



Directorate-General for Education and Culture



EUROPEAN REPORT ON THE QUALITY OF SCHOOL EDUCATION

SIXTEEN QUALITY INDICATORS

**Report based on the work
of the Working Committee on Quality Indicators**



EUROPEAN COMMISSION
Directorate-General for
Education and Culture

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Report based on the work of
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on Quality Indicators (1)

MAY 2000

(1) The working committee includes experts selected by the Ministers of Education of the following countries: Belgium, Denmark, Germany, Greece, Spain, France, Ireland, Italy, Luxembourg, the Netherlands, Austria, Portugal, Finland, Sweden, the United Kingdom, Cyprus, Hungary, Poland, Romania, Slovakia, Latvia, Estonia, Lithuania, Bulgaria, the Czech Republic, and Slovenia.

A great deal of additional information on the European Union is available on the Internet.

It can be accessed through the Europa server (<http://europa.eu.int>).

Cataloguing data can be found at the end of this publication.

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A. INTRODUCTION

The quality of education and training is considered in all Member States to be a concern of the highest political priority. High levels of knowledge, competencies and skills are considered to be the very basic conditions for active citizenship, employment and social cohesion. Lifelong learning is an important means of shaping one's future on a professional and personal level, and high-quality education is essential in the light of labour market policies, and the free movement of workers within the European Union.

It is stated in Article 149 of the EC Treaty that 'the Community shall contribute to the development of quality education by encouraging cooperation between Member States and, if necessary, by supporting and supplementing their actions while fully respecting the responsibility of the Member States for the content of teaching and the organisation of educational systems and their cultural and linguistic diversity'. The Education Council has debated this subject on numerous occasions. A number of conclusions and resolutions have been adopted, inviting Member States and the Commission to initiate cooperation in the field. In the Council resolution of 26 November 1999, Ministers of Education identified the quality of education as one of the priority issues for consideration under the new cooperation model of the 'Rolling agenda'.

Under the Community action programme Socrates, quality of education is the key objective of the programme actions. Quality of education has thus been a priority issue for analysis, and a number of studies and

research projects have been launched with a view to strengthening cooperation at European level in the field. These initiatives have paved the way for the pilot project on quality evaluation in school education which was implemented in 101 secondary schools across Europe in 1997/98. Based on the results of the pilot scheme, the Commission adopted in January 2000 a proposal for a recommendation of the European Parliament and the Council on 'European cooperation in quality evaluation in school education', based on Article 149 and 150 of the Treaty.

The need for cooperation in the field of quality evaluation was equally underlined at the conference, held in Prague in June 1998, of the Education Ministers of the European Union and of the 11 acceding countries as well the Education Ministers from the three non-associated countries of central and eastern Europe participating as observers. The Education Ministers from the 26 participating countries invited the Commission to establish a working committee of national experts designated by the Ministers with a view to agreeing a 'limited number of indicators or benchmarks for school standards to assist national evaluation of systems'. A working group consisting of experts of 26 European countries was subsequently set up in February 1999 ⁽²⁾.

Two progress reports were prepared by the Commission. The first report, containing the basic criteria for the

⁽²⁾ The list is also available on the Internet (<http://europa.eu.int/comm/education/indic/membersen.html>).

selection of indicators, was presented to the European Ministers of Education, in Budapest, in June 1999. The second report, setting out a preliminary outline of the indicators to be considered, was submitted to the Education Council at the meeting on 26 November 1999. ⁽³⁾

This *European report on the quality of school education* is based on the 16 indicators which were selected by the working group in cooperation with the Commission. These indicators cover four broad areas: attainment levels; educational success and transition; monitoring of school education; and educational resources and structures.

The Commission envisages submitting this report to the Education Council under Portuguese Presidency (8 June 2000) and to the Conference of European Education Ministers to be held in Bucharest (18 to 20 June 2000). The report will constitute a key element of the 'Rolling agenda' of the Education Council in the field of quality of education. The Commission's intention is to update and to complement the selected indicators on a regular basis.

The *European report on the quality of school education* represents the Commission's first response to the conclusions of the special European Council meeting in Lisbon on 23 and 24 March 2000. At this meeting the Union set itself the strategic target of becoming the most competitive economy in the world capable of sustainable growth, with more, higher quality jobs and

greater social cohesion. Achieving this goal requires an overall strategy aimed at preparing the development of the knowledge-based economy and a strategy designed to modernise the European social model by investing in people and by combating social exclusion.

At the core of this strategic reorientation of priorities, the conclusions of the Lisbon European Summit (March 2000) recognised the essential role of education and training in moving towards the goal of full employment through the development of the knowledge economy. The European Council clearly identified the need to set quantifiable targets, indicators and benchmarks as a means of comparing best practice and as instruments for monitoring and reviewing the progress achieved.

The Commission is convinced that this first *European report on the quality of school education* will contribute a European dimension to the shared knowledge pool available for educational policy-making. The Commission hopes that the report will foster cooperation across Europe and stimulate a wide ranging debate among all stakeholders on quality policies of education.

PRESENTATION OF THE 16 INDICATORS

The 16 indicators on quality of school education selected by the working committee of national experts provide a complementary set of information, which begins to paint a picture of quality in European schools.

The 16 indicators are shown in the table below:

⁽³⁾ The two progress reports can be found on the Internet (<http://europa.eu.int/comm/education/indic/backen.html>).

AREA	INDICATOR
Attainment	<ol style="list-style-type: none"> 1. Mathematics 2. Reading 3. Science 4. Information and communication technologies (ICT) 5. Foreign languages 6. Learning to learn 7. Civics
Success and transition	<ol style="list-style-type: none"> 8. Drop out 9. Completion of upper secondary education 10. Participation in tertiary education
Monitoring of school education	<ol style="list-style-type: none"> 11. Evaluation and steering of school education 12. Parental participation
Resources and Structures	<ol style="list-style-type: none"> 13. Education and training of teachers 14. Participation in pre-primary education 15. Number of students per computer 16. Educational expenditure per student

The indicators fall into four areas:

1. Attainment.

In this area are seven indicators of attainment which are seen as critical for all European countries in the present and for the future. In some fields – 'mathematics', 'reading', 'science' – data already exist. To some degree this reflects the relative ease of measurement in these curricular areas. At the other end of the spectrum 'learning to learn' is an indicator covering a much less easily measurable set of skills but nonetheless critical for an unpredictable social and economic future where no comparable data is presently available. In between are subjects such as 'civics', for which little data as yet exists, and 'foreign languages', which has also still to be developed. 'Information and communication technology' (ICT) is also included in this attainment set because, although little good data currently exists, it will be a key indicator in years to come. All of these areas of attainment remain important goals for the future.

