even when not a compulsory subject.
- Current indicators address languages taught. However, the European Commission is in the process of developing a language competence indicator, which will inform on pupils' actual proficiency in this field.

**7.1 Introduction**

“Language skills are unevenly spread across countries and social groups. The range of foreign languages spoken by Europeans is narrow, being limited mainly to English, French, German, and Spanish. Learning one lingua franca alone is not enough. Every European citizen should have meaningful communicative competence in at least two other languages in addition to his or her mother tongue.”<sup>122</sup>

The Community has promoted the learning of foreign languages since the very beginning of Community co-operation in education at the beginning of the 1970s, but systematic support for language-learning in Europe has strengthened over time.<sup>123</sup> The modern information society is premised on the faculty of efficient communication, and in such a diverse linguistic and cultural landscape as Europe, this presupposes a commitment on the part of European citizens to acquire each other's languages. Early foreign-language acquisition is, moreover, the forerunner to the better cultural understanding and increased mobility of the labour market that the knowledge economy requires.

The Barcelona European Council in 2002 took an express interest in the issue of language learning when it called for “the mastery of basic skills, in particular by teaching at least two foreign languages from a very early age.”<sup>124</sup> In consequence, knowledge of foreign languages is now recognised as one of the key competencies that should be intensively cultivated within the lifelong learning framework.<sup>125</sup>

<sup>122</sup> Commission Communication, “Promoting Language Learning and Linguistic Diversity: An Action Plan 2004–2006.”

<sup>123</sup> Council Resolution, 31 March 1995.

<sup>124</sup> Presidency Conclusions, Barcelona, paragraph 44.

<sup>125</sup> See Chapter II: Developing skills for the knowledge society” for discussion of the term “key competency.” See also “Education and Training 2010.”

Ministers of Education have also underscored the crucial role of languages within the education and training objectives. Objective 3.3 of the Detailed Work Programme deals specifically with the improvement of foreign-language learning, and an expert Working Group on languages was formed to examine in detail the two key issues identified: firstly, encouraging everyone to learn at least two languages in addition to their mother tongue, and increasing awareness of the importance of foreign language learning at all ages; and secondly, encouraging schools and training institutions in the use of more efficient teaching and training methods and motivating the continuation of language learning at a later stage of life.<sup>126</sup>

The Working Group on languages underlined that “improving language learning in the EU is a key factor in the Lisbon strategy as an essential building block of almost all aspects involved, from economic efficiency to mobility, from the creation of more and better jobs to social inclusion and cohesion.”<sup>127</sup> Moreover, in their report of 2003 the Working Group made a number of policy recommendations on issues ranging from early language learning to the training and mobility of language teachers.

### Indicators for monitoring Performance and Progress

In this area two indicators are currently used to monitor progress:

- *Pupils in lower/upper-secondary education learning foreign languages*
- *Average number of foreign languages learned per pupil in upper-secondary education*

### Quality of indicators

The indicators that have been chosen to monitor progress within this objective area are useful in addressing an important aspect of the first key issue cited above, namely “encouraging everyone to learn two or, where appropriate, more, languages in addition to their mother tongue” – with the caveat that they are related to language *teaching* rather than to language *learning* or language *competence*. The ultimate policy objective is that Europeans should have meaningful communicative competence in two Community languages other than their mother tongue. However, in the current absence of reliable data on the language skills of young people, the best possible indicator to measure progress in this field is directly linked to the first step in the language acquisition process, namely the aspect of the teaching of foreign languages.

Nevertheless, since the presence of a language on the curriculum cannot be taken to mean that pupils have achieved communicative competence in it by the time they leave school, the data needs to be complemented by the development of an indicator on actual language proficiency, as requested by the Barcelona European Council of 2002.<sup>128</sup> The terms of the indicator have already been agreed and it is now necessary to ensure the development of the necessary tools to gather data. This will involve the creation and implementation of a series of tests, covering ultimately all four skills (reading, writing, listening and speaking) in two or more languages other than the mother tongue or principal language of instruction, according to different levels of proficiency. Such an indicator could provide invaluable information to educationalists and decision-makers.<sup>129</sup>

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<sup>126</sup> Detailed Work Programme, pp.14-15

<sup>127</sup> Working Group Progress Report, “Improving foreign-language learning,” Nov 2003.

<sup>128</sup> Presidency Conclusions, Barcelona, 2002. The Council called for the establishment of the indicator by 2003.

<sup>129</sup> According to the Commission’s Working Group on languages, no existing system of testing (such as ALTE, DIALANG and PISA) could be used for this purpose without profound modification;

The pupils' language skills would be measured on the scale of the Council of Europe's Common European Framework of Reference for Languages, which is already widely accepted and used by several Member States for determining their own benchmarks in this area.<sup>130</sup>

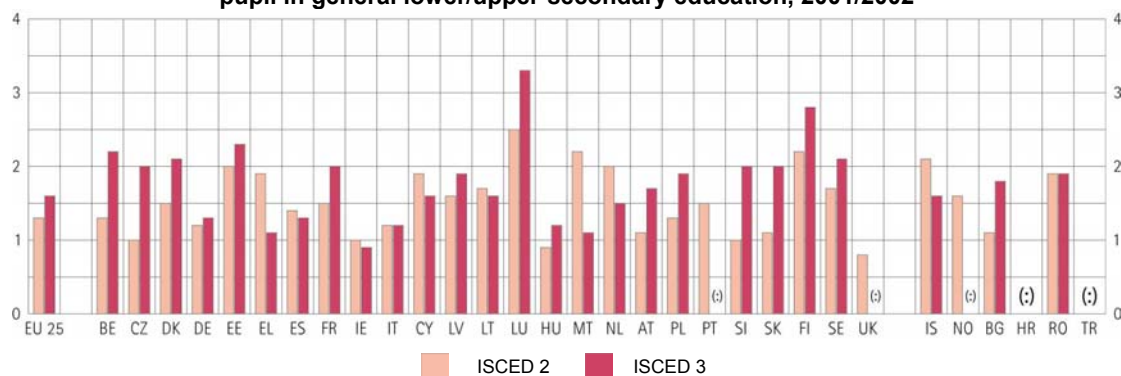
The indicators currently applied do not cover the second key issue, cited above, of encouraging schools and training institutions in the use of efficient teaching and training methods, and motivating continuation of language learning at a later stage.

## 7.2 Performance and Progress on improving foreign language skills

### 7.2.1 Average number of foreign languages learned by pupils

The indicator *average number of languages learned per pupil*, records the average number of foreign languages studied per pupil in general secondary education, and is therefore of direct relevance to the most central objective of the Union, namely that all school pupils should be in command of "at least two other languages in addition to the mother tongue." However, as discussed above, the data presented here relates only to "languages taught," and does not directly inform us about foreign-language proficiency.

**Figure 7.1: Average number of foreign languages learned per pupil in general lower/upper-secondary education, 2001/2002**



	EU25			BE	CZ	DK	DE	EE	EL	ES	FR	IE	IT	CY	LV	LT	LU	HU
	ISCED 2	ISCED 3		1.3	1.0	1.5	1.2	2.0	1.9	1.4	1.5	1.0	1.2	1.9	1.6	1.7	2.5	0.9
	ISCED 2	ISCED 3		2.2	2.0	2.1	1.3	2.3	1.1	1.3	2.0	0.9	1.2	1.6	1.9	1.6	3.3	1.2
	MT	NL		AT	PL	PT	SI	SK	FI	SE	UK		IS	NO	BG	HR	RO	TR
	ISCED 2	ISCED 3		2.2	2.0	1.1	1.3	1.5	1.0	1.1	2.2		2.1	1.6	1.1	:	1.9	:
	ISCED 2	ISCED 3		1.1	1.5	1.7	1.9	:	2.0	2.0	2.8		1.6	:	1.8	:	1.9	:

Source: DG EAC. Data source: Eurostat (UOE).

**Additional notes:**

AT, LT, BG, HU, RO: Mentally-handicapped students included in the total number of students in ISCED 2.

CZ, SK: Data refers to full-time pupils only.

BE: Data for German community missing. Students in special education excluded.

EE, FI: The national language, when taught in schools where it is not the teaching language, is counted as a foreign language.

FI; ISCED 3 includes adult education.

FR: Agricultural schools excluded. Technical education at ISCED 3 included.

IE, LU: Irish/Luxembourgish compulsory at primary and secondary level but not included as foreign language.

PL: Data refers to full-time pupils only. Pupils in special education included.

SE: ISCED 3 includes only graduate pupils. Data excludes adult education.

UK: Data available only for England, ISCED 2.

however, the expertise of these and other organisations, at international and national level, will be drawn on.

<sup>130</sup> A module on self-reported language skills using the Council of Europe scale is already included in the proposed EU Adult Education Survey.

The average number of languages studied in secondary education in 2001/02 (Figure 7.1) remained very similar to the figure recorded in 1999/2000<sup>131</sup>. In most EU countries, more foreign languages are learned in general upper-secondary education than in lower-secondary. The figures for 2002 are estimated at 1.3 foreign languages per pupil in general lower-secondary education and 1.6 in upper-secondary.

However, there appear to be disparate models of foreign-language teaching in Europe. While in the majority of countries fewer languages are studied in lower- than in upper-secondary, the opposite appears to be the case in Greece, Spain, Ireland, Cyprus, Lithuania, Malta, the Netherlands and Iceland. The distribution of foreign languages in lower-secondary education ranges from approximately one foreign language per pupil in the Czech Republic, Germany, Ireland, Italy, Hungary, Austria, Slovenia, Slovakia, the UK and Bulgaria, to two or more in Estonia, Luxembourg, Malta, the Netherlands, Finland, and Iceland.

Two or more languages are taught at upper-secondary level in ten countries: Belgium, the Czech Republic, Denmark, Estonia, France, Luxembourg, Slovenia, Slovakia, Finland, and Sweden.<sup>132</sup>

In almost all European countries the compulsory learning of a foreign language begins at primary level, and in some countries (Estonia, Luxembourg, Sweden and Iceland) a second foreign language is introduced before the end of primary education. In general, the trend is for the compulsory teaching of at least one foreign language to begin earlier and to last longer.<sup>133</sup> This accords with the recommendation of the Barcelona European Council regarding the teaching of foreign languages from a very early age.

In most European countries the teaching of a minimum of two foreign languages for at least one year during full time compulsory education is either compulsory or offered as an option. The general policy trend is for this provision to become compulsory for a longer period of time. Of the six countries in which pupils learn two or more foreign languages at lower-secondary level, it is a compulsory provision in four: Luxembourg, the Netherlands, Finland and Iceland.

### **7.2.2 Foreign languages learned per pupil in secondary education**

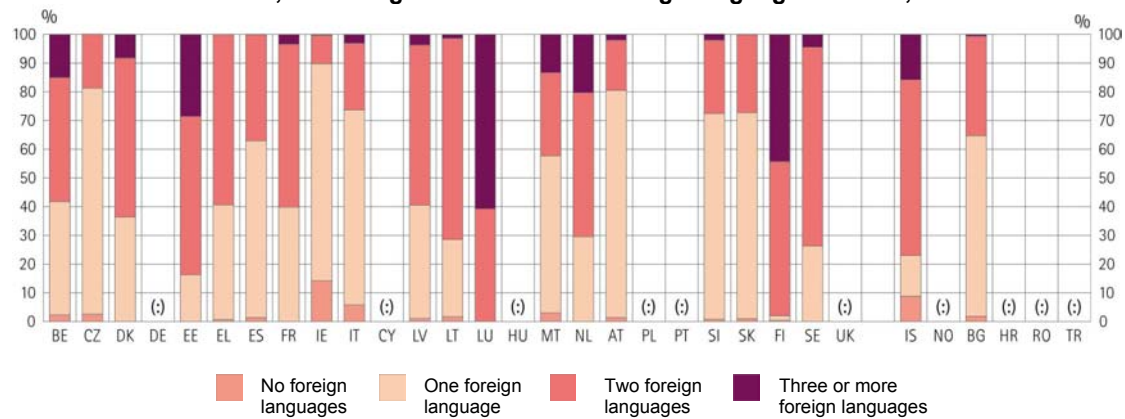
There are significant variations between European countries in the number of foreign languages taught to secondary-school pupils (Figure 7.2). In the Czech Republic, Spain, Ireland, Italy, Malta, Austria, Slovenia and Slovakia, fewer than 50% of upper-secondary students are taught more than one foreign language. In the rest of the European countries for which data is available, the majority are taught two or more foreign languages. Overall, the data indicates that much remains to be done to achieve the goal set by the Barcelona European Council, namely that Europeans should learn at least two foreign languages.

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<sup>131</sup> The only significant changes are in upper-secondary education: Luxembourg up 0.3, Cyprus down 0.4 and Lithuania down 0.3.

<sup>132</sup> In Belgium, national languages (French, Dutch and German) are considered foreign languages in the regions where they are not spoken as the mother tongue. In Finland the national language Swedish is considered a foreign language. The same is the case in Luxembourg for German and French.

<sup>133</sup> See Eurydice, *Key Data on Teaching Languages at School in Europe*, p.27.

**Figure 7.2: Distribution of pupils in general and pre-vocational lower- and upper-secondary education, according to the number of foreign languages learned, 2002**

	EU25		BE	CZ	DK	DE	EE	EL	ES	FR	IE	IT	CY	LV	LT	LU	HU
	:		2.3	2.6	0.0	:	0.0	0.7	1.4	0.0	14.2	5.8	:	1.1	1.7	0.0	:
	:		39.4	78.6	36.4	:	16.3	39.9	61.5	39.8	75.5	67.9	:	39.4	26.9	0.0	:
	:		43.2	18.9	55.3	:	55.1	59.4	37.0	56.7	9.9	23.1	:	55.7	69.9	39.3	:
	:		15.1	0.0	8.3	:	28.6	0.0	0.0	3.4	0.3	3.1	:	3.8	1.5	60.7	:
	MT	NL	AT	PL	PT	SI	SK	FI	SE	UK		IS	NO	BG	HR	RO	TR
	3.0	0.0	1.4	:	:	0.8	1.0	0.4	0.0	:		8.8	:	1.8	:	:	:
	54.7	29.5	79.1	:	:	71.6	71.7	1.6	26.3	:		14.2	:	62.9	:	:	:
	28.9	50.1	17.4	:	:	25.5	27.2	53.6	69.2	:		61.2	:	34.6	:	:	:
	13.4	20.4	2.1	:	:	2.2	0.1	44.4	4.5	:		15.8	:	0.7	:	:	:

Source: DG EAC. Data source: Eurostat (UOE)

**Additional notes:**

AT, LT, BG: Mentally-handicapped students included in the total number of students in ISCED 2.

CZ, SK: Data refers to full-time pupils only.

BE: Data for German community missing. Students in special education excluded.

EE, FI: The national language, when taught in schools where it is not the teaching language, is counted as a foreign language.

FI: ISCED 2 includes adult education.

FR: Agricultural schools excluded. Technical education at ISCED 3 included.

IE, LU: Irish/Luxembourgish compulsory at primary and secondary level but not included as foreign language.

SE: ISCED 3 includes only graduate pupils. Data excludes adult education.

English dominates overwhelmingly in the catalogue of foreign languages taught. On average, 46% of pupils in primary education and 91% in general secondary education in the EU are taught English. This compares to an average of 3% taught French and 7% taught German at primary level, and 26% each taught French and German in general secondary education. Regarding French and German, there are divergent patterns in EU and new Member States. Whereas French is more widely taught among the old EU countries and especially in the countries of southern Europe, including Malta and Cyprus, German is more popular in the Nordic and the central European countries. English, French, German, Spanish and Russian together represent 95% of all foreign languages taught in most countries.<sup>134</sup>

As the Commission Communication “Promoting Language Learning and Linguistic Diversity” pointed out, it is in the interests of the Union to ensure that a much wider range of languages is taught and learned in Europe; this range should include the languages of trading partners and of regional and minority communities, as well as all the official languages of the European Union.<sup>135</sup> In this way the diversity of the linguistic landscape in the Union can be preserved. However, English remains a popular subject in schools across Europe, even when not compulsory and when a wider range of languages is offered.<sup>136</sup>

<sup>134</sup> Eurydice, *Key Data on Teaching Languages at School in Europe*, pp.11, 53.

<sup>135</sup> See Communication, op.cit.

<sup>136</sup> Eurydice, *Key Data on Teaching Languages at School in Europe*.

### **7.3 Conclusion**

The latest figures (2001-02) show that an average of 1.3 and 1.6 foreign languages are taught per pupil in the Member States in general lower- and upper-secondary education respectively. This clearly falls short of the goal that all school pupils should be in command of at least two other languages in addition to their mother tongue. This signals a considerable challenge ahead. Given the ultimate objective of ensuring that Europeans achieve meaningful communicative competence in two foreign languages, the first step must be to raise and diversify the profile of foreign languages on the school curriculum, so that pupils have greater access to a greater range of languages, and at an earlier age. The average number of foreign languages taught per pupil will have to increase by at least 25% to raise the European standard to two foreign languages taught per pupil.

The popularity of English is another reason to consider introducing a requirement to learn at least two foreign languages in schools. Since pupils voluntarily choose English, even when other languages are on offer, it may be the only way to prevent English from monopolising the language palette in Europe.

The available indicators on foreign-language teaching in Europe are limited to language teaching in schools. They give an incomplete picture of the state of language teaching and say little about the communicative competence of pupils, students and Europeans in general. However, the linguistic competence indicator currently under development represents a major methodological advance and will contribute greatly to the validity and reliability of data in this area. It may also facilitate a more productive comparison of language education methods, with a view to identifying and promoting effective pedagogical practices in the field of foreign-language teaching.



## VIII MOBILITY AND COOPERATION

### Main messages

- Mobility within the Erasmus programme continues to increase – by 9.4% between the academic years ending 2003 and 2004. This is the largest increase since 1999/00. More than 1.2 million students have now taken part in the Erasmus scheme since its inception in 1987/88. However, Erasmus mobility varies widely between countries, with some receiving far more students than they send abroad.
- The participation of teachers in the Erasmus programme is also increasing – in 2003/04 nearly 18,500 EU25 teachers benefited from the scheme, a 9.3% increase on the previous period. The mobility of teachers in general forms an integral part of the Commission strategy to improve the education of teachers and trainers.
- The EU is a net receiver of foreign students, with more than 60% of its foreign students originating outside the EU.
- The Erasmus Mundus programme and a number of initiatives within the Bologna process and the Copenhagen process demonstrate the efforts being made actively to promote mobility and to overcome the administrative and legal obstacles that make it difficult.

### 8.1 Introduction

Globalisation and the challenges of the modern knowledge-based economy have made it imperative for Europe to mobilise its assets, in all senses of the phrase. The strategy devised by the Lisbon Council in 2000 to increase Europe's competitiveness was underpinned by the principle of dismantling internal barriers and encouraging the movement of people, as a means of stimulating the labour market and increasing the professional and personal competence of the labour force.

However, not only legal and administrative impediments, but also cultural differences, linguistic plurality and the diversity of labour markets make it difficult or unappealing for people to move freely within the Union. One way of tackling the inertia caused by these factors is through the internationalisation of European education systems, since those who have spent time abroad in educational institutions are more likely to exploit the benefits of an increasingly international labour market.