2. Success and transition.

Into this area fall three indicators of highly significant policy relevance. They are closely inter-related – 'drop-out rate from school', 'completion of upper secondary education' and 'participation in tertiary education'.

3. Monitoring of school education.

Two indicators currently fall into this area. These are 'evaluation and steering of school education' and 'parental participation'. Both are concerned with stakeholder participation where heads of schools, teachers, students and parents are key stakeholders, consumers of information and active players in school improvement.

4. Resources and structures.

This category includes four indicators, each concerned with key aspects of infrastructure which underpin school performance and pupil success. These are 'educational expenditure per student', 'education and training of teachers', 'participation rates in pre-primary education' and 'number of students per computer'.

USING INDICATORS AND BENCHMARKS IN POLICY-MAKING

It is through graphical portrayal of similarities and differences between countries that indicators and benchmarks truly come into their own. This allows countries to learn from one another through comparison of both common interests and shared differences. The aim of benchmarks is not to set standards or targets, but rather to provide policy-makers with reference points. Benchmarks are used to identify issues which need to be investigated further, and to suggest alternative routes to policy goals.

As an example we might look at existing data on the use of ICT in schools.

Why choose 'ICT attainment' as indicator for quality of education?

This topic is selected because ICT is of the most critical policy relevance. It is already having far-reaching effects on people's lives and children's learning, with, for example, 40 % of all UK market shares in ICT.

Why choose data on 'the use of ICT in schools'?

The indicator selected is simply one of many. It compares countries' approaches to the use of ICT as a curricular subject and/or as a generic tool. While the data are limited in how much they reveal, they provide an introduction to policy discussion by raising a number of questions about the future place, purpose and practice of ICT in European schools. For example:

- Which is better – to teach ICT as a subject in its own right or to use it as a tool across all subjects?
- What does this mean for the education of teachers – specialist skills or generic skills?
- What are the demands of the labour market – for high level specialists (e.g., programmers) or young people with broad computer literacy?

And looking to the immediate and longer-term future:

- What are the cost benefits of alternative forms of provision? How much of learning can be independent, teacher-led, peer group-led, or home, school, or community based?

All the indicators lead into a number of different policy areas and into the examination of promising practices that already exist within Europe. Within each of the indicator areas in this document, examples of such practices are illustrated. They suggest what can be done with imagination and commitment. For instance, within ICT, examples are given of interesting initiatives in Estonia and Sweden. The Swedish example covers a number of key areas, including teacher education and student resourcing, but carries significant cost implications. The Estonian example, on the other hand, suggests innovative ways of using hidden resources (school students) to actually minimise costs and simultaneously raise achievement. So, indicators lead to benchmarks, to issues and questions and thence to examples of practice which provide a focus for policy development in every European country.

FROM DATA TO POLICY AND PRACTICE

In this report, each of the 16 indicators is presented in sequence, which does not represent an order of prior-

ity. In some cases data is long-standing and well-researched. In some, data is new and less well tested. In others there is no data available as yet but the indicator is included as an area of important emerging policy issues.

In all cases, however, comparability has to be approached with caution and an open mind. Even the most robust of data conceal historical and cultural differences and value systems. National goals and priorities differ and will continue to differ but much may still be learned from innovative practice and new and different approaches to old problems.

So, promising or interesting examples of what is happening across Europe are presented to stimulate discussion further and to illustrate principles which may be transferable across countries. Some examples of practice go well beyond the parameters of the associated indicator but in so doing illustrate the potential of the data to make a difference both at policy level and in school or classroom practice.

B. FIVE CHALLENGES TO THE QUALITY OF EDUCATION IN EUROPE

The new millennium may be only a symbolic change of date but it marks an important stage for policy-makers in European countries. It encourages us to look to the future and turn our attention to the challenges which that future presents. For policy-makers, the challenge will be to stay in touch with, and ahead of, national and transnational movements which will change the face of Europe and impact on national systems of education. The 16 indicators presented in this report lead us to identify five key challenges for the future:

- the knowledge challenge
- the challenge of decentralisation
- the resource challenge
- the challenge of social inclusion
- the challenge of data and comparability.

The knowledge challenge

The challenge of the knowledge society brings us back to the essential purposes of school education, in relation to the world of work, to social life and lifelong learning. The information explosion demands fundamental rethinking of traditional conceptions of knowledge, its 'transmission', 'delivery' by teachers and 'acquisition' by students. It raises questions about the assessment and testing of knowledge and the

more demanding resources of skills, attitudes and motivation to learn. It questions curriculum content and the prioritisation and compartmentalisation of 'subjects'.

Reading, mathematics and science claim their place as indicators because they provide essential knowledge tools and provide the foundations for lifelong learning skills. Less easily measurable competencies in civics, foreign languages and ICT will be no less significant in the future. Least developed of all in terms of the indicator areas presented in this report are learning to learn skills but, arguably, they may be the most critical and enduring of competencies in the society of the third millennium.

All of these areas of knowledge and skills present major challenges for the teaching profession and to the content of teaching in initial and in-service training. Indicators in these areas do not provide the answer but do raise critical questions about how and where teachers should be trained in the future and how continuing professional development can be ensured.

Change requires rethinking, reappraisal, re-evaluation of accepted practices, challenging what has always been done and accepted. Change often requires both restructuring and re-culturing of organisations. It imposes new demands on hierarchies, status and relationships. It may unsettle teachers and puzzle parents who have cast schools in the mould of what they knew.

However, as the examples of promising practice show, these challenges are being met. Initiatives are underway to up-skill teachers, to exploit new technologies, to break new ground in learning to learn competencies. Meeting the knowledge challenge means learning from the good and implementing the best.

The challenge of decentralisation

During the last two decades, many European educational systems have devolved more autonomy and responsibility to schools, bringing increasing demands for accountability at school and, in some cases, classroom level. The scale and rate of decentralisation has been very different within European countries. In some (for example, the Netherlands and the United Kingdom), schools have acquired a large measure of autonomy, while in Belgium (Flanders), Denmark, Finland and Sweden most decisions are now taken at school level. In Italy, a reform, which involves a great degree of school autonomy, has been mooted since 1997. In Austria, reforms in 1993–94 enhanced the autonomy of the schools.

The trend to devolve decision-making to school level is a high stakes political strategy, the result in part of a lack of trust in the State's capacity to respond adequately to each and every need of an increasingly demanding population. It has been argued that those most concerned with the outcome of a decision are in the best position to take decisions which most directly affect them. In a sense, decentralisation is a means of taking the political debate on quality down to lower levels of the education system.

In doing so it raises questions about comparability, equity, quality assurance and inspection. Empowering stakeholders at lower levels means making them responsible for defining what they understand by quality in education and giving them 'ownership' of their part in the education system.

The process of decentralisation is often seen as both positive and inevitable, but with its own attendant problems. Since it is the responsibility of the State to provide quality education for all, there needs to be some guarantee that the system is, in fact, fulfilling that objective. Decentralisation by its very nature leads to greater differences in standards among schools. The policy challenge is to acknowledge that these differences exist, and to ensure that differences are turned

to opportunities and that they do not hinder pupils in achieving their full potential.

It has been argued that centralised systems, which prescribe and control education inputs (curriculum, form content, etc.) need less monitoring and control than decentralised systems, which place less emphasis on the control of input and require greater emphasis on the control of output. A closer look at indicators on the steering and evaluation of systems does not entirely support such a contention but does reveal quite divergent systems enveloping apparently similar practices.

The resource challenge

For many people within the educational systems the solution to the pressures of change is more resources. Education is increasingly being viewed around the world as investment. While opening up choice to consumers in new educational markets, the economic imperative is for cost-effective alternatives to expensive institutional practices. Technology will become cheaper and widely accessible while professional manpower will become scarcer and costlier, in both a social and economic sense. The indicator on numbers of computers per pupil is already dated as schools experience rapid increases in provision. The real challenge lies in the most intelligent and cost-effective use and deployment of new technologies.

In most European countries there are twin trends which increase resource demands at both ends of the compulsory schooling. More and more people are using the education system for a longer and longer period of their lives, so increasing resource demands on education. Enrolment in further and higher education is increasing steadily. At the other end of the education system, pre-school education is becoming more and more common and, although its nature and timing is a debated issue, there is wide agreement that early childhood experiences have a determining influence on intelligence, on personal development and on subsequent social integration. However desirable, and however much investment in early childhood represents long-term investment, these accelerating trends also bring pressure on resource provision and require creative policy thinking.

As provision becomes less institutionalised, individuals will need to adapt by assembling their own qualifications, their own building blocks of knowledge, on the

job, in more informal ways or in new contexts still to be identified. Learning throughout life is becoming the key to controlling one's future on both a professional and a personal level, making it possible to participate more actively in society.

Again policy-makers will benefit from data which monitors important trends, but beyond the numbers and graphics lie issues about the nature and effectiveness of provision and the need for more and better data, sensitive enough to inform decision-making in these areas.

The challenge of social inclusion

All European education systems aim to be inclusive, to offer children and young people the opportunity to benefit from school education and to prepare them for life after school.

No system is entirely successful in achieving these aims and all countries recognise the increasing magnitude of the task. It is becoming all the more challenging because school structures, curricula and the learning environment are seen by many young people as uncongenial or irrelevant to their lives. For many there is no apparent incentive from home or community to go to school and no benefit from attending on a regular basis. All Member States are realising that the future brings a monumental challenge to traditional structures of educational institutions. This means finding ways of educating people beyond school and outside the classroom, helping them acquire the skills and competencies which will make them less vulnerable in the global economy. The European pilot project 'Second chance schools', which presently counts 13 schools in 11 Member States, addresses this problem by showing that those young people who have left education without the basic skills necessary to find jobs and permit integration can be reintegrated through individualised education and training schemes in close cooperation with local employers.

The civics indicator provides one measure of social inclusion. It reminds us of how 'foreigners', however defined, are perceived, and suggests that it is for social agencies and schools in particular to address this issue. Attitudes towards foreigners can be affected not simply through the context of the curriculum, but through the very structures and culture of schools themselves.

This indicator is a reminder that the relationship between school and society is a vital ingredient in policy-making. Policy-makers need to know the answers to questions such as the following.

1. What implicit and explicit messages do schools convey on social inclusion?
2. Where is the system losing young people – and why?
3. Where are the problems most acute?
4. Where can we identify successes in engaging and retaining young people?
5. What are the alternatives for the future?

The challenge of data and comparability

The 16 indicators presented in this report provide a timely reminder that countries can no longer look inwards, but that they must look outwards to see how they are performing in comparison to their neighbours. A new term has entered the policy discourse – benchmarking. Benchmarks bring a new way of thinking, about national performance, about local and regional effectiveness, and performance at the level of individual schools. Benchmarks can be used diagnostically and formatively to inform policy and practice but are sometimes also viewed as a threat.

The challenge of comparability is to create an open and positive climate for dialogue. Comparison which is perceived as unfair becomes detrimental to the positive and constructive use of benchmark data. The obvious place to start is with standards attained by children at school – their outcomes on leaving school, their acquisition of basic skills at key stages of development.

Data on pupil attainment at given ages is, however, of limited use to policy-making without knowledge of the conditions in which attainment is raised and of limited value without an understanding of factors which contribute to good teaching and effective learning.