The Conclusions of the Lisbon Council, mindful of the potential of mobility as an economic and a social good, specifically requested that measures be taken to foster the mobility of students, teachers, trainers and research staff.<sup>137</sup> The Lisbon Council also asked the Commission and Member States to take steps to remove obstacles to the mobility of

<sup>137</sup> Presidency Conclusions, Lisbon, 2000, paragraph 26.

researchers in Europe by 2002, and to attract and retain high-quality research talent in Europe.<sup>138</sup>

A joint recommendation by the Parliament and the Council in 2001 acknowledged the positive contribution of mobility to society as a whole and called for increased political cooperation to eliminate obstacles to movement.<sup>139</sup> In relation to researchers, this was addressed in the Communication on a Mobility Strategy for the European Research Area,<sup>140</sup> endorsed by the Council.<sup>141</sup> This was followed up with substantial action, both at Community and national level, and has led to a series of positive results.<sup>142</sup> In relation to the mobility of students, teachers and trainers, the Detailed Work Programme on the follow-up of the Objectives of Education and Training Systems in Europe integrated the concept of mobility into a coherent framework, by designating “increased mobility and exchange” and “European co-operation” as two of thirteen strategic objectives of European education policy.<sup>143</sup> A Working Group formed to oversee the implementation of this element of the Detailed Work Programme has since focused on three priority themes, namely access to mobility, quality of mobility and opening up Europe to the rest of the world.<sup>144</sup>

The Community puts its policies on education into practice through the various channels of its mobility programmes, especially through the Erasmus scheme, which has supported over 1million students to date, and the Leonardo da Vinci scheme for vocational training. Mobility has also been an important feature in recent major policy initiatives like the Bologna process, an intergovernmental process in which the Commission participates, which is intended to create a European Higher Education Area (an objective set for 2010) and to have a demonstrable positive impact on the mobility of higher education students in Europe.<sup>145</sup> In addition, the process set in motion by the Copenhagen declaration<sup>146</sup> includes a number of initiatives that should contribute to increasing and improving mobility, namely the Europass framework for the transparency of qualifications and competences<sup>147</sup> and the development of a credit transfer system for vocational education and training.

However, the need to increase the level of mobility for learning purposes should not detract from the *quality* of mobility. The Erasmus University Charter and the Erasmus Student Charter were introduced in 2003 to enhance the standard of organisational arrangements for the mobility of students, while the quality of mobility projects has recently been introduced as a priority under the Leonardo da Vinci programme. The Working Group on Mobility produced a draft charter on the quality of mobility in summer 2004.

While the Joint Interim Report of the Council and the Commission on the implementation of the Detailed Work Programme allows that progress has been made in the area of European cooperation in education and training, it also makes plain that not enough has been done to

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<sup>138</sup> Ibid, paragraph 13.

<sup>139</sup> “The transnational mobility of people contributes to enriching different national cultures and enables those concerned to enhance their own cultural and professional knowledge and European society as a whole to benefit from those effects.” Recommendation, 10 July 2001.

<sup>140</sup> COM(2001)331 final of 20.06.2001

<sup>141</sup> Council Resolution OJ 2001/C367/01

<sup>142</sup> See in particular the Second Implementation Report on “A Mobility Strategy for the European Research Area”, SEC(2004)412 of 1.4.2004

<sup>143</sup> Detailed Work Programme, p.16.

<sup>144</sup> Working Group Progress Report, “Mobility and European Cooperation,” Nov 2003.

<sup>145</sup> Communiqué, “Realising the European Higher Education Area,” 19 September 2003.

<sup>146</sup> Adopted by the Ministers of 31 European countries, the European social partners and the Commission in November 2002.

<sup>147</sup> Cf. COM(2003)796 of 17 December 2003; Decision n°2241/2004/EC of the European Parliament and of the Council on a single Community framework for the transparency of qualifications and competences (Europass).

facilitate and actively promote the mobility of students and teaching staff.<sup>148</sup> In a broader context, the Kok Report<sup>149</sup> on progress towards the Lisbon goals also came to the conclusion that disincentives to mobility persist in Europe, among them administrative and legal impediments, the under-funding of universities and the problem of recognition of qualifications.

Although the Kok Report focuses on the mobility of researchers and scientists, it is a cause for concern that the EU may attract and retain fewer talented minds because of such disincentives. Mindful of these concerns, EU Ministers of Education had already set the objective of transforming the EU into “the most-favoured destination of students, scholars and researchers from other world regions.”<sup>150</sup> To this end they have adopted a programme – ERASMUS Mundus – for the improvement of the quality of higher education and the promotion of intercultural understanding through co-operation with third countries.<sup>151</sup>

In short, although many processes are in motion, the mobility of students, trainees and teaching staff has yet to fulfil its great potential to increase European scientific and technological innovation, economic competitiveness and European cohesion.

### Indicators for Monitoring Performance and Progress

Four indicators have been selected in the objective area of mobility to monitor progress:

- *Foreign students enrolled in tertiary education (ISCED 5 and 6) as a percentage of all students enrolled in the country of destination, by nationality (European country or other countries)*
- *Percentage of students (ISCED 5-6) of the country of origin enrolled abroad (in a European country or other countries)*
- *Inward and outward mobility of Erasmus students and Leonardo da Vinci trainees*
- *Inward and outward mobility of teachers and trainers within the Socrates (Erasmus, Comenius, Lingua and Grundtvig) and Leonardo da Vinci programmes*

### Quality and availability of data and indicators

The chosen indicators are related to the recommendations in the Detailed Work Programme on monitoring volume, destinations and participation rates across Europe. They are restricted to geographical mobility because of the difficulty of finding suitable data to construct indicators in ‘non-quantifiable’ areas such as the quality of mobility. Nevertheless, the indicators above yield useful information on, for example, the disparate student mobility levels of EU countries, the relative attractiveness of host countries within the EU, and the level of demand from both students and teachers/trainers for Erasmus places.

However, the indicators selected for monitoring progress in the field of mobility suffer from a number of important deficiencies. The first two indicators focus on tertiary students with foreign citizenship using the UOE data collection (data collection on education statistics administered jointly by UNESCO, OECD and Eurostat).<sup>152</sup> This is, however, not the same thing as mobile students. Firstly, many tertiary students with foreign citizenship are not really mobile students, since they may have lived all their life in the country where they are

<sup>148</sup> “Education & Training 2010,” p.29.

<sup>149</sup> *Facing the Challenge: The Lisbon Strategy for growth and employment*, November 2004.

<sup>150</sup> Detailed Work Programme.

<sup>151</sup> Decision of the Parliament and the Council, OJ L 345 of 31 December 2003.

<sup>152</sup> For a comprehensive overview of the present state of mobility statistics see “Statistics on Student Mobility within the European Union.” Final report to the European Parliament prepared by Kassel University, October 2002.

studying.<sup>153</sup> Consequently, a country with a liberal naturalization policy may have a lower percentage of 'foreigners' enrolled in its institutions. Secondly, a growing number of families live outside the country of which they are citizens; therefore students with home citizenship can now also be categorised as 'incoming' and thus mobile students.<sup>154</sup>

The latter two indicators focus on mobility undertaken through the European mobility programmes, and this data obviously does not contain the full scope of mobility.

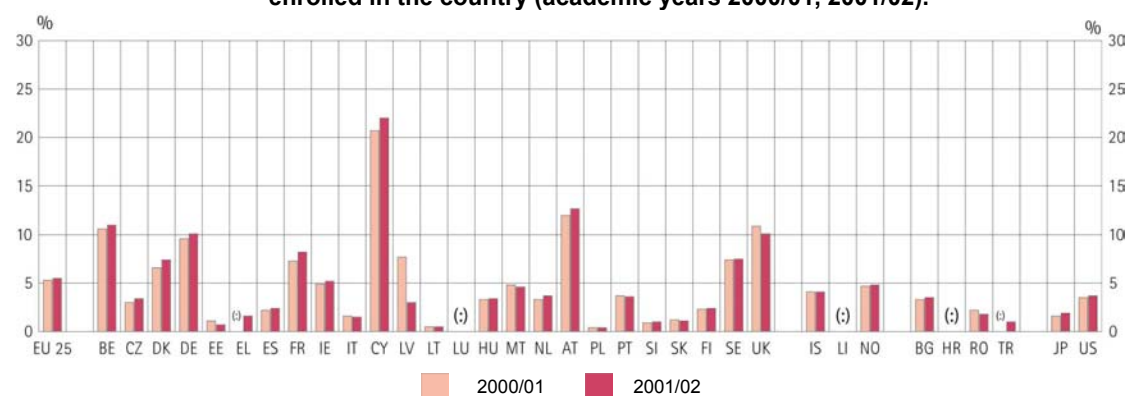
In response to these deficiencies the Commission has established short-, medium- and long-term strategies to improve data accuracy and completeness. In the short term, a study will provide more comprehensive information on mobility in 32 European countries. A proposal has also been developed for the revision of the UOE data collection in 2005, making it possible to identify "physical mobility" (*i.e.* non-resident students) more accurately, and to combine it in some cases with "cultural mobility" (*i.e.* non-citizens). First results from this exercise are expected in March 2006. Finally, a large-scale survey on student mobility may be undertaken post-2007.<sup>155</sup>

## 8.2 Performance and Progress in the field of mobility

### 8.2.1 Foreign students in tertiary education

There were approximately 894,000 foreign students enrolled in tertiary education in the EU25 in the academic year 2001/02. This compares to 836,000 in 2000/01, *i.e.* an increase of almost 7%. The percentage of foreign students as a proportion of all students enrolled in tertiary education increased from 5.3% in the academic year 2000/01 to 5.5% in 2001/02 (see figure 8.1).<sup>156</sup> All EU countries, with the exception of Malta, Estonia, Italy, Latvia, Portugal, Slovakia, and the UK, experienced an increase in the percentage of foreign-student enrolment in 2001/02 compared to 2000/01. Compared to the US (3.7%) and Japan (1.9%), the EU has a higher percentage of foreign-student enrolment.

**Figure 8.1: Foreign tertiary students as % of all tertiary students (ISCED 5 and 6) enrolled in the country (academic years 2000/01, 2001/02).**



	EU25	BE	CZ	DK	DE	EE	EL	ES	FR	IE	IT	CY	LV	LT	LU	HU	MT
2000/01	5.3	10.6	3.0	6.6	9.6	1.1	-	2.2	7.3	4.9	1.6	20.7	7.7	0.5	-	3.3	4.8
2001/02	5.5	11.0	3.4	7.4	10.1	0.7	1.6	2.4	8.2	5.2	1.5	22.0	3.0	0.5	-	3.4	4.6

<sup>153</sup> In the study mentioned above it has been estimated that non-mobile students with foreign citizenship make up between 18.3% and over 50% of all students with foreign citizenship.

<sup>154</sup> The proportion of students with home citizenship among mobile students ranges from over 5% to almost 17%.

<sup>155</sup> Cf. Commission Staff Working Paper, "New Indicators on Education and Training," 2004.

<sup>156</sup> Please see section on the quality and availability of data where the issue of mobility and foreign citizenship is discussed.

	NL	AT	PL	PT	SI	SK	FI	SE	UK	IS	LI	NO	BG	HR	RO	TR	JP	US
2000/01	3.3	12.0	0.4	3.7	0.9	1.2	2.3	7.4	10.9	4.1	:	4.7	3.3	:	2.2	:	1.6	3.5
2001/02	3.7	12.7	0.4	3.6	1.0	1.1	2.4	7.5	10.1	4.1	:	4.8	3.5	:	1.8	1.0	1.9	3.7

Source: DG EAC. Data source: Eurostat, OECD (UOE).

Additional notes :

DE, RO, SI: Students in advanced research programmes (ISCED level 6) in these countries are excluded.

PT: Data on foreign students refers to 2000/01

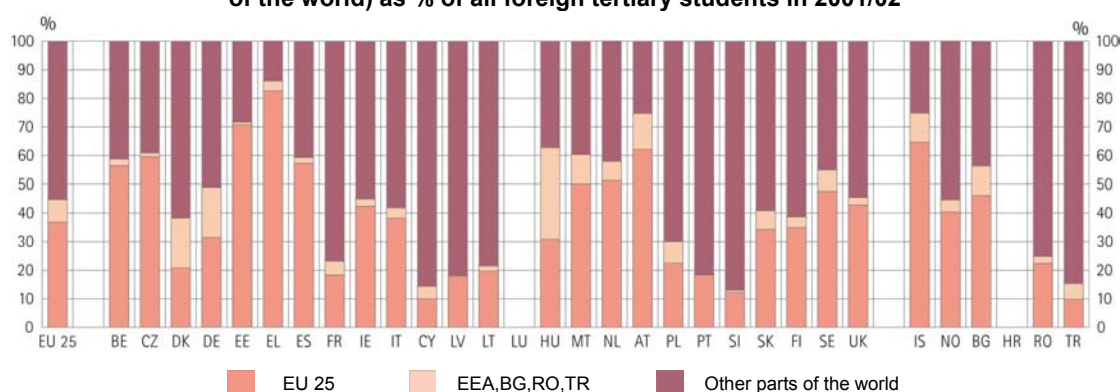
However, the EU average of 5.5% obscures sizeable variations between countries in the percentage of foreign students enrolled in their tertiary education institutions. Austria, Belgium, Germany, Cyprus and the UK have the highest proportions, with foreign-student bodies of more than 10%, while in Estonia, Lithuania and Poland, the figures stand at less than 1%.

In 2002, 1.9 million students were enrolled outside their country of origin worldwide, of which 1.78 million (or 94%) were studying in the OECD area. The United States received most foreign students (in absolute terms) with 30% of total foreign students. However, the UK (12%), Germany (12%), France (9%), Spain (2%), Belgium (2%), Italy (2%), Austria (2%) account for a combined figure of 41%.<sup>157</sup> Australia is in fourth place with 10%. Altogether, these countries host nearly 81% of all foreign students.<sup>158</sup>

### 8.2.2 Origin of foreign students

In 2001/02, 63.2% of foreign students in the EU were from countries outside the EU (figure 8.2). This figure comprised 7.9% from EEA and candidate countries and 55.3% from other parts of the world.

Figure 8.2: Origin of foreign tertiary students (EU, EEA, BG, RO, TR, and from other parts of the world) as % of all foreign tertiary students in 2001/02



	EU25	BE	CZ	DK	DE	EE	EL	ES	FR	IE	IT	CY	LV	LT	LU	HU
EU 25	36.8	56.4	59.5	20.8	31.4	70.7	82.6	57.2	18.3	42.4	38.2	10.0	18.0	19.7	:	30.8
EEA,BG,RO,TR	7.9	2.3	1.3	17.4	17.6	0.9	3.4	2.1	4.8	2.5	3.6	4.3	0.0	1.8	:	31.9
Other parts of the world	55.3	41.2	39.2	61.8	50.9	28.4	14.1	40.7	76.8	55.1	58.2	85.7	82.0	78.5	:	37.2

	MT	NL	AT	PL	PT	SI	SK	FI	SE	UK	IS	NO	BG	HR	RO	TR
EU 25	50.0	51.3	62.1	22.5	18.4	12.2	34.3	34.9	47.6	42.8	64.6	40.4	46.1	:	22.4	9.8
EEA,BG,RO,TR	10.3	6.6	12.6	7.5	0.2	0.8	6.5	3.8	7.3	2.7	10.2	4.2	10.2	:	2.5	5.5
Other parts of the world	39.7	42.2	25.3	70.1	81.5	87.0	59.2	61.3	45.1	54.5	25.2	55.5	43.7	:	75.1	84.7

Source: DG EAC. Data source: Eurostat (UOE)

Additional notes :

DE, RO, SI: Students in advanced research programmes (ISCED level 6) in these countries are excluded.

PT: Data on foreign students refers to 2000/01.

<sup>157</sup> See footnotes 12 and 16. For instance, in Germany 54.7% of the students with foreign citizenship are non-mobile students.

<sup>158</sup> See OECD, *Education at a Glance*, 2004, p. 296.

There are several reasons for the high proportion of students from other parts of the world. Firstly, some of these students might have foreign citizenship but still not be mobile students *per se* (see section on quality of data). Another reason could be the wide variety of teaching languages in Europe, attracting students from all regions of the world. Finally, students from former colonies of European countries may be going to study in the formerly colonial countries with which they have cultural and historical ties, and whose language they may also share.

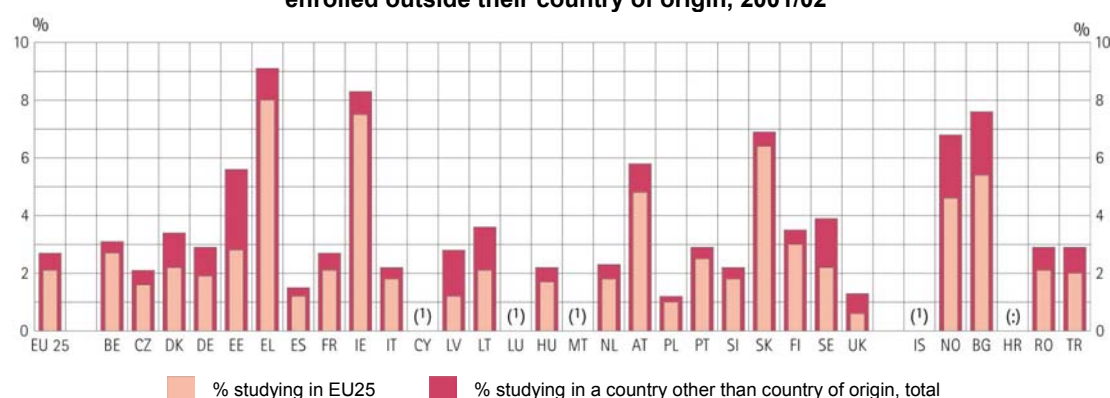
In Cyprus, France, Latvia, Lithuania, Portugal and Slovenia, more than 80% of foreign students came from outside the EU, while the corresponding figures in Austria, Estonia and Greece were less than 40%.

### 8.2.3 Tertiary students enrolled outside their country of origin

For most EU countries, most students enrolled abroad are enrolled in another EU country (Figure 8.3). The only exceptions are Latvia and the UK, where the majority of students studying abroad are studying outside EU. In 2001/02, an average of 2.7% of EU students were studying abroad; 2.1% of students were abroad but inside the EU. Countries diverge greatly in terms of the proportion of their students enrolled abroad.<sup>159</sup> In general, the larger countries have a lower proportion of students studying abroad than the smaller countries. This may be attributable to the greater number and range of universities within the larger countries. Another possible explanation is that students from smaller countries may be more likely to go abroad because they have already acquired the language of one of the larger countries. However, a major factor in the high mobility levels of students from countries such as Cyprus and Luxembourg is simply the absence or lack of capacity of native third-level institutions.

To illustrate: more than 67% of Luxembourgian students are enrolled abroad; Cyprus follows with 56.3% of its students at foreign institutions; Malta is third with 13.3%, and Greece fourth with 9.1%. At the other end of the scale come Spain, the UK and Poland, with 1.5%, 1.3% and 1.2% respectively of their students enrolled abroad.

**Figure 8.3: Percentage of tertiary students (ISCED 5-6) enrolled outside their country of origin, 2001/02**



(<sup>1</sup>) Data : see table

	EU25	BE	CZ	DK	DE	EE	EL	ES	FR	IE	IT	CY	LV	LT	LU	HU
	2.1	2.7	1.6	2.2	1.9	2.8	8.0	1.2	2.1	7.5	1.8	46.2	1.2	2.1	64.2	1.7
	2.7	3.1	2.1	3.4	2.9	5.6	9.1	1.5	2.7	8.3	2.2	56.3	2.8	3.6	67.3	2.2

<sup>159</sup> Luxembourg is a special case with more than 67.3% of its students enrolled abroad. This stems from the fact that Luxembourg has no universities at present.

	MT	NL	AT	PL	PT	SI	SK	FI	SE	UK		IS	NO	BG	HR	RO	TR
	7.1	1.8	4.8	1.0	2.5	1.8	6.4	3.0	2.2	0.6		12.5	4.6	5.4	:	2.1	2.0
	13.3	2.3	5.8	1.2	2.9	2.2	6.9	3.5	3.9	1.3		20.9	6.8	7.6	:	2.9	2.9

Source: DG EAC. Data source: Eurostat (UOE)

**Additional notes:**

DE, RO, SI: Students in advanced research programmes (ISCED level 6) in these countries are excluded.

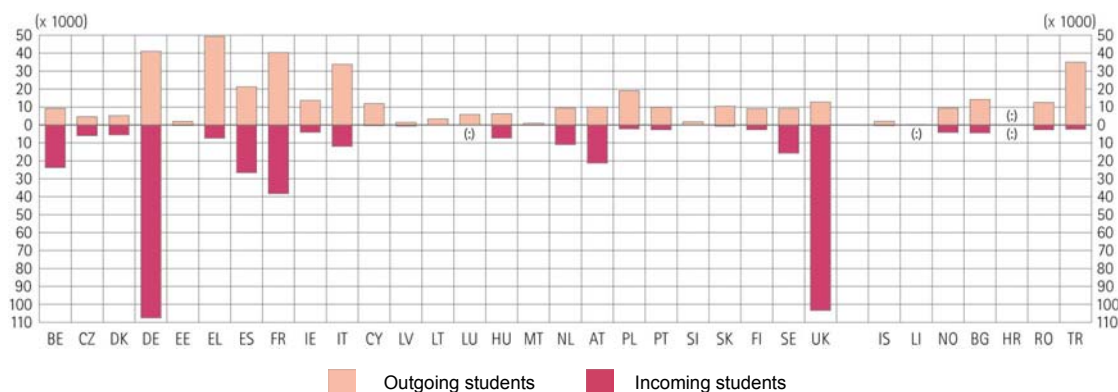
PT: Data on foreign students refers to 2000/01

An analysis of students enrolled outside their country of origin reveals that Asian and European students form the largest groups of foreign students enrolled in OECD and partner countries. In 2002, Asian students accounted for 45% of the total foreign student intake in participating OECD and partner countries, while Europeans, and specifically students from the EU, with 30% and 19% respectively, came a not too distant second.<sup>160</sup>

### 8.2.4 Flow of EU/EEA/Candidate country students

The EU25 is a net receiver of students. It admits nearly 60,000 more students than it sends. With 35,000 tertiary students studying in the EU, Turkey sends the highest number of foreign students (Figure 8.4). However, many Turks studying in the EU are already residents of the EU country in question, but have not obtained citizenship.

**Figure 8.4: Flow of EU/EEA/Candidate country tertiary students (ISCED 5-6) in EU/EEA/Candidate countries, 2001/02**



	EU25		BE	CZ	DK	DE	EE	EL	ES	FR	IE	IT	CY	LV	LT	LU	HU	MT	
	340.1		9.2	4.6	5.1	41.0	1.9	49.3	21.2	40.3	13.6	33.7	11.9	1.4	3.3	5.8	6.2	0.9	
	399.7		23.7	5.9	5.5	107.5	0.3	7.4	26.6	38.3	4.1	11.9	0.4	0.6	0.1	:	7.3	0.2	
	NL	AT	PL	PT	SI	SK	FI	SE	UK		IS	LI	NO		BG	HR	RO	TR	
	9.3	10.0	19.1	9.8	1.8	10.4	9.0	9.1	12.7		2.0	0.2	9.3		14.1	:	12.5	35.0	
	10.9	21.2	2.2	2.6	0.1	0.7	2.6	15.7	103.4		0.4	:	4.2		4.4	:	2.6	2.4	

Source: DG EAC. Data source: Eurostat (UOE)

**Additional notes:**

DE, RO, SI: Students in advanced research programmes (ISCED level 6) in these countries are excluded.

PT: Data on foreign students refers to 2000/01

Some countries receive many more students than they themselves send. Within the EU this is the case for Belgium, Germany, Austria, Sweden and the UK. The opposite is the case for Estonia, Greece, Ireland, Italy, Cyprus, Latvia, Lithuania, Luxembourg, Malta, Poland, Portugal, Slovenia, Slovakia, and Finland.

<sup>160</sup> See OECD, *Education at a Glance*, 2004, p. 298.



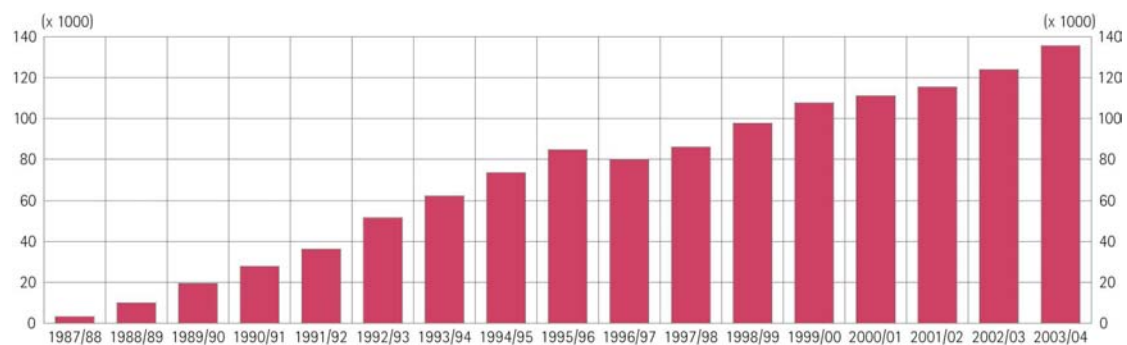
It is significant that countries of comparable size send vastly differing volumes of students abroad. The UK, for instance, sent only 12,700 students to EU, EEA and candidate countries, whereas France sent 40,000, and Italy, 34,000.

Compared to the period 2000/01, most countries have experienced a slight increase both in terms of incoming and outgoing students.<sup>161</sup>

### 8.2.5 Mobility within the Erasmus programme

A considerable part of overall mobility is supported through Community programmes such as Erasmus (Figure 8.5). Some interesting trends can be observed in relation to participation rates.<sup>162</sup>

Figure 8.5: Mobility within the Erasmus programme



	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96
<b>Total (EU25 + EEA + CC2)</b>	3 244	9 914	19 456	27 906	36 314	51 694	62 362	73 407	84 642
<b>New Member States</b>									
Iceland, Liechtenstein and Norway						474	825	1 066	1 318
Bulgaria, Romania									

	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	Total
<b>Total (EU25 + EEA + CC2)</b>	79 874	85 999	97 601	107 652	111 082	115 432	123 957	135 586	1226122
<b>New Member States</b>			3 255	6 991	9 578	11 041	13 027	15 141	59 033
Iceland, Liechtenstein and Norway	1 282	1 187	1 250	1 248	1 159	1 134	1 180	1 396	13 519
Bulgaria, Romania			1 250	1 833	2 297	2 569	3 313	3 756	15018

Source: DG EAC (Erasmus programme)

The number of Erasmus students is continuing to increase – the total number increased by 9.4% between 2002/03 and 2003/04, compared to an increase of 7.4% over the previous period. Erasmus mobility now involves 0.78% of the student population in EU and EEA countries every year. (By contrast, only 0.47% of the student population in the new Member States participate in Erasmus schemes, although the participation rate is increasing steadily.) In effect, Erasmus mobility would have to more than double, i.e. affect 2% per year (implying that during a formal study period of five years, 10% of the student population would be affected), to reach the target of a 10% participation rate.<sup>163</sup>

<sup>161</sup> Germany is an exception. In 2000/01, 73,600 were recorded as incoming students. In 2001/02 the number had increased to 107,500.

<sup>162</sup> Main conclusions are taken from European Commission, *Student and teacher mobility 2003/2004 – Overview of the National Agencies' final reports 2003/2004*.

<sup>163</sup> Specified in the Socrates decision n°253/200/EC of the European Parliament and of the Council of 24 Jan 2000.



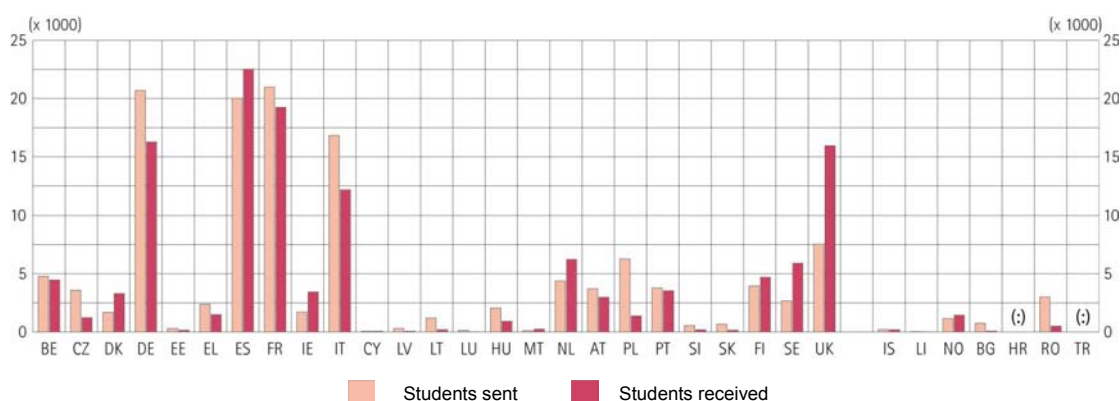
Between 1987/88 and 2003/04, more than 1.2 million students (increasing from 3,200 in 1987/88 to 135,586 in 2003/04) studied abroad under the aegis of the Erasmus programme.

If approved by the European Parliament and the Council, the new programme proposal will further increase the number of Erasmus students. By 2011, according to the new programme, three million students will have studied abroad with an Erasmus grant, implying that 310,000 students should receive an Erasmus grant in 2011/12. A substantial increase in mobility is expected from 2004/05, with increased mobility between Member States, EFTA and Candidate countries, as well as with the full participation of Turkey.

### 8.2.6 Inward and outward mobility of Erasmus students

Sweden, Denmark, Ireland and the UK are the biggest net receivers of Erasmus students, receiving more than double the number they send. Other big net receivers are Malta, Finland and the Netherlands (Figure 8.6).

Figure 8.6: Inward and outward mobility of Erasmus students, 2003/04



EU25		BE	CZ	DK	DE	EE	EL	ES	FR	IE	IT	CY	LV	LT	LU	HU	MT
Students sent	130423	4789	3589	1686	20688	305	2385	20034	20981	1705	16829	64	308	1194	137	2058	119
Students received	126879	4469	1228	3312	16266	159	1505	22530	19247	3430	12165	59	61	208	11	920	236

NL	AT	PL	PT	SI	SK	FI	SE	UK	IS	LI	NO	BG	HR	RO	TR
4388	3721	6276	3782	546	682	3951	2667	7539	221	19	1156	751	:	3005	:
6239	2986	1378	3544	187	171	4709	5903	15956	184	11	1456	79	:	501	:

Source: DG EAC (Erasmus programme)

In absolute terms Spain and France are the most popular destinations for Erasmus students.

The numbers of incoming students in the New Member States increased by 25% from 2002/03 to 2003/04, to a point where there is now one incoming student for every 3.7 outgoing (this ratio was 1:5 in 2000/01).

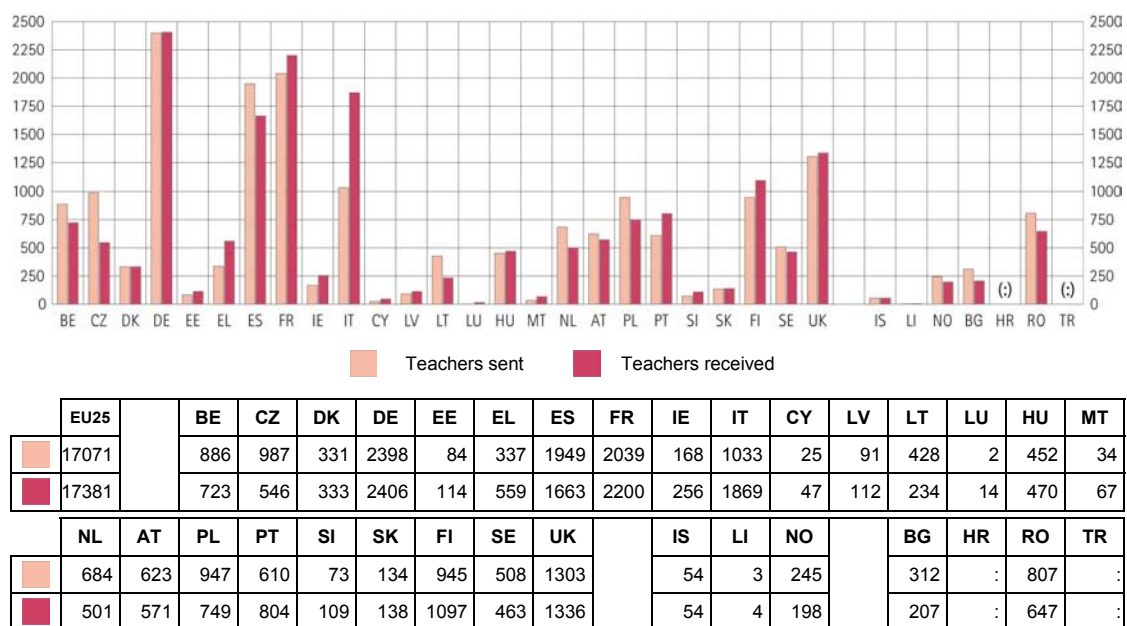
There have been no significant changes in the disciplinary background of foreign students – Business Management/Social Sciences remain the most common subject areas. Compared to the student population, Medical Sciences, Education, Sciences and other areas of study are conspicuously under-represented in the profile of Erasmus students. This may help to account for the fact that 61% of Erasmus students are female – women are generally well represented in the business and social sciences and in humanities, but under-represented in the more technical subjects.

The average duration of Erasmus mobility has remained stable at between six and seven months since 1994/95. This could be seen in the light of a decrease in the monthly grant rate in recent years, especially for students from the New Member States, but also for EUR18 students. However, the student mobility budget increased by 18% in 2004/05, and will increase substantially in the new programme starting in 2007.

### 8.2.7 Mobility of teachers

The number of Erasmus teachers on mobility has been increasing steadily over the last seven years (from 7,800 in 1997/98 to 18,476 in 2003/04). The growth rate in 2003/04 was 9.3%, compared to 7% over the previous period. Erasmus mobility affect 1.56% of the teacher population in Europe.

Figure 8.7: Inward and outward mobility of Erasmus teachers, 2003/04



Source: DG EAC (Erasmus programme)

The growth rate of teachers mobility in the New Member states was 13% in 2003/04. The number of outgoing teachers rose in all the twelve new Member States and Candidate countries, compared to only six in 2002/03. The greatest increases in outgoing mobility were in Latvia (47%), Bulgaria (37%) and Lithuania (29%).

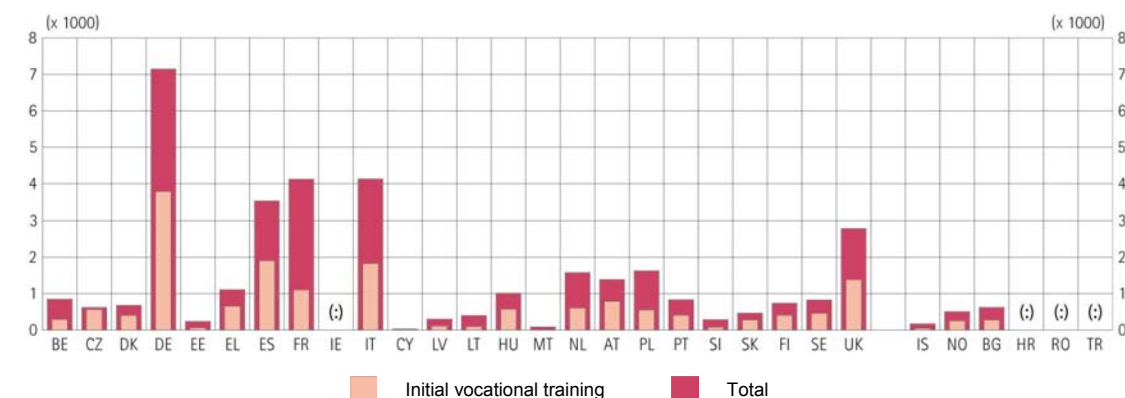
Of all countries, Finland, Liechtenstein, the Czech Republic, Malta and Belgium have the highest ratio of outgoing teachers as a proportion of the teaching population. On average, the new Member States and Candidate countries have a higher ratio of outgoing teachers (as a proportion of the teaching population) than the EU15.

The most popular host countries are Germany and France, which together receive 25% of all Erasmus teachers, while Italy and Greece are notable for receiving considerably more teachers than they send.

### 8.2.8 Mobility within the Leonardo da Vinci programme

The Leonardo da Vinci programme also supports a substantial level of mobility within the EU, amounting to approximately 35,000 persons per year (Figure 8.8). People undergoing initial vocational training account for approximately 50% of total mobility within the programme, while the mobility of students amounts to approximately 20%.

Figure 8.8: Mobility within the Leonardo da Vinci programme 2001



	EU25	BE	CZ	DK	DE	EE	EL	ES	FR	IE	IT	CY	LV	LT	HU	MT
<b>Initial vocational training</b>	16398	288	566	400	3807	68	661	1901	1102	:	1825	4	107	95	572	:
Students	7710	282	68	161	1164	29	39	347	1948	:	438	:	32	26	136	10
Young workers	6390	179	69	5	1150	28	306	1133	607	:	1373	10	71	29	92	51
Exchange 1	4445	68	92	109	626	104	104	160	465	:	495	14	80	245	213	22
<b>Exchange 2</b>	128	33	:	4	:	10	:	3	3	:	:	:	11	4	1	:
<b>TOTAL</b>	35071	850	622	679	7147	239	1110	3544	4125	:	4131	28	301	399	1014	83

	NL	AT	PL	PT	SI	SK	FI	SE	UK	IS	NO	BG	HR	RO	TR
<b>Initial vocational training</b>	602	790	547	403	76	280	402	457	1382	49	253	279	:	:	:
Students	749	364	291	110	36	79	132	112	726	3	51	145	:	:	:
Young workers	43	83	330	187	22	63	34	114	407	29	93	105	:	:	:
Exchange 1	185	125	449	133	134	39	167	141	270	91	81	61	:	:	:
<b>Exchange 2</b>	:	22	10	:	19	4	4	:	:	:	27	32	:	:	:
<b>TOTAL</b>	1579	1384	1627	833	287	465	739	824	2785	172	505	622	:	:	:

Source: DG EAC

Additional notes:

Exchange 1: People in charge of human resources, planners, managers, vocational guidance specialist

Exchange 2: Instructors and tutors in the field of language skills.

### 8.3 Conclusion

Mobility is a vital component in the establishment of a European area of knowledge and learning. Not only can the free movement of students and teachers support the dissemination of knowledge throughout Europe, but it can also enhance personal and professional skills and contribute to European cohesion.

There are still a number of legal and administrative obstacles to the realisation of a true European Education and Training Area, but initiatives within the Copenhagen process, the Bologna process, and the Erasmus Mundus programme (in relation to incoming mobility from third countries), show that the Member States are committed to removing impediments and are actively promoting mobility.

The data analysis shows that most European countries experienced an increase in the percentage of foreign students enrolled from 2001 to 2002. It is noteworthy that more than 60% of the foreign students in the EU came from outside the EU and that some countries, like Belgium, Germany, Austria, Sweden and the UK, host many more students than they themselves send abroad.

Finally, mobility programmes like Erasmus continue to increase their role in facilitating movement within Europe. More than 1.2 million students have now taken part in mobility through the Erasmus programme since its inception in 1987/88; the Leonardo da Vinci programme supports approximately 35,000 persons per year; and teacher mobility within the Erasmus programme is on the increase – in 2003/04 nearly 18,500 teachers in the EU25 benefited from this scheme.

## IX ENSURING ACCESS TO ICT FOR EVERYONE

### Main messages

- Current indicators give a limited picture of key issues in this area. Consequently, the Commission has devised a strategy to address some of these data gaps.
- Despite considerable progress since 2000, there are still many countries within the EU with a high number of pupils to each computer.
- It is noticeable that in countries with a high pupil-computer ratio, the variation in the ratio between schools is also high.
- In most EU countries, more than 70% of the available school computers are connected to the Internet.

### 9.1 Introduction

The precept of the Lisbon European Council<sup>164</sup> that every citizen should be equipped with the skills needed to live and work in the new information society was based on the recognition that the socio-economic potential of information technologies is directly related to their accessibility. In later European Councils, (i.e. Stockholm<sup>165</sup>, Barcelona<sup>166</sup> and Brussels<sup>167</sup>) this message was reiterated, with particular stress on the contribution of Information and Communication Technology (ICT) skills to labour-market employability. The educational use of ICT accordingly features prominently in the Commission's e-learning strategy, as set out in its e-learning action plan,<sup>168</sup> and in the eLearning Programme,<sup>169</sup> one of whose four action lines is fostering digital literacy.