This raises the question of the availability of comparative data. Many indicators in this report clearly lack sufficient data to support a policy discussion and to enable the identification of good practices. Problems related to data have been identified and are listed below.

- The problem of obtaining data for all the countries involved. In only three cases have we been able to show full coverage of all the 26 countries involved by using Eurydice data. These are the indicators covering: parents' participation, ICT usage and evaluation and monitoring systems. The extension of the Eurostat UOE data collection and Labour Force Survey to all these countries is ongoing (five statistical indicators).

- The problem of a lack of data in relation to specific indicators. The report is not currently supported by data on attainment in foreign languages, learning to learn, ICT or civics. The results from the PISA study (OECD) and the IEA (International Association for the Evaluation of Educational Achievement) survey on civics, which will be published by 2001, will provide answers to some of these problems, but for 'foreign languages' there are no measures in place to address the lack of available data. Furthermore, data on parental participation, and more broadly 'stakeholder participation', clearly needs to be further elaborated than is presently the case, as does data on the evaluation and monitoring of school education. In the latter case, new comparative data should look in particular at the links between external and internal evaluation.

- For some indicators, the age of the data used is clearly a problem. This is particularly so in the field of 'reading', where the data used in this report are almost 10 years old. Publication of some new data is, however, planned within the coming months and years. This is the situation for six of the seven attainment indicators (mathematics, reading, science, learning to learn, ICT, civics). The availability of regularly updated valid data will continue to be of major concern.

- The problem of the usefulness of the data has been discussed throughout the preparation of this report. One could question whether the data which is presently available, or planned, on attainment levels provide sufficient insight into each country's educational specificity. Establishing a strong awareness of the particular nature of a country's educational system would better allow countries, which may so desire, to take remedial action in specific areas. More refined methodologies would allow a move away from straightforward comparisons and allow the reader to understand better not only the levels of skills in specific areas but also how these skills are attained in diverse educational systems.

A common approach between European countries to defining the indicator needs and methodologies mak-

ing the best use of the 'European statistical system' and the 'Community statistical programme' (4) would allow us to derive greater benefit from the use of comparative indicators and benchmarks in terms of improving the quality of education.

Comparing systems

Europe is a rich mix of cultures and histories, brought together in one union, facing common problems and pursuing common goals while preserving cultural and linguistic diversity.

European countries share many common objectives. They are all concerned to offer young people the chance to achieve high levels of literacy and numeracy, to provide a stimulating school experience and to instil a desire for learning which will serve young people well for their lives beyond school. Such objectives are not contested. Nor is there disagreement about key subjects of the school curriculum. This background provides a strong basis for sharing and learning from one another.

However, subject areas are given different priorities in different Member States. Varying emphases are placed on the context of learning at different ages and stages. Methodologies differ. Teaching and learning is embedded in different structures. Countries diverge in their linguistic and cultural histories. These cultural patterns bring a depth and richness to the dialogue at European level. They provide a strong basis for Member States to learn from one another.

This is why, in selecting indicators and benchmarks, it is important to choose those which are most generative in stimulating an open policy dialogue; one which looks forward – to policy implications of the data and lines for further inquiry in the future. Data for all countries are embedded in a cultural and historical context. All data are suggestive rather than definitive. Indicators should be regarded as starting points, limited in their internal meaning but unlimited in their implications for improving raising standards for all.

(4) Council Decision No 1999/12/EC of 22 December 1998 on the Community statistical programme 1998 to 2002 (OJ L 42, 16.2.1999, p. 1).

SIXTEEN INDICATORS ON THE QUALITY OF SCHOOL EDUCATION

Indicators on attainment

1. Mathematics
2. Reading
3. Science
4. Information and communication technologies (ICT)
5. Foreign languages
6. Learning to learn
7. Civics

Indicators on success and transition

8. Drop-out rates
9. Completion of upper secondary education
10. Participation in tertiary education

Indicators on monitoring of education

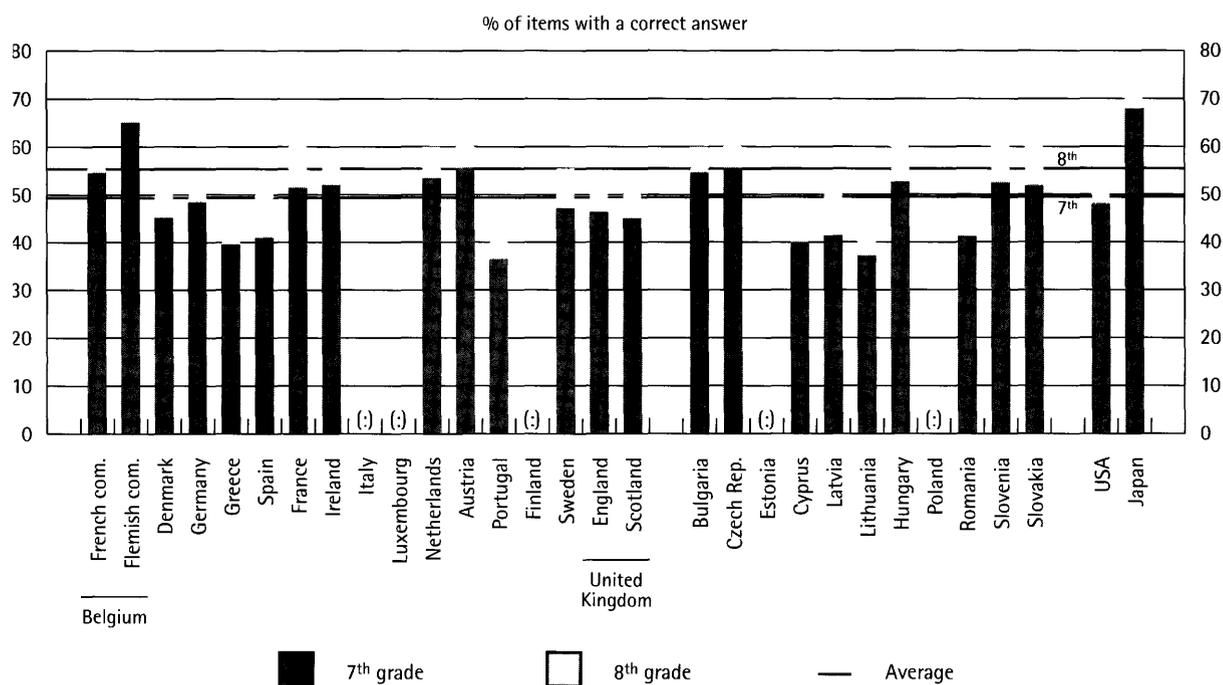
11. Evaluation and steering of school education
12. Parent participation