Underlining the importance of ICT in education, the report on the "Concrete future objectives of education and training systems" stated that, "the developing use of ICT within society has meant a revolution in the way schools, training institutions and other learning centres could work, as indeed it has changed the way in which very many people in Europe work. ICT is also of increasing importance in the open virtual teaching."<sup>170</sup> And as a result, the "Detailed Work Programme on the follow-up of the objectives of education and training systems in Europe,"<sup>171</sup> adopted by the Council and the Commission, included "Ensuring Access to ICT

<sup>164</sup> Presidency Conclusions, Lisbon, 2000, paragraph 9.

<sup>165</sup> Presidency Conclusions, Stockholm, 2001, paragraph 10: "Improving basic skills, particularly IT and digital skills, is a top priority to make the Union the most competitive and dynamic knowledge-based economy in the world."

<sup>166</sup> Presidency Conclusions, Barcelona, 2002, paragraph 33: "Ensuring that all citizens, and in particular groups such as unemployed women, are well equipped with basic qualifications, especially those linked with ICTs".

<sup>167</sup> Presidency Conclusions, Brussels, 2003, paragraph 40, in which the European Council calls for the development of digital literacy and lifelong learning.

<sup>168</sup> *The e-Learning Action Plan: designing tomorrow's education*, 2001.

<sup>169</sup> eLearning Programme, Decision No 2318/2003/EC.

<sup>170</sup> Education Council report to the European Council on the "Concrete future objectives of education and training systems," 2001.

<sup>171</sup> Detailed Work Programme, 2002.

for Everyone” as a specific objective under the broader strategic objective of improving the quality and effectiveness of education and training systems in the EU.

The Commission set up a Working Group on ICT to define the key issues in the area of ICT in education and training, to identify and exchange innovative teaching and learning practices and to make policy recommendations. In its most recent progress report<sup>172</sup> the Working Group on ICT made a number of recommendations to Member States in this area, namely to embed ICT policies and strategies into long-term educational objectives, to ensure new support services for education, to empower and support educational actors in the process of change, and, finally, to develop research, establish new indicators and provide access to results.

However, the previous issue of the Commission Staff Working Paper “Progress towards the common objectives in education and training: indicators and benchmarks” did not include any indicators to measure progress against the objectives for ICT outlined in the Detailed Work Programme. As a consequence, the Joint Interim Report<sup>173</sup> invited the Standing Group on Indicators and Benchmarks and all working groups to propose, by the end of 2004, a limited a limited list of new indicators and their modalities of development in certain fields, including ICT.

### **Indicators for monitoring performance and progress**

Available data is mainly limited to the input-based indicators mentioned below and to a circumscribed process-based indicator:

- *Ratio of computers to pupils*
- *Average percentage of computers in schools connected to the internet*
- *Frequency and nature of computer use for nine-year-olds*

The first two indicators give an indication of how well developed the ICT infrastructure is within the school system. The third gives an idea of the type of tasks which pupils perform on computers, which can be taken as an indication of how well ICT is integrated within the curriculum.

### **Quality and availability of indicators**

The existing data gives a relatively good picture of the state of the ICT infrastructure in EU countries. A well-developed infrastructure is a prerequisite for full participation in ICT-based modes of learning. This was highlighted by a recent fifteen-country OECD survey of principals at upper-secondary level, (covering eleven EU countries),<sup>174</sup> which concluded that “technological conditions are at least partly responsible for the relatively low utilisation level of information and communication technology in schools.” This was supported by the fact that 56% of students surveyed felt that insufficient numbers of computers were an obstacle to greater utilisation of ICT in the curriculum.

However, ICT is a rapidly-changing field, and so the existing data, collected in 2000 and 2003, may already be out-of-date. Many countries have made significant investments in ICT since then. The quality of the data on curriculum integration of ICT is also poor, since it is limited to nine-year-olds and does not cover all EU countries. Furthermore, the breakdown of computer usage by type and frequency is very broad, and does not necessarily reflect the integration of ICT within the curriculum.

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<sup>172</sup> Working Group Progress Report, “ICT in Education and Training,” November 2003.

<sup>173</sup> Joint Interim Report, “Education and training 2010,” 2004.

<sup>174</sup> OECD, *Completing the Foundation for Lifelong Learning - An OECD Survey of Upper-Secondary Schools*. 2004 (covering Belgium (Flemish Community), Denmark, Finland, France, Hungary, Ireland, Italy, Korea, Mexico, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland).

Another serious deficiency in the available data relates to its concentration on infrastructure, as opposed to human resources, such as investment in teacher training, without which the full potential of ICT in the classroom cannot be exploited. Although the OECD survey of upper-secondary schools did attempt to measure the level of teacher training within schools, it covered only a limited number of countries. Eurydice has also made an attempt to measure the investment in human resources compared to infrastructure, finding that there was already a changing trend towards an increased level of investment in human resources compared to infrastructure.<sup>175</sup> However, this data is available at national level for only a few countries.

A final limitation is that there is no comprehensive data available on the learning outcomes of ICT usage. Without such information it is difficult to establish whether investment in ICT in schools actually contributes towards achieving the Lisbon goals.

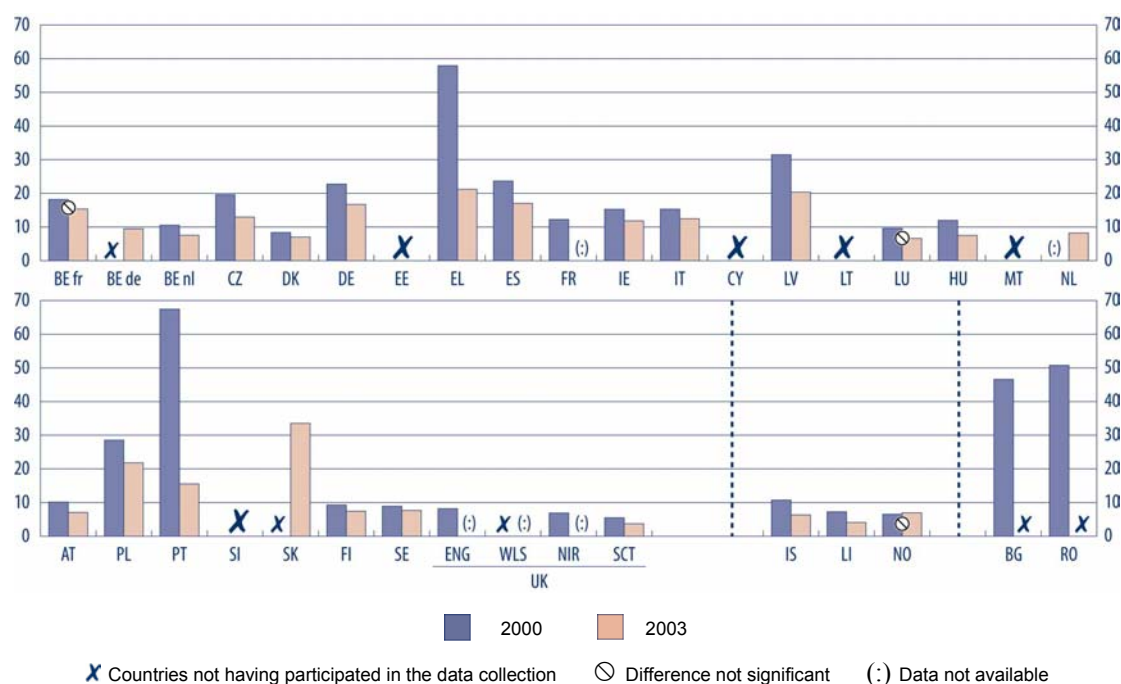
The Commission has devised a strategy to address some of these data gaps. In the short term, an e-learning survey (head teachers and teachers, with two years' coverage) will be carried out. In the medium term, the Commission will ensure that surveys which are currently being developed will provide better information on areas that are not covered today by existing data, such as learning outcomes from ICT and the integration of ICT in teaching and learning programmes. In the long term, the Commission will consider the development of indicators to identify the impact of ICT in education and training in terms of the integration of ICT in teaching and learning programmes and the learning outcomes of ICT usage.<sup>176</sup>

## 9.2 Performance and progress in ensuring access to ICT for everyone

### 9.2.1 The ICT infrastructure in schools

This indicator shows the penetration of ICT resources within schools. As can be seen, this data shows that, as of 2003, despite noticeable progress in a number of countries, there are still many countries within the EU that have a high number of pupils to each computer (Figure 9.1).

**Figure 9.1: Ratio of pupils to computers in schools attended by pupils aged 15, 2000 and 2003**



<sup>175</sup> Eurydice, *Key Data on ICT in Schools in Europe*, 2004.

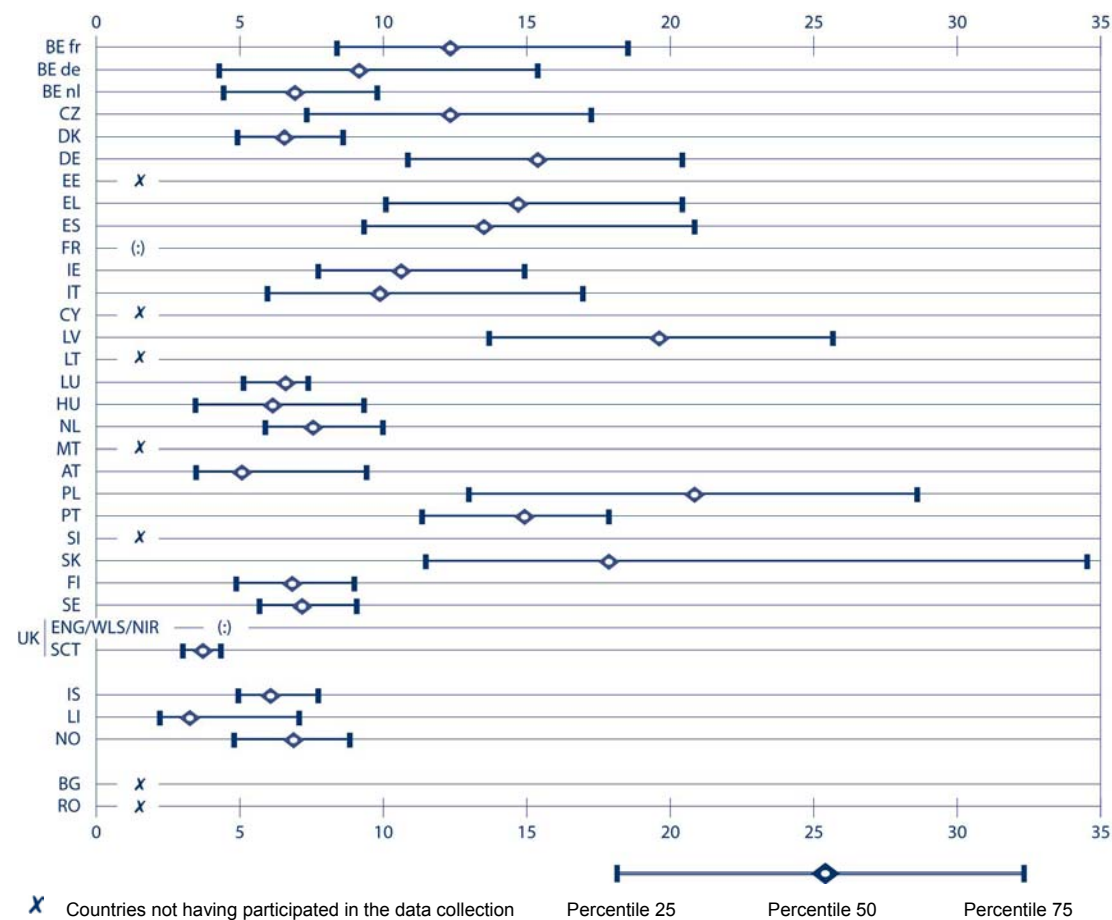
<sup>176</sup> Cf. Commission Staff Working Paper, "New Indicators on Education and Training," Nov 2004.

	BE fr	BE de	BE nl	CZ	DK	DE	EE	EL	ES	FR	IE	IT	CY	LV	LT	LU	HU	MT
2000	18.2	X	10.5	19.6	8.4	22.8	X	57.9	23.7	12.3	15.3	15.3	X	31.5	X	9.6	12.0	X
2003	15.4	9.5	7.6	13.0	7.0	16.7	X	21.2	17.0	(:)	11.8	12.5	X	20.4	X	6.6	7.5	X
	NL	AT	PL	PT	SI	SK	FI	SE	UK					IS	LI	NO	BG	RO
									ENG	WLS	NIR	SCT						
2000	(:)	10.1	28.5	67.4	X	X	9.3	8.9	8.2	X	6.9	5.5		10.7	7.2	6.5	46.6	50.8
2003	8.3	7.1	21.8	15.5	X	33.5	7.4	7.7	(:)	(:)	(:)	3.7		6.3	4.1	7.0	X	X

Source: Eurydice. Data source: OECD, PISA 2000 and 2003.

The four countries with more than twenty pupils to a computer are Greece, Poland, Latvia and Slovakia (Figure 9.1). However, spectacular progress in this area has been made in Portugal, Greece, Latvia and Poland (data on Slovakia is not available for 2000). In 2003 Denmark, Luxembourg and Scotland had seven or fewer pupils to a computer.

**Figure 9.2: Distribution of pupil-computer ratios in schools attended by pupils aged 15, 2003 (Eurydice)**



	BE fr	BE de	BE nl	CZ	DK	DE	EE	EL	ES	FR	IE	IT	CY	LV	LT	LU	HU	MT
Percentile 25	8.4	4.3	4.5	7.4	5.0	10.9	X	10.1	9.3	(:)	7.8	6.0	X	13.7	X	5.2	3.5	X
Percentile 50	12.3	9.2	6.9	12.3	6.6	15.4	X	14.7	13.5	(:)	10.6	9.9	X	19.6	X	6.6	6.2	X
Percentile 75	18.5	15.4	9.8	17.2	8.6	20.4	X	20.4	20.8	(:)	14.9	16.9	X	25.6	X	7.4	9.3	X
	NL	AT	PL	PT	SI	SK	FI	SE	UK					IS	LI	NO	BG	RO
									ENG	WLS	NIR	SCT						
Percentile 25	5.9	3.5	13.0	11.4	X	11.5	4.9	5.7	(:)	(:)	(:)	3.0		5.0	2.2	4.8	X	X
Percentile 50	7.6	5.1	20.8	14.9	X	17.9	6.8	7.2	(:)	(:)	(:)	3.7		6.1	3.3	6.9	X	X
Percentile 75	10.0	9.4	28.6	17.9	X	34.5	9.0	9.1	(:)	(:)	(:)	4.4		7.8	7.1	8.8	X	X

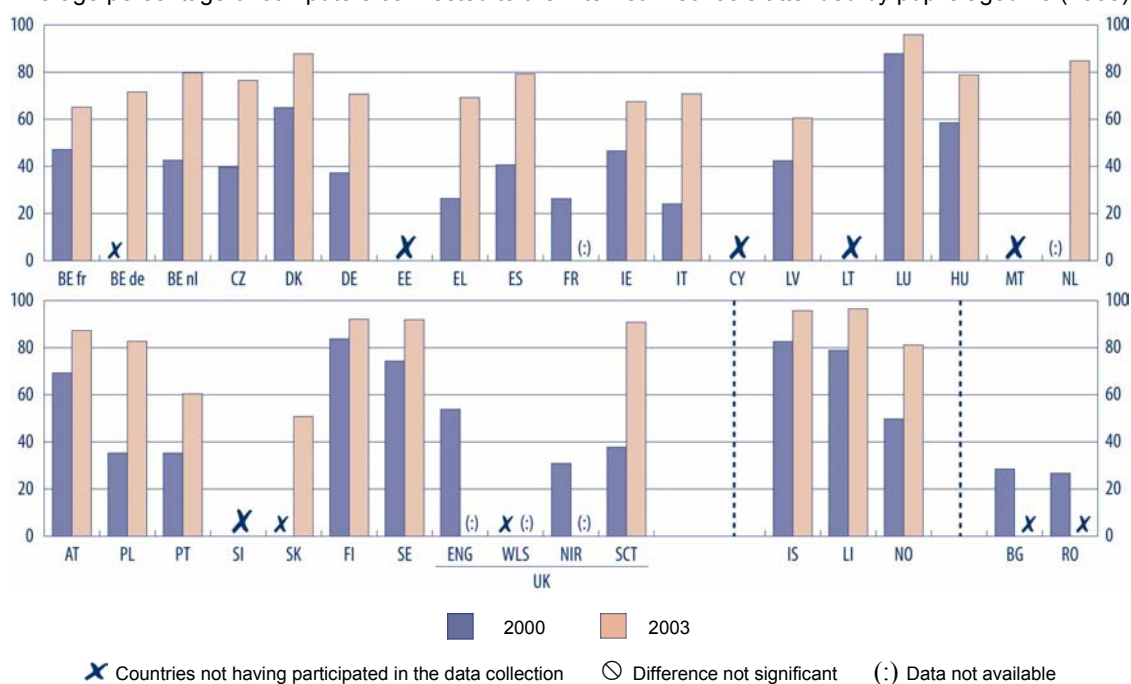
Source: Eurydice. Data source: OECD, PISA 2003 database.



Figure 9.2 shows that countries with a higher pupil to computer ratio also exhibit a much greater variation in this ratio between schools than those countries with a lower ratio. It seems that in the worst-equipped countries, (Slovakia, Poland and Latvia), there are some schools with an extremely high number of pupils for every computer. This means it is likely that many pupils in these countries have no access to a computer, neither in the classroom nor outside. It also shows that countries which have lower pupil-computer ratios, such as Denmark, Luxembourg, Hungary, the Netherlands, Austria, Finland, Sweden and Scotland, have also embarked on a widespread programme of computerisation, which has resulted in a much lesser difference between the best equipped and the worst equipped schools. The difference between these leading countries is, however, very small.

**Figure 9.3: Percentage of school computers connected to the Internet**

Average percentage of computers connected to the Internet in schools attended by pupils aged 15 (2003)



	BE fr	BE de	BE nl	CZ	DK	DE	EE	EL	ES	FR	IE	IT	CY	LV	LT	LU	HU	MT
2000	47.2	X	42.6	39.8	65	37.3	X	26.4	40.7	26.3	46.6	24.1	X	42.4	X	87.8	58.5	X
2003	65.2	71.6	79.8	76.5	87.8	70.7	X	69.2	79.3	(.)	67.4	70.8	X	60.5	X	95.9	78.8	X

	NL	AT	PL	PT	SI	SK	FI	SE	UK					IS	LI	NO	BG	RO
									ENG	WLS	NIR	SCT						
2000	(.)	69.3	35.3	35.3	X	X	83.7	74.3	53.8	X	30.9	37.8		82.6	78.9	49.8	28.5	26.7
2003	84.8	87.3	82.7	60.4	X	50.8	92.1	91.9	(.)	(.)	(.)	90.8		95.7	96.6	81.2	X	X

Source: Eurydice. Data source: OECD, PISA 2000 and 2003.

This indicator (Figure 9.3) gives an idea of the level of Internet penetration within the existing ICT infrastructure in schools. It can be seen that in Denmark, Luxembourg, the Netherlands, Austria, Poland, Finland, Sweden and Scotland, more than 80% of school computers are connected to the internet. In Belgium (Fr), Greece, Ireland, Italy, Latvia, Portugal and Slovakia this is the case for less than 70% of computers. The countries with the three highest ratios of internet-connected school computers also have some of the lowest pupil-computer ratios.

### 9.2.2 Integration of ICT in the school curriculum

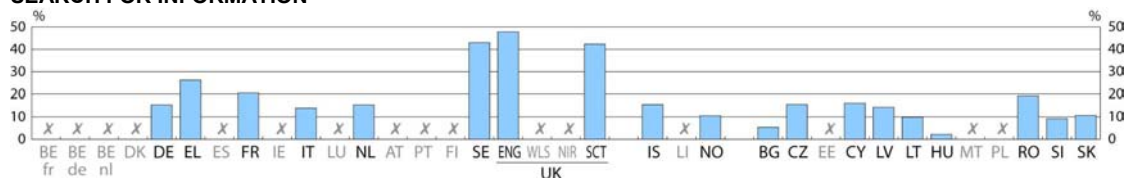
The PISA 2000 data measures only the frequency of computer use, and not the type of activities involved, and is therefore not a very useful indicator of ICT integration within the curriculum. The PIRLS data is a little more detailed, giving examples of the kinds of task that

ICT is used for, but the categories are still extremely general and do not give an accurate picture of how well ICT is integrated within the school curriculum.

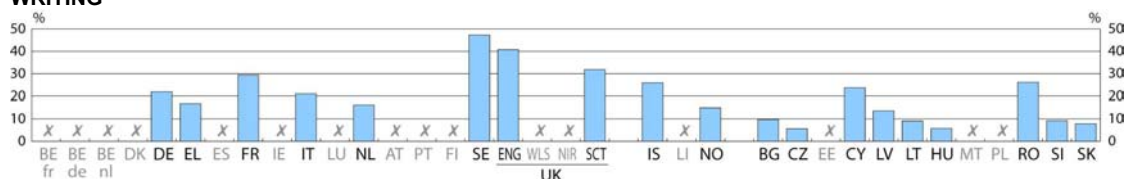
**Figure 9.4: Frequency and nature of computer use for 9-year-olds (IEA PIRLS 2001)**

Proportion of grade 4 pupils using computers at least once a week to search for information, write and read texts, develop reading strategies and communicate at school, 2000/01

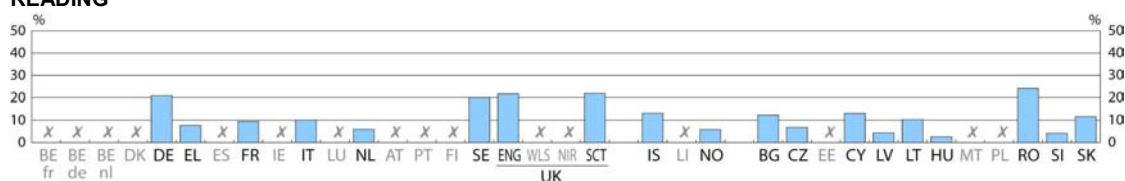
#### SEARCH FOR INFORMATION



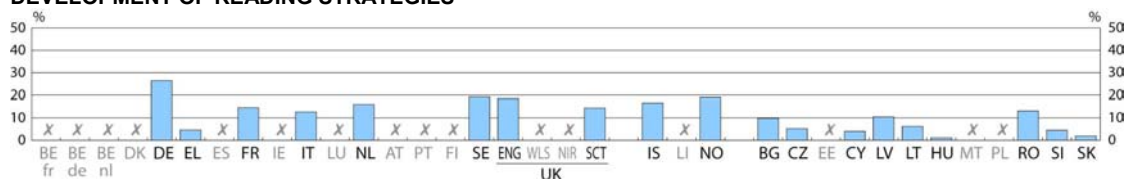
#### WRITING



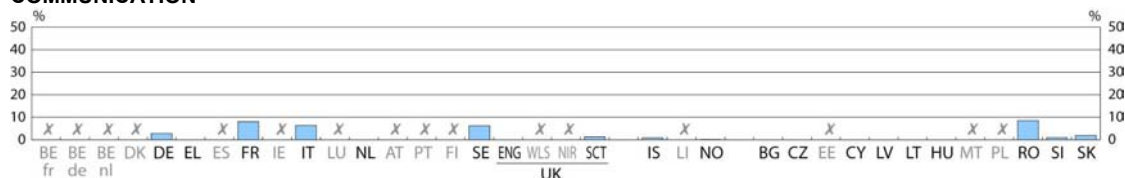
#### READING



#### DEVELOPMENT OF READING STRATEGIES



#### COMMUNICATION



✕ Countries not having participated in the data collection

	DE	EL	FR	IT	NL	SE	UK		IS	NO	BG	CZ	CY	LV	LT	HU	RO	SI	SK
							ENG	SCT											
Search for information	15.4	26.2	20.5	13.9	15.4	43.0	47.8	42.3	15.5	10.5	5.3	15.6	16.1	14.3	9.9	2.2	19.1	9.2	10.6
Writing	21.9	16.8	29.4	21.0	16.2	47.3	40.7	31.8	25.9	15.0	9.7	5.6	23.7	13.6	9.1	5.7	26.1	9.2	7.8
Reading	20.8	7.7	9.4	10.1	5.9	19.9	21.7	21.9	13.2	5.8	12.3	6.8	13.1	4.3	10.3	2.6	24.1	4.1	11.6
Development of reading strategies	26.4	4.6	14.6	12.6	16.0	19.2	18.5	14.4	16.6	19.0	9.8	5.2	4.0	10.4	6.2	1.1	13.1	4.5	1.9
Communication	2.8	0.0	8.0	6.3	0.0	6.2	0.0	1.3	0.9	0.1	0.0	0.0	0.0	0.0	0.0	0.0	8.5	1.0	1.9

Source: Eurydice. Data source: IEA, PIRLS 2001 database.

The UK is the best performer in this category (Figure 9.4), with the highest level of ICT use across the board. If it can be assumed that the ratio of pupils to computers at age nine follows the same pattern as at age 15 (data for which was obtained in PISA 2000), then this might suggest a correlation between a low pupil-computer ratio and high levels of computer use (based on data for the UK). However, Romania also shows a high level of use, despite having a poor pupil-computer ratio.

It is difficult to draw meaningful conclusions from the data above. Firstly, the data is available for only a small number of EU countries. Secondly, the survey questions are very limited – asking whether a pupil uses a computer once a week for a particular task does not necessarily indicate how well ICT is integrated within the curriculum. And thirdly, the data is limited to nine-year-olds, and so may not give a fair representation of how well a country is integrating ICT into schools, since their focus is more likely to be on secondary level. This also limits the comparisons that can be made with other indicators, which apply to second-level education.

### 9.3 Conclusion

In 2003 there were still countries in the EU in which the quality of the ICT infrastructure was relatively low, despite the considerable progress made since 2000. It can also be seen that those countries which have low pupil-computer ratios tend also to have a higher rate of internet connection and better ICT usage over a range of tasks. However, the latter conclusion is conditional because of the small number of countries covered and the focus on nine-year-old pupils.

It must be noted, however, that the current indicators give a limited picture of the key issue outlined in the introduction, which is to ensure that all pupils have access to, and are able to make full use of ICT as a learning resource. In particular, more detailed information is needed on investment in the human resources element of the ICT equation, on ICT usage within schools and also on the learning outcomes from ICT. This would allow a more accurate assessment of the impact and benefits of ICT in teaching and learning. This highlights the need for a coherent strategy to develop a means of collecting data that would allow the learning outcomes of ICT and the level of curriculum integration to be measured. The Commission has taken steps in this direction in the Staff Working Paper on “New indicators in education and training.”



## LIST OF ABBREVIATIONS

### General abbreviations

AES	Adult Education Survey
ALL	Adult Literacy and Life-skills Survey
CVT	Continuing vocational education
CVTS	Continuing Vocational Training Survey
DG EAC	European Commission - DG Education and Culture
EU-SILC	EU-Statistics on Income and Living Conditions
GDP	Gross Domestic Product
GNP	Gross National Product
IALS	International Adult Literacy Survey
ICT	Information and Communication Technology
IEA	International Association for the Evaluation of Educational Achievement
ISCED	International Standard Classification of Education
IVET	Initial vocational education and training
LFS	Labour Force Survey
MST	Maths, science and technology
NACE	Classification of Economic Activities in the European Community
OMC	Open Method of Co-ordination
OECD	Organisation for Economic Co-operation and Development
PIRLS	Progress in International Reading Literacy Survey
PISA	Programme for International Student Assessment
PPS	Purchasing Power Standards
R&D	Research and development
TIMSS	Trends in International Mathematics and Science Study
UIS	UNESCO Institute for Statistics
UNESCO	United Nations Educational, Scientific and Cultural Organization
UOE	UIS/OECD/Eurostat (common data collection)
VET	Vocational education and training

### Country Abbreviations

<b>EU</b>	<b>European Union</b>	SI	Slovenia
BE	Belgium	SK	Slovakia
CZ	Czech Republic	FI	Finland
DK	Denmark	SE	Sweden
DE	Germany	UK	United Kingdom
EE	Estonia		
EL	Greece	<b>EEA</b>	<b>European Economic Area</b>
ES	Spain	IS	Iceland
FR	France	LI	Liechtenstein
IE	Ireland	NO	Norway
IT	Italy		
CY	Cyprus	<b>CC</b>	<b>Candidate Countries</b>
LV	Latvia	BG	Bulgaria
LT	Lithuania	HR	Croatia
LU	Luxembourg	RO	Romania
HU	Hungary	TR	Turkey
MT	Malta		
NL	Netherlands	<b>Others</b>	
AT	Austria	JP	Japan
PL	Poland	US/USA	United States of America
PT	Portugal		



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## **ANNEXES**

- 1. FULL TITLE OF THE 29 INDICATORS FOR MONITORING PERFORMANCE AND PROGRESS OF EDUCATION AND TRAINING SYSTEMS IN EUROPE (Technical definitions)**
- 2. STATISTICS AND GRAPHICS**



**FULL TITLE OF THE 29 INDICATORS FOR MONITORING  
PERFORMANCE AND PROGRESS OF  
EDUCATION AND TRAINING SYSTEMS IN EUROPE  
(Technical definitions)**

Teachers and Trainers

- Age distribution of teachers together with upper and lower retirement age.
- Number of young people in the 0-14 and 15-19 age groups and as percentage of total population.
- Ratio of pupils to teaching staff by education level.

Skills for the Knowledge Society

- Percentage of those aged 22 who have successfully completed at least upper secondary education (ISCED 3).
- Percentage of pupils with reading literacy proficiency “level 1” and lower on the PISA reading literacy scale.
- Distribution and mean performance of students, per country, on the PISA reading literacy scale.
- Distribution and mean performance of students, per country, on the PISA mathematical literacy scale.
- Distribution and mean performance of students, per country, on the PISA science literacy scale.
- Percentage of adults with less than upper secondary education who have participated in any form of education or training, in the last 4 weeks by age group (25-34, 35-54 and 55-64).

Mathematics, Science and Technology

- Students enrolled in mathematics, science and technology as a proportion of all students in tertiary education (ISCED 5A, 5B and 6).
- Graduates in mathematics, science and technology (ISCED 5A, 5B and 6) as percentage of all graduates (ISCED 5A, 5B and 6).
- Total number of tertiary (ISCED 5A, 5B and 6) graduates from mathematics, science and technology fields.
- Number of tertiary graduates in mathematics, science and technology per 1000 inhabitants aged 20-29 - Broken down by ISCED levels 5A, 5B and 6.

Investments in Education and Training

- Public expenditure on education as a percentage of GDP
- Private expenditure on educational institutions as a percentage of GDP
- Enterprise expenditure on continuing vocational training courses as a percentage of total labour costs.
- Total expenditure on education per pupil/student (PPS), by level of education
- Total expenditure on education per pupil/student (GDP per capita).

#### Open Learning Environment

- Percentage of population aged 25-64 participating in education and training in 4 weeks prior to the survey by level of educational attainment.

#### Making Learning more Attractive

- Hours in continuing vocational training (CVT) courses per 1000 working hours worked (only enterprises with CVT courses), by NACE.
- Hours in continuing vocational training (CVT) courses per 1000 working hours (all enterprises), by NACE
- Participation rates in education by age and by level of education.
- Share of the population aged 18-24 with only lower secondary education and not in education or training

#### Foreign Language Learning

- Distribution of lower/ upper secondary pupils learning foreign languages.
- Average number of foreign languages learned per pupil in upper secondary education.

#### Mobility

- Inward and outward mobility of teachers and trainers within the Socrates (Erasmus, Comenius, Lingua and Grundtvig) and Leonardo da Vinci programmes
- Inward and outward mobility of Erasmus students and Leonardo da Vinci trainees
- Foreign students enrolled in tertiary education (ISCED 5 and 6) as a percentage of all students enrolled in the country of destination, by nationality (European country or other countries)
- Percentage of students (ISCED 5-6) of the country of origin enrolled abroad (in a European country or other countries)



## STATISTICS AND GRAPHICS

## 1.1.A: Distribution of teachers teaching in public and private institutions by ISCED level and age group, 2001/02

## ISCED 1

Age group	BE	CZ	DK	DE	EE	EL	ES	FR	IE	IT	CY	LV	LT	LU	HU	MT
< 30	21.9	:	7.9	6.8	:	:	:	14.3	20.8	3.0	53.0	31.0	16.3	27.0	16.4	35.3
30-39	28.9	:	21.0	16.2	:	:	:	28.0	23.7	25.6	38.3	31.0	33.1	23.1	33.0	14.7
40-49	28.6	:	25.9	30.0	:	:	:	33.6	32.7	36.7	5.7	26.0	29.8	25.2	35.6	15.9
> = 50	20.6	:	45.3	47.0	:	:	:	24.1	22.9	34.7	3.0	12.0	20.8	24.7	15.0	34.1
	NL	AT	PL	PT	SI	SK	FI	SE	UK		IS	NO	BG	HR	RO	TR
< 30	18.4	14.2	:	14.6	17.5	22.1	13.5	12.3	22.0		15.3	:	11.5	:	33.8	:
30-39	20.5	27.7	:	24.8	35.4	24.9	32.9	18.4	22.2		29.2	:	40.5	:	20.6	:
40-49	36.2	37.7	:	39.2	31.4	24.8	29.6	26.2	28.1		29.8	:	33.0	:	29.6	:
> = 50	24.9	20.4	:	21.3	15.7	28.2	24.0	43.1	27.7		25.7	:	15.0	:	16.0	:

Source: Eurostat (UOE)

## Additional notes:

BE Data for Belgium exclude the German Community and independent private institutions

DK Includes ISCED 2 teachers

IS Includes ISCED 2 teachers

LU Public sector only

NL Includes ISCED 0 teachers

## ISCED 2 and 3

Age group	BE	CZ	DK	DE	EE	EL	ES	FR	IE	IT	CY	LV	LT	LU	HU	MT
< 30	13.3	:	:	4.2	:	:	:	13.0	11.4	0.6	12.0	22.3	16.9	13.8	15.3	33.1
30-39	22.0	:	:	14.6	:	:	:	27.1	26.1	11.1	22.3	28.2	28.0	26.7	25.9	24.7
40-49	34.6	:	:	32.5	:	:	:	25.1	29.8	40.3	43.0	26.0	31.0	28.8	33.1	19.3
> = 50	30.3	:	:	48.8	:	:	:	34.8	32.8	47.9	22.7	23.6	24.2	30.7	25.7	22.9
	NL	AT	PL	PT	SI	SK	FI	SE	UK		IS	NO	BG	HR	RO	TR
< 30	9.1	9.8	:	22.5	12.1	18.8	7.8	11.4	13.5		6.9	12.0	13.4	:	27.0	:
30-39	16.8	29.1	:	37.0	34.2	24.2	25.7	20.2	22.1		21.4	23.2	27.5	:	21.3	:
40-49	35.9	42.6	:	26.8	33.6	28.8	30.3	24.3	33.4		32.3	27.2	36.2	:	23.2	:
> = 50	38.2	18.5	:	13.8	20.1	28.2	36.3	44.1	31.0		39.5	37.6	22.9	:	28.6	:

Source: Eurostat (UOE)

## Additional notes:

BE Data exclude the German Community and independent private institutions

Teachers working in social advancement education in the French Community are not included

Data include ISCED 4 teachers

FI Includes teachers in ISCED 4 and 5 vocational and technical programmes

IS ISCED 4 teachers partly included

LU Public sector only

MK Includes ISCED 4 teachers

NO Includes ISCED 1 and ISCED 4 teachers

IE, UK Includes ISCED 4 teachers

## 1.1.C: Ratio of pupils to teaching staff

2002

	BE	CZ	DK	DE	EE	EL	ES	FR	IE	IT	CY	LV	LT	LU	HU	MT
ISCED 1	13.1	18.9	10.9	18.9	:	12.5	14.6	19.4	19.5	10.6	19.4	16.9	12.4	11.6	10.8	19.1
ISCED 2	:	14.4	:	15.7	:	9.3	13.7	13.9	14.6	9.9	13.0	13.5	8.5	9	10.7	9.7
ISCED 3	9.3	12.5	13.1	13.6	:	9.3	8.3	10.6	:	10.3	11.7	12.7	8.3	:	13.1	10.1

	NL	AT	PL	PT	SI	SK	FI	SE	UK		IS	NO	BG	HR	RO	TR
ISCED 1	17	14.4	12.8	11	12.6	20.1	15.8	12.5	19.9		11.4	:	16.8	:	17.7	27.5
ISCED 2	:	9.8	14.1	9.3	13.0	14.0	10.6	12.2	17.6			11.1	12.8	:	13.3	:
ISCED 3	15.9	10.3	13.7	7.5	13.7	13.3	16	14.1	21.6		10.6	10.3	11.7	:	14.4	17.7

Source: Eurostat (UOE)

2001

	BE	CZ	DK	DE	EE	EL	ES	FR	IE	IT	CY	LV	LT	LU	HU	MT
ISCED 1	13.4	19.4	10.2	19.4	14.7	12.7	14.7	19.5	20.3	10.8	21.1	17.6	16.9	11.0	11.3	19.0
ISCED 2	:	14.5	10.3	15.7	11.2	9.8	:	13.9	15.2	9.9	15.1	13.2	12.0	9.1	11.2	9.9
ISCED 3	9.8	13.1	13.3	19.8	10.3	11.3	11.0	10.9	:	10.4	13.6	13.2	:	:	12.5	18.1

	NL	AT	PL	PT	SI	SK	FI	SE	UK		IS	NO	BG	HR	RO	TR
ISCED 1	17.2	14.3	12.5	11.6	13.1	20.7	16.1	12.4	20.8		12.6	:	17.7	:	:	:
ISCED 2	:	9.8	13.1	9.9	13.3	14.5	10.9	12.4	17.5		:	10.9	13.0	:	14.8	:
ISCED 3	17.1	9.9	16.8	8.0	13.8	12.9	17.0	16.6	18.9		10.9	9.2	11.3	:	13.3	:

Source: Eurostat (UOE)

2000

	BE	CZ	DK	DE	EE	EL	ES	FR	IE	IT	CY	LV	LT	LU	HU	MT
ISCED 1	:	21.0	10.7	19.8	14.9	13.4	14.9	19.5	21.5	11.0	18.1	18.0	16.7	:	10.9	19.1
ISCED 2	:	15.6	10.6	15.7	11.2	10.8	13.7	14.5	15.9	10.4	:	12.7	11.4	:	10.9	9.0
ISCED 3	:	13.4	12.1	19.7	10.1	10.5	9.7	10.6	:	10.5	12.7	13.3	:	:	9.9	16.2

	NL	AT	PL	PT	SI	SK	FI	SE	UK		IS	NO	BG	HR	RO	TR
ISCED 1	16.8	:	12.7	12.1	13.4	18.3	16.9	12.8	21.2		12.7	:	16.8	:	:	:
ISCED 2	:	:	11.5	10.5	13.8	13.5	10.7	12.8	17.6		:	11.6	12.1	:	15.0	:
ISCED 3	17.1	:	16.9	8.0	13.1	12.8	17.0	15.2	19.3		9.7	9.7	11.6	:	12.8	:

Source: Eurostat (UOE)

### Additional notes

#### ISCED 1

2002 BE Data exclude the German Community and all independent private institutions

2002 DK ISCED 2 is included in ISCED 1

2002 LT The methodology to calculate full-time equivalent teachers has improved 2002, data not comparable with previous years