Indicators on resources and structures

13. Education and training of teachers
14. Participation in pre-primary education
15. Number of students per computer
16. Educational expenditure per student

1. MATHEMATICS

A solid grounding in mathematics belongs at the very core of the educational curriculum. Analytical skills, logic skills and reasoning are all enhanced through the study of mathematics. Compulsory training of children in mathematics is therefore an important requirement for participation in society, ultimately making an indispensable contribution to national competitiveness and the knowledge society. All countries seem to share this view and place basic learning in mathematics at the heart of early learning. The year 2000 has been announced 'Year of mathematics' by the International Mathematical Union and sponsored by Unesco.



TEST RESULTS IN MATHEMATICS (13-YEAR-OLD STUDENTS), 1995

(:) Data not available
Source: IEA, TIMSS.

The graph shows the results of an international mathematics ability test: the Third International Mathematics and Science Study (TIMSS). TIMSS is a collaborative research study conducted by the International Association for the Evaluation of Educational Achievement (IEA). Tests were taken in 1995 by samples of, among others, classes from the two adjacent grades with the largest proportion of 13-year-old students (seventh and eighth grades in most countries). In the survey, which covered 41 systems of education worldwide, the ability of seventh and eighth grade pupils to handle mathematical symbols, terms and models, and their mathematical thinking and problem solving abilities were all measured.

The findings of the TIMSS study will be complemented by OECD's PISA study (Programme for international student assessment) which will be carried out later this year. The first results of this study will be published in 2001.

The graph shows the average scores of seventh and eighth grade pupils from each country. The two horizontal lines show the international averages for the European and pre-accession countries in the seventh (lower line) and eighth grades (upper line). The differences between grades vary from 1 percentage point in Belgium (Flanders) to 10 percentage points in France and in Lithuania.

European countries achieved very varied results, in terms of percentage of correct answers in the test. They ranged from 65 % in the seventh grade (Belgium (Flanders)) to 37 % (Portugal) and from 66 % in the eighth grade (Belgium (Flanders) and the Czech Republic) to 43 % (Portugal). It is particularly interesting to note that central European countries such as Bulgaria, the Czech Republic, Hungary, Slovenia and Slovakia performed especially well. When the test results from the seventh and eighth grades, shown here, are compared with those from the fourth grade, also available in the TIMSS survey, they show a very similar pattern of results in terms of the relative positions of the countries. This suggests that the relative abilities in mathematics are established early in the educational process.

In the light of this, however, it is surprising that there does not appear to be any strong connection within countries between the TIMSS results for pupils in the eighth grade and those in the final classes (12th or 13th grade). A very high level of performance among eighth grade pupils, in relation to other countries, does not necessarily mean a comparably high level among 12th grade pupils.

Some caution should be taken with the data with regard to the comparability of the results of the participating countries. Attention should be drawn to some potential problems. Firstly, some of the participating countries did not fulfil the guidelines for drawing the samples, thus the results cannot be guaranteed to be fully representative. Secondly, it must be remembered that the pupils in the participating countries are accustomed to different types of test. The types of task presented in the TIMSS tests, and the manner in which the tests were conducted, may have been familiar to some students but unfamiliar to others. This may explain some of the variations between countries. There were also slight differences in age among pupils tested. Furthermore national differences between curricula might also have had an impact on results.

Compared to their overall performance, almost all countries did relatively better in some content areas than they did in others indicating differences in the curriculum emphasis between countries. Significant differences in results can, for example, be found between geometry and algebra. The TIMSS survey points to a range of factors that appear to be linked to high achievement in mathematics, including the following.

- A clear positive relationship between a stronger liking of mathematics and higher achievement. However, even in some high-scoring countries such as the Czech Republic, Austria and the Netherlands, mathematics is not necessarily very popular, with more than 40 % of students reporting that they disliked it.
- A strong positive relationship between achievement and home environment – better educated parents, the availability of study aids at home such as dictionaries, computers and a study desk for the student's own use.

There were other factors where the TIMSS survey could establish no clear link with achievement. They included class size, number of instructional hours in class, amount of homework and gender.

KEY POLICY ISSUES CONCERNING MATHEMATICS

The key policy issues set out here are based partly on international discussion of the results of TIMSS, but they are also linked to wider educational debate:

The development of teaching methods which ensure that pupils have a positive attitude towards mathematics, and that they are motivated to learn mathematics and encouraged to study and apply mathemat-

ical laws independently. **How can such a culture of teaching and learning be developed and maintained in the field of mathematics, and how can the importance of mathematics be demonstrated in order to motivate pupils to learn?**

The issue of positive and negative attitudes towards mathematics which could influence students' choices of subjects studied in tertiary education. Many countries experience difficulties in attracting students to technical and scientific studies. **What experiences and positive actions exist to encourage students to pursue such fields of study, and to overcome negative attitudes towards mathematics in this context?**

Mathematics is considered to be at the very core of the educational curriculum. High attainment levels in mathematics are central for access to some key areas of higher education and many professional careers. But mathematical ability is a core skill for all citizens in a society of knowledge. **Are there common skills and competencies in mathematics which European citizens should possess, and a common understanding of the competencies which students should develop in the various sub-disciplines of mathematics?**

Germany – Materials have been developed for mathematics teachers, in which the TIMSS results are explained and suggestions for the improvement of mathematics teaching are presented.