2001 BE Data exclude independent private institutions

2001 HU The calculation of full-time equivalent teachers has been improved 2001 compared to previous years

2000-2002 IS ISCED 2 is included in ISCED 1

2000-2002 LU Public sector only

2000-2002 NL ISCED 1 includes ISCED 0

#### ISCED 2

2000-2002 IE ISCED 2 includes ISCED 3 and 4

2000-2002 LU Public sector only. ISCED 2 includes ISCED 3

2002 LT ISCED 3 general programmes are included in ISCED 2. The methodology to calculate full-time equivalent teachers has improved 2002, data not comparable with previous years

2000-2002 NO ISCED 2 includes ISCED 1

2001 LT ISCED 3 general programmes are included in ISCED 2

2001 HU The calculation of full-time equivalent teachers has been improved 2001 compared to previous years

**ISCED 3**

2002 BE ISCED 3 includes ISCED 2 and 4. Data exclude the German Community and all independent private institutions. Teachers in social advancement education in the French Community are not included

2002 NL ISCED 3 includes ISCED 2 The methodology for statistics on personnel in secondary education has changed 2002. The decrease in the pupil/teacher ratio is mainly a result of the changed methodology

2002 LT ISCED 3 includes vocational programmes only, general programmes are included in ISCED 2. The methodology to calculate full-time equivalent teachers has improved in 2002, data not comparable with previous years

2001 BE ISCED 3 includes ISCED 2 and 4. Data exclude independent private institutions. Teachers in social advancement education in the French Community are not included

2000-2001 NL ISCED 3 includes ISCED 2

2001 LT ISCED 3 includes vocational programmes only, general programmes are included in ISCED 2

2001 HU The calculation of full-time equivalent teachers has been improved 2001 compared to previous years

2000 CY ISCED 2 is included in ISCED 3

2000 LT ISCED 3 includes vocational programmes only, general programmes are included in ISCED 2

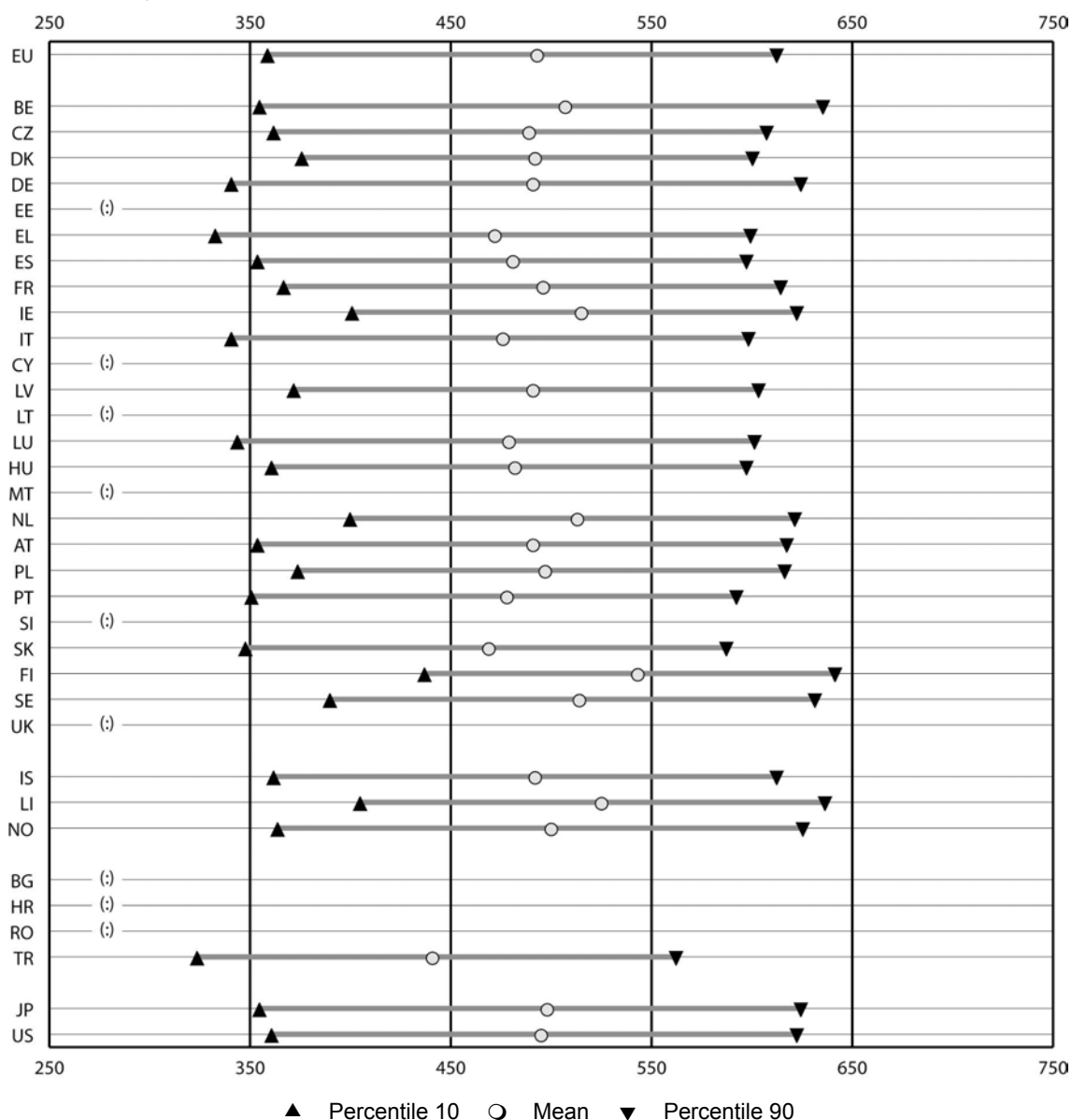
2000-2002 ES ISCED 3 includes ISCED 4

2000-2002 FI ISCED 3 includes ISCED 4 and 5 vocational and technical programmes

2000-2002 UK ISCED 3 includes ISCED 4

2000-2002 IS ISCED 4 is partly included in ISCED 3 2000-2002 NO ISCED 3 includes ISCED

### 1.2.C: Distribution and mean performance of students, per country, on the PISA reading literacy scale, 2003



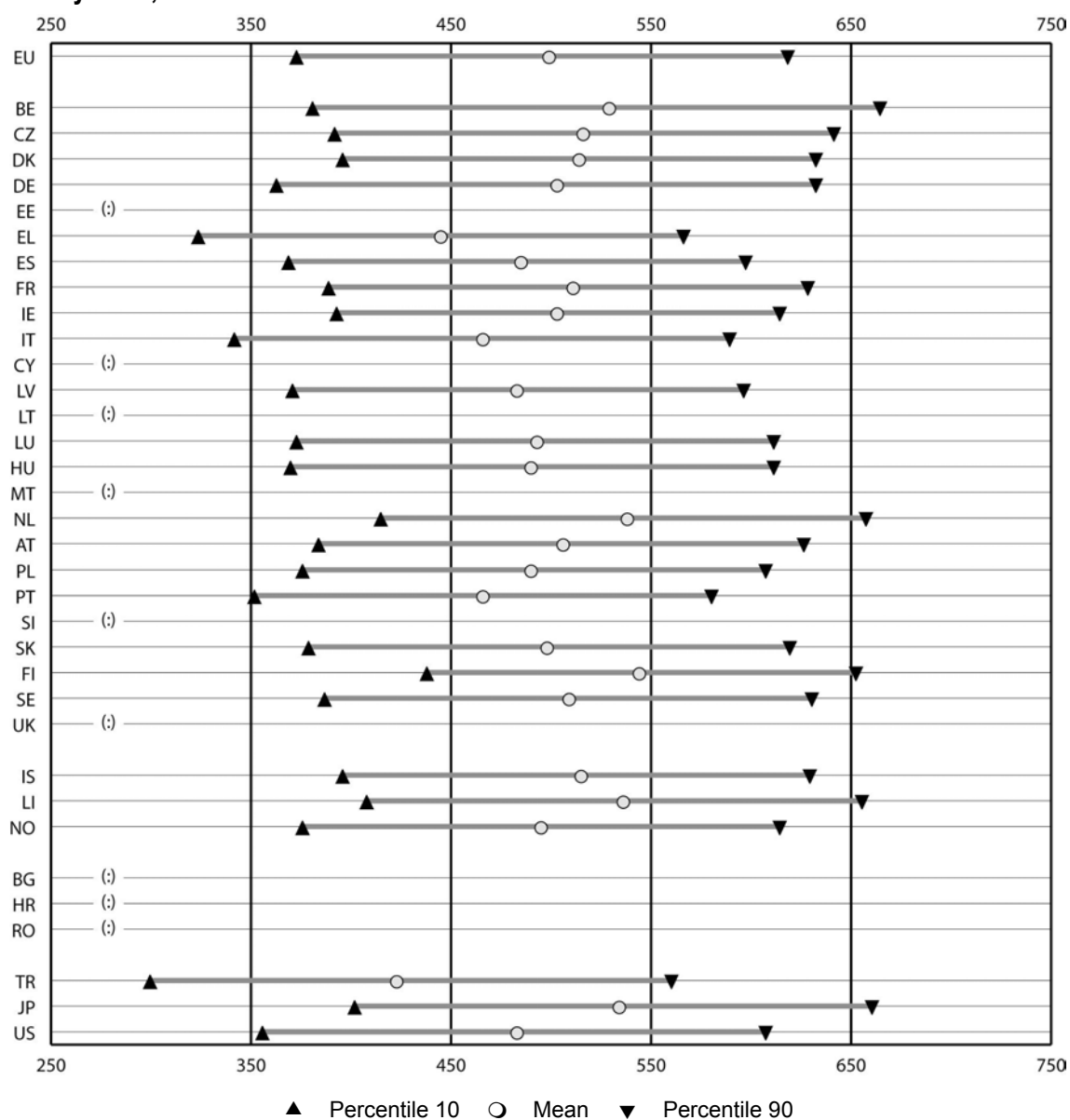
	EU	BE	CZ	DK	DE	EE	EL	ES	FR	IE	IT	CY	LV	LT	LU	HU	MT
mean	491	507	489	492	491	:	472	481	496	515	476	:	491	:	479	482	:
SE	:	2.6	3.5	2.8	3.4	:	4.1	2.6	2.7	2.6	3.0	:	3.7	:	1.5	2.5	:
P10	359	355	362	376	341	:	333	354	367	401	341	:	372	:	344	361	:
SE	:	6.6	6.9	4.6	6.8	:	6.2	4.9	7.0	4.6	6.8	:	5.3	:	2.9	4.2	:
P90	612	635	607	600	624	:	599	597	614	622	598	:	603	:	601	597	:
SE	:	2.1	3.8	2.7	3.2	:	4.4	2.8	2.7	3.0	2.1	:	4.6	:	2.1	3.4	:

	NL	AT	PL	PT	SI	SK	FI	SE	UK	IS	LI	NO	BG	HR	RO	TR	JP	US
mean	513	491	497	478	:	469	543	514	:	492	525	500	:	:	:	441	498	495
SE	2.9	3.8	2.9	3.7	:	3.1	1.6	2.4	:	1.6	3.6	2.8	:	:	:	5.8	3.9	3.2
P10	400	354	374	351	:	348	437	390	:	362	405	364	:	:	:	324	355	361
SE	5.2	6.3	5.0	7.1	:	5.8	3.1	4.3	:	4.8	11.7	4.7	:	:	:	5.3	6.5	5.2
P90	621	617	616	592	:	587	641	631	:	612	636	625	:	:	:	562	624	622
SE	2.9	3.7	3.4	3.5	:	3.0	2.2	2.9	:	2.8	11.8	3.9	:	:	:	11.4	4.8	3.5

Source: OECD PISA database (EU figure is weighted average based 19 countries).

## 1.2.D: Distribution and mean performance of students, per country, on the PISA mathematics literacy scale, 2003



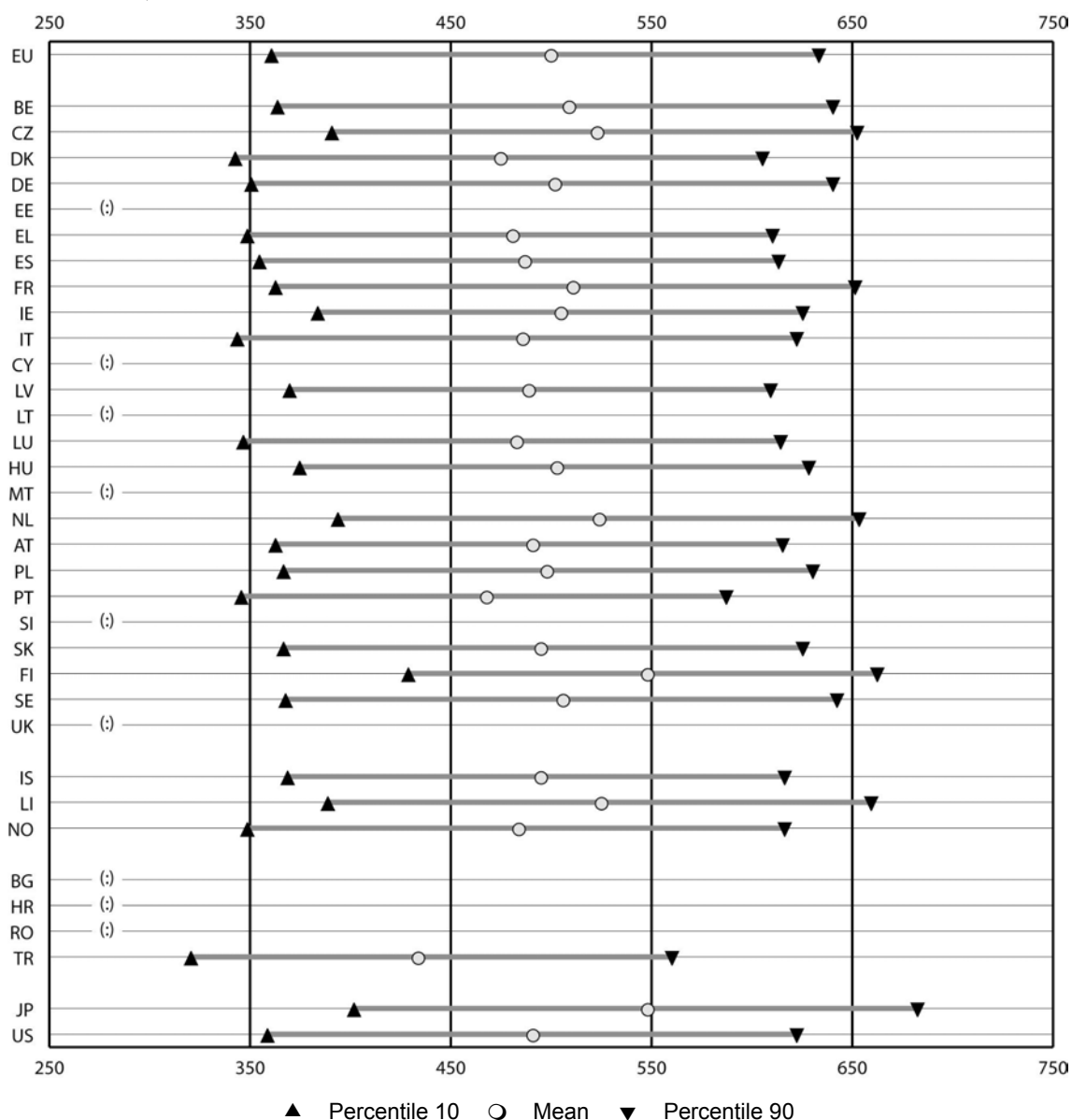
	EU	BE	CZ	DK	DE	EE	EL	ES	FR	IE	IT	CY	LV	LT	LU	HU	MT
mean	497	529	516	514	503	:	445	485	511	503	466	:	483	:	493	490	:
SE	:	2.3	3.5	2.7	3.3	:	3.9	2.4	2.5	2.4	3.1	:	3.7	:	1.0	2.8	:
P10	373	381	392	396	363	:	324	369	389	393	342	:	371	:	373	370	:
SE	:	4.6	5.7	4.5	5.6	:	5.1	3.5	5.6	3.2	5.9	:	5.1	:	2.7	4.2	:
P90	618	664	641	632	632	:	566	597	628	614	589	:	596	:	611	611	:
SE	:	2.4	4.3	3.7	3.5	:	5.3	3.5	3.6	3.6	3.6	:	4.4	:	3.2	4.7	:

	NL	AT	PL	PT	SI	SK	FI	SE	UK	IS	LI	NO	BG	HR	RO	TR	JP	US
mean	538	506	490	466	:	498	544	509	:	515	536	495	:	:	:	423	534	483
SE	3.1	3.3	2.5	3.4	:	3.3	1.9	2.6	:	1.4	4.1	2.4	:	:	:	6.7	4.0	2.9
P10	415	384	376	352	:	379	438	387	:	396	408	376	:	:	:	300	402	356
SE	5.8	4.4	3.6	5.3	:	5.8	2.8	4.4	:	2.7	9.8	3.4	:	:	:	5.0	6.3	4.5
P90	657	626	607	580	:	619	652	630	:	629	655	614	:	:	:	560	660	607
SE	3.2	4.0	3.3	3.3	:	3.5	2.8	3.8	:	3.0	9.5	3.6	:	:	:	14.2	6.1	3.9

Source: OECD, PISA database (EU figure is weighted average based 19 countries).

### 1.2.E: Distribution and mean performance of students, per country, on the PISA science literacy scale, 2003



	EU	BE	CZ	DK	DE	EE	EL	ES	FR	IE	IT	CY	LV	LT	LU	HU	MT
mean	500	509	523	475	502	:	481	487	511	505	486	:	489	:	483	503	:
SE	:	2.5	3.4	3.0	3.6	:	3.8	2.6	3.0	2.7	3.1	:	3.9	:	1.5	2.8	:
P10	361	364	391	343	351	:	349	355	363	384	344	:	370	:	347	375	:
SE	:	5.0	4.3	4.7	5.6	:	5.0	4.0	5.5	4.8	6.3	:	5.0	:	2.6	4.1	:
P90	633	640	652	605	640	:	610	613	651	625	622	:	609	:	614	628	:
SE	:	2.5	4.7	3.4	3.6	:	4.6	3.1	3.2	3.3	2.7	:	4.9	:	3.1	5.5	:

	NL	AT	PL	PT	SI	SK	FI	SE	UK	IS	LI	NO	BG	HR	RO	TR	JP	US
mean	524	491	498	468	:	495	548	506	:	495	525	484	:	:	:	434	548	491
SE	3.1	3.4	2.9	3.5	:	3.7	1.9	2.7	:	1.5	4.3	2.9	:	:	:	5.9	4.1	3.1
P10	394	363	367	346	:	367	429	368	:	369	389	349	:	:	:	321	402	359
SE	5.6	4.1	3.5	6.2	:	6.0	2.6	4.0	:	4.0	8.7	4.6	:	:	:	4.7	6.0	4.4
P90	653	615	630	587	:	625	662	642	:	616	659	616	:	:	:	560	682	622
SE	4.1	4.1	4.1	3.7	:	3.8	2.9	4.0	:	3.6	10.4	4.6	:	:	:	12.8	6.0	4.3

Source: OECD, PISA 2003 database (EU figure is weighted average based 19 countries).

**1.2.F: Percentage of adults with less than upper-secondary education who have participated in any form of education or training in the four weeks prior to the survey, by age group (25-34, 35-54 and 55-64), 2000-2004.**

	EU-15			BE			CZ			DK		
	25-34	35-54	55-64	25-34	35-54	55-64	25-34	35-54	55-64	25-34	35-54	55-64
2000	4.9	2.3	1.3	3.9	2.8	0.6	2.2	0.7	:	24.1	10.9	4.9
2001	5.0	2.2	1.2	4.7	2.9	0.4	2.2	0.7	:	19.3	9.2	4.3
2002	4.3	2.3	1.3	4.1	2.8	1.0	2.2	0.7	:	22.9	8.6	4.2
2003	4.6	2.3	1.3	5.6	3.5	1.0	2.4	0.5	:	22.9	15.6	7.5
2004	:	:	:	5.7	4.0	1.4	:	0.7	:	30.7	18.3	12.2
	DE			EE			EL			ES		
	25-34	35-54	55-64	25-34	35-54	55-64	25-34	35-54	55-64	25-34	35-54	55-64
2000	5.1	1.6	:	:	:	:	:	:	:	2.5	1.0	0.6
2001	5.4	1.5	0.4	:	:	:	:	:	:	2.4	1.0	0.6
2002	6.0	1.9	:	:	:	:	:	:	:	2.3	1.1	0.6
2003	6.1	1.3	0.4	:	:	:	2.5	0.3	:	3.2	1.5	1.0
2004	6.1	1.3	0.4	:	:	:	2.5	0.3	:	2.7	1.2	0.9
	FR			IE			IT			CY		
	25-34	35-54	55-64	25-34	35-54	55-64	25-34	35-54	55-64	25-34	35-54	55-64
2000	2.4	1.0	0.2	4.6	3.6	1.5	4.6	1.2	0.4	2.2	0.4	:
2001	2.5	0.8	:	4.6	3.6	1.5	5.0	1.1	0.3	2.2	0.9	:
2002	2.2	1.1	:	4.6	3.6	1.5	2.5	0.9	0.3	1.2	0.4	:
2003	5.7	3.7	1.0	5.0	3.9	2.4	2.8	0.9	0.4	3.9	1.3	:
2004	5.2	4.3	1.0	3.6	2.6	1.4	2.8	0.9	0.4	3.7	1.6	:
	LV			LT			LU			HU		
	25-34	35-54	55-64	25-34	35-54	55-64	25-34	35-54	55-64	25-34	35-54	55-64
2000	:	:	:	:	:	:	:	1.4	:	2.0	0.5	:
2001	:	:	:	:	:	:	:	1.8	:	1.8	:	:
2002	:	:	:	:	:	:	4.4	1.7	:	1.1	0.4	:
2003	:	:	:	:	:	:	:	2.3	:	4.4	1.0	:
2004	4.8	:	:	:	:	:	3.2	2.3	0.5	2.5	0.9	:
	MT			NL			AT			PL		
	25-34	35-54	55-64	25-34	35-54	55-64	25-34	35-54	55-64	25-34	35-54	55-64
2000	:	2.9	:	17.4	8.6	3.3	5.2	2.4	1.1	1.1	0.3	:
2001	:	2.3	:	16.8	9.4	3.4	5.1	2.8	0.7	1.1	0.3	:
2002	:	2.3	:	16.2	10.0	3.3	3.3	2.0	:	1.6	0.3	:
2003	:	2.3	:	:	:	:	10.6	3.6	1.6	2.7	:	:
2004	:	2.6	:	:	:	:	6.3	4.8	2.5	3.9	0.4	:
	PT			SI			SK			FI		
	25-34	35-54	55-64	25-34	35-54	55-64	25-34	35-54	55-64	25-34	35-54	55-64
2000	2.4	1.0	:	5.7	1.1	:	:	3.0	:	13.3	11.3	3.4
2001	2.6	0.7	:	5.7	1.1	:	:	3.0	:	13.4	10.2	4.0
2002	2.0	0.5	:	9.2	:	:	:	3.0	:	18.6	9.0	4.2
2003	2.9	0.6	:	9.4	2.2	:	:	:	:	18.3	13.5	8.6
2004	3.5	1.4	:	12.8	3.3	2.0	:	:	:	15.0	12.0	7.8
	SE			UK			NO			IS		
	25-34	35-54	55-64	25-34	35-54	55-64	25-34	35-54	55-64	25-34	35-54	55-64
2000	26.6	14.7	7.6	9.9	7.3	5.3	:	5.5	:	:	:	:
2001	19.8	10.5	6.3	11.3	7.6	5.7	:	6.7	:	:	:	:
2002	18.9	11.5	6.3	11.6	7.7	5.7	:	6.6	:	25.4	15.3	10.3
2003	25.5	18.1	15.9	10.7	7.2	6.0	18.0	9.4	:	:	:	:
2004	27.0	20.5	18.2	10.7	7.2	6.0	17.4	10.9	4.6	:	:	:
	BG			RO								
	25-34	35-54	55-64	25-34	35-54	55-64						
2000	:	:	:	:	:	:						
2001	:	:	:	:	:	:						
2002	:	:	:	:	:	:						
2003	:	:	:	0.5	:	:						
2004	:	:	:	0.3	:	:						

Source: Eurostat (Labour Force Survey)

Additional notes:

Breaks in time-series in 2003 in Denmark, Greece, France, Ireland, Cyprus, Luxembourg, Hungary, Slovenia, Slovakia, Finland, Sweden, Iceland and Norway.

**1.4.A: Students enrolled in mathematics, science and technology as a proportion of all students in tertiary education (ISCED 5A, 5B and 6), from 1999 to 2002**

	1999			2000			2001			2002		
	Total	Female	Male	Total	Female	Male	Total	Female	Male	Total	Female	Male
<b>EU</b>	:	:	:	:	:	:	:	:	:	26.1	14.2	40.2
<b>BE</b>	:	:	:	21	9.4	33.6	21.2	9.7	34.1	22.1	10.2	35.5
<b>CZ</b>	30.5	13.8	46.5	31.7	15.3	47.9	31.3	15.8	46.6	31.5	15.8	47.7
<b>DK</b>	19.3	10.9	30.1	20.2	10.9	32.5	20.8	10.9	33.6	20.0	11.2	32.0
<b>DE</b>	28.5	14.4	41.3	28.6	14.6	41.6	29.1	15.1	42.4	29.7	15.5	43.3
<b>EE</b>	22.4	11.3	37.6	21.3	11.3	35.5	21.3	11.5	36.1	20.9	11.4	36.1
<b>EL</b>	:	:	:	:	:	:	:	:	:	29.7	18.8	41.2
<b>ES</b>	28.2	16.8	41	28.8	16.9	42.1	29.5	17.3	43.1	30.5	17.8	44.8
<b>FR</b>	:	:	:	:	:	:	:	:	:	:	:	:
<b>IE</b>	34.9	23.4	48	35.3	22.6	50.1	35.5	22.1	51.6	34.4	20.7	51.0
<b>IT</b>	25	15.3	36.9	24.5	15	36.4	24	14.5	36.2	23.8	14.2	36.2
<b>CY</b>	18.3	11.3	27.2	17.7	9.4	28.7	17.7	8.7	30.1	16.5	9.1	25.6
<b>LV</b>	20.4	9.8	37.6	16.5	8.9	29.7	16.3	8	29.7	17.4	8.0	32.5
<b>LT</b>	27.8	16	45.6	27.4	15.3	45.6	26.6	14.5	44.5	25.7	13.4	44.4
<b>LU</b>	15.4	5.1	26	17.4	:	:	16.8	:	:	18.0	:	:
<b>HU</b>	21.8	8.8	37.2	21.5	8.5	37.3	20.4	8.5	34.7	18.0	7.9	30.5
<b>MT</b>	12.6	6.2	19.3	11.5	5.4	18.5	11	5.4	17.8	12.2	6.2	20.2
<b>NL</b>	17.1	5.6	28.2	16.8	5.4	28.3	16.5	5.2	28	16.6	5.2	28.5
<b>AT</b>	25.5	12.5	37.5	25.6	13.2	37.2	24.8	12.4	37.3	25.5	13.0	38.6
<b>PL</b>	19.5	9	33.3	19.6	10	32.5	19.9	10.3	32.6	20.7	10.4	34.3
<b>PT</b>	:	:	:	27.3	16.1	41.9	27.5	16.2	42.6	28.9	17.1	44.4
<b>SI</b>	23.6	10.9	39.9	23.5	11	39.5	22.5	10.5	37.9	21.3	9.6	37.1
<b>SK</b>	30.1	17	44.2	28.1	15.5	40.8	28.3	15.7	41.7	27.7	16.3	40.2
<b>FI</b>	35.2	15.7	57.7	36.2	16.6	58.9	36.8	17.2	59.6	37.2	17.8	60.2
<b>SE</b>	30.2	17.5	47.4	30.6	18.2	47.9	30	17.9	47.5	28.8	16.8	46.5
<b>UK</b>	29	16.6	43.1	28.8	16.8	43.1	27.9	16.0	42.3	26.4	14.5	41.2
<b>IS</b>	16.4	8.7	29.1	17.5	9.8	30	18.7	10.7	32.2	18.1	10.0	32.2
<b>NO</b>	17.8	9.2	29.4	16.6	8.1	28.6	19.8	10.1	33.8	19.0	9.4	33.3
<b>BG</b>	22.8	16.5	32.1	24.7	17.9	33.9	26.2	18.8	35.9	27.7	19.6	37.1
<b>RO</b>	28.9	17.7	40.6	28.6	18.2	39.7	26.9	16.9	38.1	26.0	16.1	37.9
<b>TR</b>	:	:	:	29.6	21.0	35.4	29.8	20.7	35.9	29.7	20.2	36.3

Source: Eurostat (UOE)

Additional notes:

- Germany, Romania, Slovenia : Students in ISCED 6 are not included
- Luxembourg, Cyprus : Many students on tertiary level study abroad and are not included



**1.4.B: Graduates in mathematics, science and technology (ISCED 5A, 5B and 6) as percentage of all graduates (ISCED 5A, 5B and 6), from 1999 to 2002.**

**1.4.C: Total number of tertiary (ISCED 5A, 5B and 6) graduates from mathematics, science and technology fields, in thousands, from 1999 to 2002.**

**1.4.D: Number of tertiary (ISCED 5A, 5B and 6) graduates in mathematics, science and technology per 1000 inhabitants aged 20-29, from 1999 to 2002.**

	1999			2000			2001			2002		
	1.4.B	1.4.C	1.4.D	1.4.B	1.4.C	1.4.D	1.4.B	1.4.C	1.4.D	1.4.B	1.4.C	1.4.D
<b>EU</b>	24.8	593.0	9.4	24.8	635.2	10.2	24.4	680.7	10.9	:	:	:
<b>BE</b>	:	:	:	18.9	12.9	9.7	18.9	13.2	10.1	18.8	13.7	10.5
<b>CZ</b>	24.0	8.3	5.0	24.4	9.4	5.5	23.2	9.6	5.6	23.7	10.1	6.0
<b>DK</b>	18.1	6.0	8.2	21.7	8.5	11.7	22.2	8.7	12.2	:	:	:
<b>DE</b>	27.4	86.2	8.6	26.6	80.1	8.2	25.9	76.6	8.0	26.2	76.7	8.1
<b>EE</b>	18.5	1.2	5.7	18.9	1.3	7.0	18.1	1.4	7.3	16.2	1.3	6.6
<b>EL</b>	:	:	:	:	0.0	0.0	:	0.0	:	:	:	:
<b>ES</b>	23.5	62.7	9.5	25.0	65.1	9.9	26.8	74.3	11.3	27.2	79.3	12.2
<b>FR</b>	30.4	151.4	19.0	30.5	154.8	19.6	29.9	158.6	20.2	:	:	:
<b>IE</b>	:	:	:	34.5	14.5	23.2	31.9	14.0	21.7	30.2	13.0	20.5
<b>IT</b>	23.9	45.5	5.4	23.1	46.6	5.7	22.3	48.4	6.1	22.7	56.6	:
<b>CY</b>	14.0	0.4	3.8	11.9	0.3	3.4	13.1	0.4	3.7	12.8	0.4	3.8
<b>LV</b>	17.0	2.1	6.3	15.9	2.4	7.5	12.2	2.5	7.6	13.9	2.6	8.1
<b>LT</b>	26.8	5.9	10.8	26.0	6.6	13.5	25.6	7.0	14.8	23.2	6.9	14.6
<b>LU</b>	:	:	:	14.6	0.1	1.8	:	0.0	0.0	:	:	:
<b>HU</b>	16.9	8.1	5.1	12.0	7.2	4.5	10.1	5.9	3.7	12.4	7.8	4.8
<b>MT</b>	10.3	0.2	3.9	9.3	0.2	3.4	8.4	0.2	2.7	8.9	0.2	3.1
<b>NL</b>	16.5	12.8	5.8	15.7	12.5	5.8	15.5	12.7	6.1	15.8	13.6	6.6
<b>AT</b>	29.9	7.4	6.8	30.1	7.5	7.1	27.5	7.4	7.2	29.7	8.0	8.0
<b>PL</b>	14.7	33.1	5.7	14.7	39.2	6.6	14.3	44.8	7.4	14.2	49.8	8.1
<b>PT</b>	19.0	9.8	6.0	18.6	10.1	6.2	17.1	10.3	6.4	18.3	11.7	7.4
<b>SI</b>	23.2	2.5	8.4	22.8	2.6	8.9	20.3	2.4	8.2	19.9	2.8	9.5
<b>SK</b>	21.1	4.5	5.1	20.8	4.7	5.3	25.6	6.7	7.4	25.2	7.1	7.8
<b>FI</b>	29.6	11.3	17.8	28.0	10.1	16.0	29.5	10.9	17.2	28.7	11.1	17.4
<b>SE</b>	28.0	10.9	9.7	30.6	13.0	11.6	32.1	13.7	12.4	31.9	14.5	13.3
<b>UK</b>	25.8	122.8	15.6	27.9	125.6	16.2	27.3	150.9	19.5	26.8	150.9	19.5
<b>IS</b>	15.8	0.3	6.3	19.7	0.4	8.4	19.0	0.4	9.1	18.2	0.4	9.2
<b>NO</b>	16.4	4.5	7.2	16.8	4.8	7.9	17.1	5.2	8.6	16	4.6	7.7
<b>BG</b>	17.8	8.0	6.5	17.3	8.1	6.6	19.2	9.1	7.9	26.5	13.4	11.7
<b>RO</b>	25.2	15.6	4.1	26.3	17.1	4.5	24.7	18.4	4.9	22.6	20.4	5.8
<b>TR</b>	29.7	53.3	:	30.0	57.1	:	29.7	61.5	:	28.2	65.9	:
<b>JP</b>	25.2	239.7	12.6	25.2	236.7	12.6	22.7	233.4	12.7	23.2	232.9	13.0
<b>US</b>	17.1	352.9	9.3	17.2	369.4	9.7	17.5	379.7	9.9	17.4	389.6	10.0

Source: Eurostat (UOE)

**Additional notes:**

- AT: 1999-2000 ISCED 5B refers to previous year.
- BE: 2000-02 Data for Flemish community excludes second qualifications and advanced research programmes (ISCED 6)
- EE: 1999-2002 Data excludes Masters degrees
- LU, CY: Many students study abroad - graduates abroad not included.
- PL: ISCED 6 graduates not included 1998-2000.
- RO: 1999-2002 Data excludes second qualifications and advanced research programmes (ISCED 6)
- UK: 2001-02 Changes in reporting methodology in 2001 means data from 2001 onwards not comparable with previous years.

## 2.2 Hours in CVT courses per 1000 working hours by NACE, 1999

### Key of NACE categories for the following tables

C to K, O	All NACE branches covered by CVTS (Continuing Vocational Training)
C, E, F, H, I	Mining and quarrying; electricity, gas and water supply; construction; hotels and restaurants; transport, storage and communication
C	Mining and quarrying
D	Manufacturing
DA	Manufacture of food products; beverages and tobacco
DB, DC	Manufacture of textiles and textile products; manufacture of leather and leather products
DD, DN	Manufacture of wood and wood products; manufacturing n.e.c.
DE	Manufacture of pulp, paper and paper products; publishing and printing
DF to DI	Manufacture of coke, refined petroleum products and nuclear fuel; chemicals, chemical products and man-made fibres; rubber and plastic products; other non-metallic mineral products
DJ	Manufacture of basic metals and fabricated metal products
DK, DL	Manufacture of machinery and equipment n.e.c.; manufacture of electrical and optical equipment
DM	Manufacture of transport equipment
E	Electricity, gas and water supply
F	Construction
G	Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods
G50	Sale, maintenance and repair of motor vehicles
G51	Wholesale trade and commission trade, except of motor and motorcycles
G52	Retail trade, except of motor vehicles, motorcycles; repair of personal and household goods
H	Hotels and restaurants
I	
I60 to I63	Land transport; transport via pipelines; water transport; air transport; supporting and auxiliary transport activities; activities of travel agencies
I64	Post and telecommunications
J	Financial intermediation
J65, J66	Financial intermediation, except insurance and pension funding; insurance and pension funding, except compulsory social security
J67	Activities auxiliary to financial intermediation
K, O	Real estate, renting and business activities; other community, social, personal service activities
K	Real estate, renting and business activities
O	Other community, social, personal service activities

## 2.2.A: Hours in CVT courses per 1000 working hours (only enterprises with CVT courses), by NACE, 1999

	EU	BE	CZ	DK	DE	EE	EL	ES	FR	IE	IT	CY	LV	LT	LU	HU	MT	NL	AT	PL	PT	SI	SK	FI	SE	UK	IS	LI	NO	BG	RO
C to K, O	9	10	7	14	6	5	7	11	11	12	9	:	5	5	11	6	:	11	6	5	10	6	:	12	12	8	:	:	11	6	5
C, E, F, H, I	9	9	6	14	4	4	5	9	16	13	11	:	5	5	5	7	:	11	5	4	8	7	:	14	11	8	:	:	9	8	6
C	10	2	4	21	2	0	5	16	8	3	11	:	3	5	:	4	:	11	4	-	23	5	:	16	16	22	:	:	15	2	5
D	8	10	6	13	6	3	8	12	9	10	7	:	3	4	12	5	:	11	5	4	11	6	:	11	14	7	:	:	9	3	4
DA	8	8	5	8	3	2	7	9	8	10	6	:	3	2	:	4	:	10	4	2	9	4	:	6	7	10	:	:	9	2	2
DB, DC	5	6	4	17	2	3	8	7	6	3	7	:	1	5	:	2	:	7	2	2	10	5	:	12	12	4	:	:	5	2	4
DD, DN	7	7	5	9	3	2	7	8	6	9	6	:	3	2	:	2	:	7	4	1	8	3	:	7	7	12	:	:	5	1	4
DE	8	8	4	11	4	5	8	11	8	8	6	:	3	3	:	4	:	8	6	15	18	4	:	11	13	9	:	:	6	3	8
DF to DI	8	8	5	17	7	3	6	13	11	10	9	:	16	5	:	8	:	15	5	3	9	6	:	10	11	4	:	:	9	3	4
DJ	7	8	5	11	5	1	5	12	7	8	5	:	2	5	:	4	:	11	4	4	5	6	:	14	12	6	:	:	9	2	2
DK, DL	8	16	10	14	7	5	8	12	10	13	8	:	2	6	:	5	:	13	6	8	13	6	:	12	14	7	:	:	10	3	6
DM	13	10	7	9	14	10	23	17	12	12	6	:	2	1	:	2	:	7	5	4	17	16	:	10	27	11	:	:	12	3	3
E	11	10	7	16	10	6	3	16	11	15	10	:	6	7	:	10	:	14	6	8	12	21	:	15	22	9	:	:	15	4	5
F	9	6	5	18	3	4	4	7	6	6	10	:	3	3	:	4	:	13	4	3	4	2	:	7	9	12	:	:	6	4	8
G	7	9	5	11	4	8	6	10	8	10	8	:	4	6	7	5	:	11	6	5	8	3	:	8	9	6	:	:	9	5	3
G50	7	8	6	10	6	4	6	12	8	4	13	:	6	8	:	9	:	13	7	5	9	6	:	9	8	5	:	:	8	4	5
G51	7	9	6	18	3	11	8	10	9	6	8	:	5	6	:	4	:	11	6	6	9	5	:	9	9	7	:	:	9	7	1
G52	6	10	4	6	3	8	5	9	7	16	6	:	2	4	:	5	:	11	6	3	7	2	:	7	10	4	:	:	11	3	4
H	4	10	5	28	2	2	11	8	9	21	7	:	3	2	:	9	:	9	2	8	6	7	:	9	7	3	:	:	7	4	6
I												:					:						:				:	:			
I60 to I63	10	9	6	9	2	4	3	12	20	11	10	:	4	2	:	5	:	11	5	3	6	7	:	15	9	8	:	:	6	14	6
I64	12	22	6	11	12	5	1	6	18	5	14	:	8	13	:	6	:	8	7	10	13	6	:	44	13	13	:	:	28	6	5
J	9	13	16	17	9	19	10	17	16	9	13	:	8	6	14	6	:	21	15	12	18	10	:	12	12	6	:	:	14	6	2
J65, J66	9	13	16	16	9	20	10	17	16	10	13	:	8	6	:	6	:	22	15	12	18	10	:	12	10	5	:	:	15	6	2
J67	11	13	15	23	11	6	4	14	9	5	12	:	10	6	:	-	:	18	4	2	24	8	:	7	21	10	:	:	7	10	22
K, O	10	13	10	21	8	3	5	10	12	14	13	:	5	5	c	6	:	11	5	7	8	9	:	14	14	10	:	:	19	9	7
K	12	14	11	21	11	3	5	10	12	11	13	:	7	7	27	8	:	11	6	8	10	11	:	16	15	13	:	:	20	7	7
O	5	11	4	16	4	2	5	12	11	24	11	:	3	2	10	3	:	8	2	2	5	4	:	10	9	3	:	:	13	11	9

Source: CVTS, 1999.