United Kingdom – Launch of the 'Maths year 2000' to promote a 'can do' attitude towards maths and get rid of the national fear of figures. For more information see the web site (www.mathsyear2000.org).

EXAMPLES OF NATIONAL INITIATIVES

(For more information see Annex 1)

Unesco – Initiative to declare 2000 the year of mathematics. Most countries have set up an agenda and projects which can be consulted on the Internet (<http://wmy2000.math.jussieu.fr/>).

Austria – The Austrian Ministry of Education has begun a project with two principal objectives: to establish measures for the further development of instructional methods in mathematics and to develop a methodology for the use of materials relevant to TIMSS in mathematics instruction.

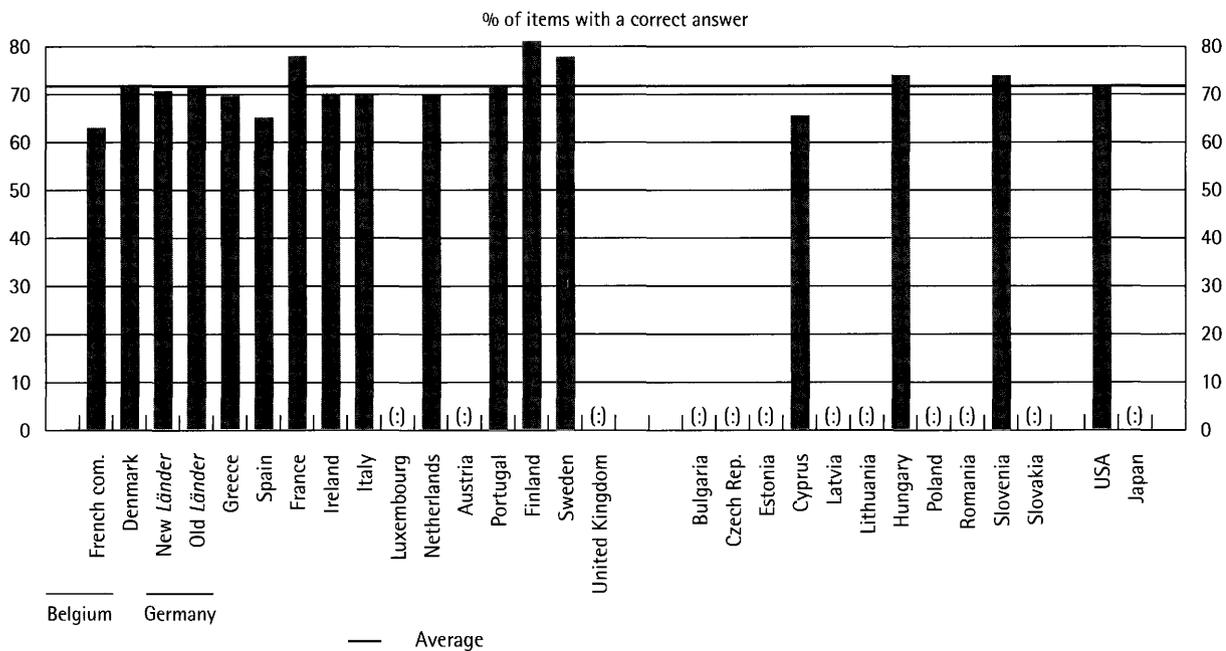
Cyprus – Mathematical contests covering all areas of the country and all ages of pupil. The contests are helping to build a culture which promotes excellence in mathematics.

France – A national 'observatory' for mathematics teaching and achievement has been developed. Surveys carried out over 10 years have produced many assessment tools and teaching references for pupils from grade 6 to grade 12.

2. READING

Reading skills play a central role in an individual's learning at school. The ability to read and understand instructions and text is a basic requirement of success in all school subjects. The importance of literacy skills does not, however, come to an end when children leave school. Such skills are key to all areas of education and beyond, facilitating participation in the wider context of lifelong learning and contributing to individuals' social integration and personal development.

The indicator is based on an IEA survey in which three areas of reading literacy were assessed: narrative prose, expository prose and documents. It concerns six different skills or processes related to these areas.



TEST RESULTS IN READING LITERACY (14-YEAR-OLD STUDENTS), 1991

(.) Data not available
 Source: IEA, *Reading literacy*.

The data for the proposed indicator comes from the IEA. The tests were taken in 1991 by samples of the classes of the grades with the largest proportion of 9-year-olds and 14-year-olds in 32 systems of education. In the longer term, as with mathematics and science, indicators from the PISA survey will be published in autumn 2001. In addition, the IEA is preparing a new study about reading literacy.

The graph above shows the mean percentages of items successfully answered by the sample of 14-year-old students in each country. The horizontal line corresponds to the mean success percentage calculated for the European and pre-accession countries.

As the average age of students was not exactly the same in the different countries, their scores may be slightly underestimated (Italy, Hungary, Spain and Belgium) or overestimated (Portugal and France).

The average score is 72 %. It is not always easy to make sense of this kind of international comparison without some sort of frame of reference to tell us, for example, what '15 %' actually means. One can analyse the data and see that, based on 14 identical items from the test, the difference between the scores of 9-year-olds and 14-year-olds was around 24 %. Although this information should be treated with caution it does provide a guideline – for example, if we consider Belgium and Finland, separated by 15 percentage points, we can see that 15 percentage points represents about two thirds of the average international progress observed between 9 and 14 years in the 14 items referred to above (Elley, 1994: see Annex 2).

Analyses have been carried out in order to determine what variables may be linked to the level of reading achievement, both between countries and within each country. It should, however, be stressed that although statistical analyses show links between achievement and some other variables, no country follows exactly the same pattern. The results point more to areas for further exploration than to definitive solutions for improving reading attainment.

- The countries' averages are linked to some characteristics of the home environment (such as the presence of books, newspapers, etc.).
- Some individual students' characteristics, such as gender, also play a part in reading performance.
- The level of certain school resources is also associated with reading literacy achievement. Educational

policy-makers can exert some influence on these resources, their distribution or their use. The most efficient of these variables relates to the presence of books in the community and parental cooperation with the school.