	Total	NACE D	NACE G	NACE J	NACE K	NACE O	Others
EU	9	8	7	9	12	5	9
EU+ACC	8	8	6	9	12	5	9
ACC	6	6	5	12	10	3	6

Source: Eurostat, CVTS2; enterprises with 10 and more employees in the NACE sections C to K and O.

### Additional notes:

Cyprus, Malta and Slovak Republic: did not participate in CVTS2.

Poland: Pomorskie region only.

## 2.2.B. Hours in CVT courses per 1000 hours worked (all enterprises), by NACE, 1999

	EU	BE	CZ	DK	DE	EE	EL	ES	FR	IE	IT	CY	LV	LT	LU	HU	MT	NL	AT	PL	PT	SI	SK	FI	SE	UK	IS	LI	NO	BG	RO
C to K, O	7	8	6	14	5	3	3	6	10	9	5	:	2	2	8	3	:	11	5	2	4	4	:	11	12	7	:	:	10	3	2
C, E, F, H, I	7	5	5	13	4	3	2	5	14	11	7	:	3	3	3	4	:	10	4	2	3	5	:	12	10	8	:	:	8	5	3
C	9	2	4	18	2	0	4	8	7	3	6	:	2	2	:	2	:	11	4	-	5	4	:	14	15	22	:	:	15	2	4
D	6	8	6	12	5	2	3	7	8	9	4	:	2	2	10	2	:	10	4	2	3	4	:	10	13	7	:	:	8	1	1
DA	6	7	4	8	2	1	3	5	7	9	3	:	2	1	:	2	:	9	3	1	2	2	:	6	7	10	:	:	8	1	0
DB, DC	3	3	3	16	1	2	2	2	5	2	2	:	1	2	:	0	:	5	1	0	2	4	:	9	10	3	:	:	3	1	1
DD, DN	4	2	3	8	2	1	2	2	5	8	1	:	1	1	:	1	:	6	3	1	1	2	:	6	6	10	:	:	4	0	1
DE	6	7	3	10	3	4	2	6	7	8	3	:	2	1	:	2	:	7	5	8	6	3	:	10	12	7	:	:	6	1	1
DF to DI	7	7	5	17	6	2	3	8	10	9	5	:	7	3	:	5	:	14	5	2	3	5	:	9	10	4	:	:	9	2	2
DJ	5	6	5	10	4	1	2	7	6	5	3	:	1	2	:	2	:	10	4	1	2	4	:	12	11	6	:	:	8	2	1
DK, DL	7	15	9	13	6	3	4	8	10	12	5	:	1	4	:	3	:	13	6	5	8	5	:	12	13	7	:	:	10	1	4
DM	12	9	7	9	13	8	12	15	12	11	5	:	2	0	:	1	:	7	5	4	13	14	:	8	26	11	:	:	11	2	2
E	10	10	7	16	10	6	1	14	11	15	10	:	6	6	:	8	:	14	6	6	10	16	:	15	22	9	:	:	15	3	3
F	6	3	4	16	2	3	0	2	5	4	4	:	1	1	:	1	:	12	3	2	1	1	:	6	9	12	:	:	5	1	2
G	6	6	3	10	3	5	2	6	7	6	4	:	1	1	6	2	:	10	5	2	3	2	:	7	9	5	:	:	8	1	0
G50	6	6	5	9	6	3	2	7	7	2	6	:	2	2	:	3	:	13	6	2	3	4	:	8	7	5	:	:	7	1	0
G51	6	5	4	17	3	6	2	5	7	4	3	:	2	2	:	1	:	9	5	2	3	2	:	8	8	6	:	:	8	2	0
G52	5	7	3	6	3	5	2	6	7	8	3	:	1	1	:	2	:	10	5	1	3	1	:	7	9	4	:	:	10	0	0
H	3	5	3	25	1	1	2	4	7	21	2	:	1	0	:	5	:	8	1	2	1	4	:	8	6	3	:	:	5	1	2
I												:					:						:				:	:			
I60 to I63	9	5	5	9	2	3	1	8	19	7	6	:	2	1	:	3	:	10	5	1	3	6	:	14	8	8	:	:	5	10	4
I64	12	22	6	11	12	5	1	6	17	5	13	:	8	12	:	4	:	8	7	10	12	5	:	40	13	13	:	:	27	6	3
J	9	13	16	16	9	18	9	16	16	8	12	:	7	5	13	5	:	21	15	8	16	9	:	12	12	6	:	:	14	4	2
J65, J66	9	13	16	16	9	19	9	17	16	9	12	:	7	5	:	5	:	21	15	9	16	10	:	12	10	5	:	:	14	4	2
J67	10	13	8	22	11	6	2	12	8	4	5	:	6	3	:	-	:	17	3	0	9	2	:	6	21	9	:	:	6	2	4
K, O	9	12	8	21	7	2	2	6	11	11	7	:	3	2	:	2	:	10	4	4	3	5	:	13	13	9	:	:	18	2	2
K	11	13	9	21	8	2	3	6	11	10	7	:	3	3	19	3	:	10	5	5	3	7	:	15	15	13	:	:	19	2	2
O	4	9	3	16	4	1	2	6	10	13	4	:	1	1	4	1	:	7	2	1	3	2	:	10	9	3	:	:	13	3	2

Source: CVTS, 1999.

	Total	NACE D	NACE G	NACE J	NACE K	NACE O	Others
EU	7	6	6	9	11	4	7
EU+ACC	7	6	5	9	11	4	7
ACC	4	4	2	11	6	2	4

Source: Eurostat, CVTS2; enterprises with 10 and more employees in the NACE sections C to K and O.

### Additional notes

Cyprus, Malta and Slovak Republik: did not participate in CVTS2.

Poland: Pomorskie region only.

### 3.4.A: Inward and outward mobility of Erasmus teachers. Total number of TEACHERS by country, 2002/03

		Host Country																														TOTAL	
		BE	DK	DE	EL	ES	FR	IE	IT	LU	NL	AT	PT	FI	SE	UK	IS	LI	NO	BG	CZ	EE	CY	LV	LT	HU	MT	PL	RO	SI	SK		
Country of home institution	BE		21	33	25	116	99	13	61	0	55	28	57	68	26	46	1	0	13	7	24	5	2	6	14	25	4	41	44	5	12	241	
	BE fr		4	3	7	32	63	2	31	0	5	3	23	6	3	14	0	0	0	1	4	2	0	2	1	6	1	10	17	0	1	610	
	BE nl		17	30	18	84	36	11	30	0	50	25	34	62	23	32	1	0	13	6	20	3	2	4	13	19	3	31	27	5	11	851	
	DK	12		40	11	34	7	20	15	0	30	5	2	12	8	38	7	0	7	3	6	3	3	3	10	6	4	5	5	1	2	299	
	DE	31	35		67	263	279	43	194	2	48	89	67	195	72	205	4	1	35	55	127	25	5	34	58	128	2	185	96	15	20	2380	
	EL	13	5	46		16	53	2	28	0	4	10	9	12	4	23	1	0	2	11	4	1	8	1	1	10	0	13	18	0	1	296	
	ES	82	21	196	30		273	24	414	0	36	44	145	49	30	139	4	0	12	11	27	4	2	4	3	22	2	34	32	8	9	1657	
	FR	73	18	186	60	259		35	276	0	33	23	54	49	26	134	2	0	10	17	68	3	2	3	18	94	1	136	269	6	8	1863	
	IE	10	3	34	2	14	34		11	0	5	6	6	10	3	7	0	0	3	3	7	0	0	1	0	3	0	5	2	2	0	171	
	IT	27	12	111	27	187	173	7		0	18	19	42	25	21	62	2	0	4	6	27	4	0	3	7	35	0	35	32	2	9	897	
	LU	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	60	26	86	11	53	51	7	23	0		17	17	70	19	78	0	0	19	9	28	6	1	9	7	25	1	47	14	2	3	689	
	AT	16	1	96	22	45	28	17	38	1	21		25	38	24	54	3	6	16	7	33	8	1	2	14	27	2	16	17	15	6	599	
	PT	27	6	36	19	88	65	2	48	1	12	6		24	10	38	0	0	7	4	23	0	2	2	10	11	0	15	22	5	6	489	
	FI	45	8	130	21	61	42	13	40	0	35	41	16		6	99	4	0	6	2	25	34	4	16	27	71	4	27	7	6	13	803	
	SE	21	3	64	16	40	25	9	28	0	23	7	12	11		61	3	0	10	2	21	5	2	5	22	10	2	16	4	4	2	428	
	UK	34	40	209	36	133	169	7	91	0	66	42	45	163	77		6	1	31	14	56	5	6	3	9	17	6	65	22	7	8	1368	
	LI	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1																3	
	IS	0	4	5	1	3	1	0	4	0	0	3	0	5	6	5																37	
	NO	12	15	43	4	27	20	4	11	0	24	12	10	7	17	27																233	
	EUR18	463	218	1316	352	1339	1319	203	1282	4	410	353	507	738	349	1017	37	8	175	151	476	103	38	92	200	484	28	640	584	78	99	13063	
	BG	12	1	55	43	14	31	1	12	0	3	6	9	6	1	34																228	
	CZ	32	9	258	26	61	128	9	74	0	46	63	44	45	44	134																973	
	EE	1	5	10	1	5	4	0	6	0	1	3	2	29	4	6																77	
	CY	0	0	4	3	0	1	0	2	0	0	1	1	2	0	4																18	
	LV	5	0	23	2	3	3	0	0	0	2	5	1	12	2	4																62	
	LT	15	28	75	9	15	19	7	16	0	11	13	17	54	35	18																332	
	HU	16	4	78	11	11	52	2	62	0	21	24	6	48	6	21																362	
	MT	0	4	2	0	2	3	3	4	0	2	1	0	2	1	9																33	
	PL	48	19	263	42	78	134	5	79	0	21	24	41	47	27	56																884	
	RO	49	10	103	66	33	259	3	93	0	20	13	25	10	3	19																706	
	SI	2	2	14	0	5	5	0	9	0	2	12	9	6	1	3																70	
	SK	6	4	51	3	10	15	0	11	0	1	3	1	10	1	8																124	
	CC	186	86	936	206	237	654	30	368	0	130	168	156	271	125	316																	3869
	TOTAL	649	304	2252	558	1576	1973	233	1650	4	540	521	663	1009	474	1333	37	8	175	151	476	103	38	92	200	484	28	640	584	78	99	16932	

Source: DG EAC (Erasmus programme)

### Erasmus TEACHER mobility 1997/98 - 2002/03

	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	Total
Total number of teachers	7 797	10 605	12 465	14 356	15 872	16 934	78 029
Average grant (in €)	842	763	724	615	594	594	
Average duration (days)	:	:	:	7	7	7	

### 3.4.B: Inward and outward mobility of Erasmus students. Total number of STUDENTS by country, 2002/03

		Host Country																													TOTAL		
		BE	DK	DE	EL	ES	FR	IE	IT	LU	NL	AT	PT	FI	SE	UK	IS	LI	NO	BG	CZ	EE	CY	LV	LT	HU	MT	PL	RO	SI		SK	
Country of home institution	BE		118	337	70	1219	742	115	422	0	391	88	186	192	150	357	3	0	45	4	35	7	6	0	2	36	10	53	19	7	6	4620	
	BE fr		51	147	20	571	207	66	219	0	188	30	60	64	53	185	0	0	15	1	8	3	3	0	0	16	5	20	10	3	0	1945	
	BE nl		67	190	50	648	535	49	203	0	203	58	126	128	97	172	3	0	30	3	27	4	3	0	2	20	5	33	9	4	6	2675	
	DK	58		268	22	272	320	39	101	0	149	61	18	8	33	381	13	0	27	1	16	4	9	0	8	7	11	13	6	0	0	1845	
	DE	280	340		168	3892	3546	826	1493	1	857	354	270	827	1336	3136	39	4	390	15	175	33	9	19	29	149	25	219	21	11	18	18482	
	EL	116	40	336		300	375	16	226	1	104	70	72	95	77	155	1	0	21	0	48	1	2	0	0	27	0	22	5	1	4	2115	
	ES	969	517	2441	155		3121	487	3493	0	1149	267	915	482	593	3053	17	0	156	11	120	9	6	1	14	59	12	123	54	19	15	18258	
	FR	381	392	2808	192	4470		1083	1416	7	827	329	250	634	934	4705	18	0	190	10	157	26	7	6	11	160	24	201	86	13	28	19365	
	IE	47	15	336	9	245	544		103	0	69	38	10	47	56	58	1	0	10	1	19	0	0	0	2	4	7	1	0	5	0	1627	
	IT	576	305	1896	168	4826	2665	236		0	527	335	620	352	387	1602	26	1	135	11	75	18	6	2	22	131	42	123	89	17	32	15225	
	LU	1	1	34	3	10	25	0	7		3	8	6	1	3	10	0	0	1	0	2	0	0	0	0	2	0	1	1	0	0	119	
	NL	184	140	407	43	804	523	106	267	0		92	91	217	402	687	9	0	103	4	37	5	0	7	3	50	19	25	7	8	1	4241	
	AT	79	78	277	34	559	500	120	401	1	197		61	174	239	410	17	1	65	1	24	4	0	0	10	22	14	24	2	9	2	3325	
	PT	182	53	300	48	728	357	25	593	0	184	60		79	76	198	0	1	35	5	53	2	1	2	14	35	2	81	37	13	8	3172	
	FI	115	26	561	88	395	355	117	136	0	346	170	46		68	582	8	0	11	3	91	52	11	6	8	119	11	46	10	11	10	3402	
	SE	52	16	447	25	374	479	97	105	0	235	152	23	10		532	3	0	4	0	25	4	0	1	5	23	8	24	9	2	1	2656	
	UK	135	158	1203	53	1757	2408	37	739	0	437	136	87	281	247		16	0	51	1	94	5	6	1	4	32	17	40	9	13	6	7973	
	LI	0	1	0	0	1	1	0	1	0	1	0	0	0	1	1																7	
	IS	2	50	19	5	33	12	0	11	0	8	8	2	3	1	9																163	
	NO	32	44	161	10	162	190	22	60	0	77	37	21	13	33	148																1010	
	EUR18	3209	2294	11831	1093	20047	16163	3326	9574	10	5561	2205	2678	3415	4636	16024	171	7	1244	67	971	170	63	45	132	856	202	996	355	129	131	107605	
	BG	29	9	189	60	26	109	7	45	0	16	25	30	13	5	49																612	
	CZ	124	82	821	69	238	404	40	148	0	161	186	128	182	125	294																3002	
	EE	12	25	38	10	16	31	2	25	0	16	14	6	66	24	19																304	
	CY	12	0	4	22	6	12	0	2	0	0	5	0	16	2	10																91	
	LV	17	11	86	1	10	8	1	11	0	10	5	3	33	25	11																232	
	LT	55	113	249	17	57	53	11	55	0	25	35	40	143	125	24																1002	
	HU	82	48	497	37	100	214	11	208	0	136	104	57	184	56	96																1830	
	MT	0	2	2	0	0	6	4	38	0	3	0	0	3	4	10																72	
	PL	294	241	1682	106	442	745	51	403	0	292	131	192	280	246	314																5419	
	RO	149	39	426	111	256	959	13	385	0	79	38	99	29	43	75																2701	
	SI	24	9	100	6	39	38	6	46	0	26	41	22	15	24	26																422	
	SK	46	14	181	13	65	86	1	42	3	30	46	25	54	11	36																653	
	CC	844	593	4275	452	1255	2665	147	1408	3	794	630	602	1018	690	964																	16340
	TOTAL	4053	2887	16106	1545	21302	18828	3473	10982	13	6355	2835	3280	4433	5326	16988	171	7	1244	67	971	170	63	45	132	856	202	996	355	129	131	123945	

Source: DG EAC (Erasmus programme)

**Students in the EU and ACC-countries studying in their home country (tertiary level, ISCED 5 and 6), in EU, ACC, and in other parts of the world, 2002.**

**COUNTRY OF ORIGIN:**

Students studying	EU25	BE	CZ	DK	DE	EE	EL	ES
in their home country	15 435 620	326 628	274 732	181 699	1 940 669	60 194	520 618	1 787 900
in EU15	315 747	9 137	3 948	4 183	36 933	1 644	44 923	21 127
in new Member States	13 301	11	561	22	783	157	1 078	43
in EEA,BG,RO,TR	11 803	28	43	898	3 312	61	3 340	88
in other parts of the world	90 722	1 298	1 392	1223	17 148	1 702	3 046	5 767
Total of students with above country of origin	15 867 193	337 102	280 676	188 025	1 998 845	63 758	573 005	1 814 925

Students studying	FR	IE	IT	CY	LV	LT	LU	HU
in their home country	1 863 742	167 090	1 825 753	10 869	107 239	148 104	2 965	342 603
in EU15	40 080	13 558	33 342	11 057	1 259	2 057	5 815	5 967
in new Member States	50	15	264	432	112	1 154	0	108
in EEA,BG,RO,TR	204	29	118	409	73	85	1	123
in other parts of the world	11 044	1 488	7 907	2 099	1 613	2 277	273	1 563
Total of students with above country of origin	1 915 120	182 180	1 867 384	24 866	110 296	153 677	9 054	350 364

Students studying	MT	NL	AT	PL	PT	SL	SK	FI
in their home country	6 909	497 895	195 283	1 898 888	382 399	98 263	150 539	277 045
in EU15	565	9 160	9 905	18 738	9 661	1 691	3 288	8 400
in new Member States	0	18	62	293	29	67	7 101	312
in EEA,BG,RO,TR	411	159	68	110	102	4	18	327
in other parts of the world	86	2 544	2 040	3 268	1 558	405	773	1 021
Total of students with above country of origin	7 971	509 776	207 358	1 921 297	393 749	100 430	161 719	287 105

Students studying	SE	UK	IS	NO	BG	HR	RO	TR
in their home country	354 187	2 013 407	11 112	187 557	220 396		571 613	1 661 608
in EU15	7 720	11 598	1 743	8 253	12 617		9 036	34 117
in new Member States	264	365	13	1 017	363		3 246	94
in EEA,BG,RO,TR	1 081	711	265	44	1 121		169	821
in other parts of the world	5 405	13 782	917	4 341	3 995		4 554	14 977
Total of students with above country of origin	368 657	2 039 854	14 050	201 212	238 492		588 618	1 711 617

Source: Eurostat, UIS (UNESCO Institute of Statistics), UOE.

**Additional notes:**

- For a given nationality the number of students studying abroad is calculated by summing the numbers provided by the receiving countries. The lack of data by nationality or other missing reporting for some countries leads to underestimation of the number of students studying in another country than the country of origin
- GE, RO, SI: Students in ISCED 6 are excluded
- LU: Data for 2000