KEY POLICY ISSUES CONCERNING READING

At secondary school level, public libraries and bookshops can make an essential contribution to reading skills; the regular addition of new books to the school library, the existence of a reading room and a teachers' library are worth considering. They can also play an important part in providing interesting reading material for pedagogic use. **How can the number and quality of books available to students – and also to teachers – be enriched?**

As is the case for computers (see the 'students per computer' indicator), a sufficient number of high-quality books is necessary, but this alone will not guarantee high attainment levels in reading. The books must be used in the most efficient way in order to enhance both students' interest for and competence in reading. **How can teachers be supported in addressing the needs of different age groups? How can the cross-curricular nature of reading be taken into account in teacher training?**

As in other domains, parental participation (see relevant indicator) is important. **How can parental participation be achieved, particularly for students with poor reading skills? How can parents be supported in their role?**

Young people are increasingly faced with forms of media which include written material (advertising, television, CD-ROM, and multimedia, for example). **How can curriculum development and teacher training best be managed in order to equip young people with literacy skills for the future and to allow them to analyse in a critical way the information conveyed by the media?**

EXAMPLES OF NATIONAL INITIATIVES

(For more information see Annex 1)

Denmark – Efforts to increase the level of attainment in reading in compulsory education in Denmark by reinforcing the subject in the curriculum.

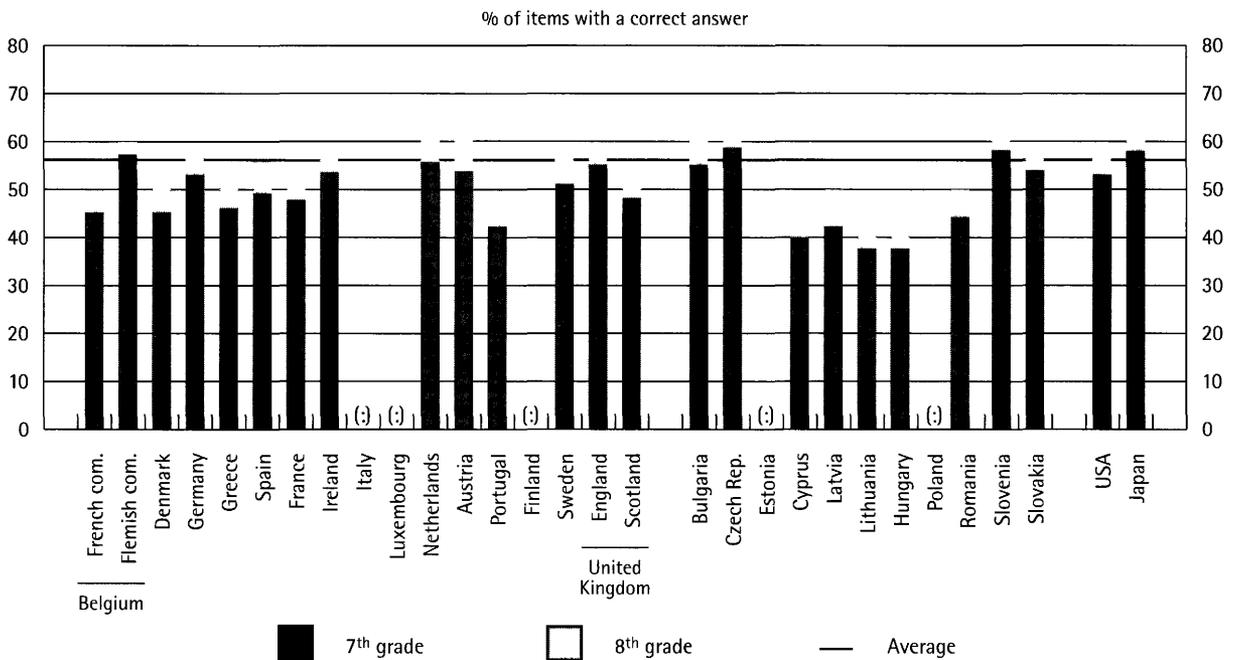
Germany – Newspapers in schools – over a period of three months, students receive 'their' daily newspaper (without paying for it). This is then used systematically within different subject matters at school.

Italy – The 1998 'Progetto lettura 2000' programme aims to promote the development of school libraries and to encourage reading among students in all kinds of school.

Sweden – Parents of students aged 10 to 12 are encouraged to spend half an hour per day reading a good book with their child. The authorities have supported this initiative, providing money to buy interesting books that both students and parents enjoy.

3. SCIENCE

Science gives pupils the tools to investigate their environment and to experiment, thus increasing their ability to analyse and make sense of the world around them. It promotes curiosity and critical thinking about a wide range of issues such as the environment, living things, health and other issues. Science can also help pupils to develop an awareness of the inter-relationship between people and nature, and an understanding of the finite nature of the earth's resources. At the level of European economy, scientific disciplines are the bases for much of the core foundations of business and industry. In a national perspective, well-trained researchers are indispensable to technological progress, the impact of which transcends national frontiers.



TEST RESULTS IN SCIENCES (13-YEAR-OLD STUDENTS), 1995

(:) Data not available

Source: IEA, TIMSS.

As with mathematics, the proposed aggregated indicator is taken from the Third International Mathematics and Science Study (TIMSS) (see the 'mathematics' indicator for more detail about this study). The test covers five areas: earth science, life science, physics, chemistry, as well as environmental issues and the nature of science. Students were expected to understand simple or complex information, to theorise, analyse and solve problems, to use tools, routine procedures, and scientific processes and to investigate the natural world. An analysis of how the test corresponds to the curriculum in different countries has shown substantial variations in the number of items which each country considers appropriate. However, when countries' results in the test as a whole are compared with their results in a selection of items relevant to their own curriculum, their relative positions in the study are not significantly affected.

The graph shows the average scores of seventh and eighth grade pupils from each country. The two thick lines show the international averages for the European and pre-accession countries in seventh (lower line) and eighth grades (upper line). The gap between the two averages (6.4 %) gives an idea of the difference between the performances of the seventh and the eighth grades students.

Some caution should be taken with the data. In some cases, the error due to sampling may be larger than the difference between the averages. Thus, for example, the average in Greece (grade 8) cannot be considered to be different from the average in Germany (grade 7). As the average age of students was not exactly the same in each country, the scores of countries may be slightly under- or overestimated. It is also important to take into account the fact that some countries did not meet all the sample criteria for one or more of the areas concerned.

The graph shows some significant differences between countries. Among the European countries, the difference between the highest-achieving country (the Czech Republic, eighth grade: 64 %) and the lowest-achieving one (Cyprus, eighth grade: 47 %) is 17 %. If we consider this difference in relation to the difference between average performance in the seventh grade and the eighth grade, we see that a gap of 17 % represents approximately 2.7 years of student progress. Japan obtains very high results at both levels, whilst the United States' score is closer to the European mean, particularly at eighth grade.

It is important to consider the distribution of the results around each national average. A good average

level does not necessarily imply that the school system is a good one; disparities between highest and lowest achievers in a particular country may still be very large. The gap could be linked to socioeconomic differences as well as other factors (such as differences between curricula, differential selectivity, organisational structure, etc.).

The study points to some variables which seem to be related to the results. As concerns gender, boys perform better than girls in all countries (fourth grade) and significantly so in Austria, Hungary, Netherlands and the Czech Republic; and factors such as motivation, status of scientific studies and jobs, and methodological practices, also seem to be related to results.

KEY POLICY ISSUES FOR DISCUSSION CONCERNING SCIENCES

All citizens should be able to access and use new technologies for their own benefit and for the economic and social improvement of the society. It is thus important to look not only at the average level of attainment, but also at the gap between higher and lower achievers. **How can all students be encouraged to develop sufficient interest in science and in scientific thinking?**

It is crucial to distinguish between the contribution made by schools, and other more fixed parameters such as those resulting from social conditions. In order to reduce disparities and raise average attainment levels, it is essential to focus on what schools and teachers can do. **How can students learn to use the most-efficient methodologies in experiencing science through practical experiment?**

In many countries, students' interest in science, especially the physical sciences, is declining. As a result, the number of students taking science is dropping. **What can we do to find out the reasons for this decline, and to increase the numbers taking science?**

EXAMPLES OF NATIONAL INITIATIVES

(For more information see Annex 1)

Europe – 'Women in science' is a mobile exhibition illustrating the history of science through the achievements of women in different periods of history and current trends in the feminist approach to science. It is organised by European networks and the European

Commission to promote equal opportunities at school, at university and in careers.

Ireland – European Union Physics Colloquium – the colloquium examined approaches to physics education at upper secondary level in Ireland and eight other European education systems.

Italy – 1999, 'Progetto SET – SET project' – aiming to enhance pupils' scientific and technological culture and to raise their achievement levels, improving teaching quality.

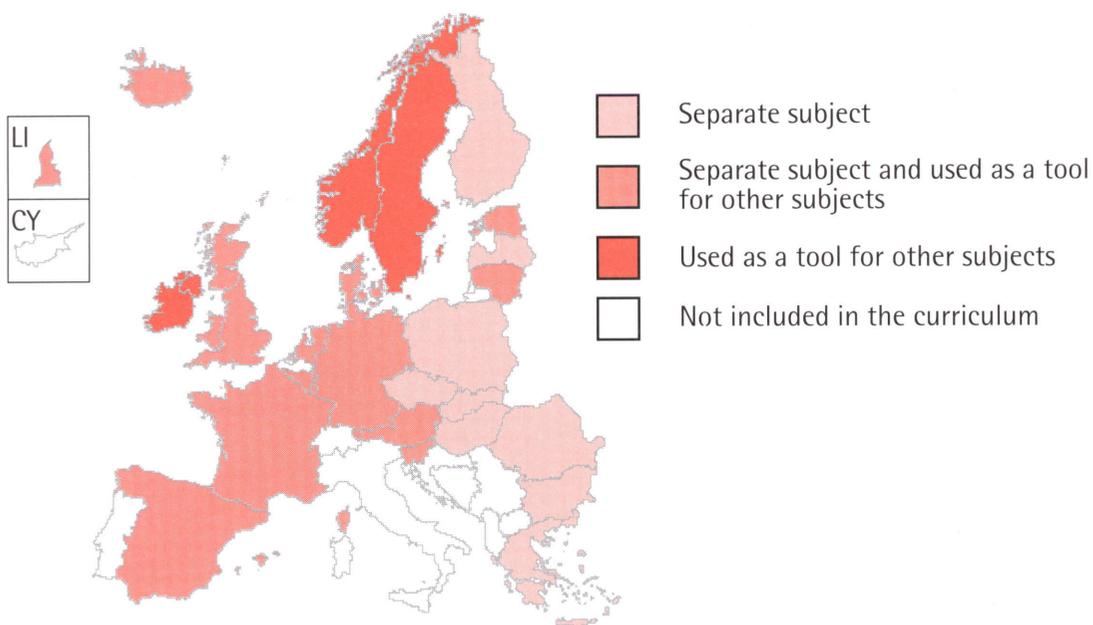
Slovakia – 'Schola Ludus' promotes science education by interactive exhibitions touring the country.

Spain – The National Science Museum has a guide of school programmes for permanent exhibitions, temporary exhibitions, workshops, guided visits, educational materials and courses.

4. INFORMATION AND COMMUNICATION TECHNOLOGY (ICT)

In all European countries there is a broad consensus on the importance of new technologies. Information and communication technologies are not only having an impact now but will affect the structure of human societies even more so in the future. They are having an accelerating impact on the way we learn, live, work, consume, express and entertain ourselves.

Learning will be ineffective if teachers fail to make coherent connections between learning in and out of school or if they do not exploit the vast potential of new multi-sensory and interactive media.



APPROACHES TO ICT DEFINED IN THE CURRICULUM – LOWER SECONDARY EDUCATION, 1997/98

Source: Eurydice.

Data on the provision and use of information and communication technology (ICT) will be a growth area in the future. As more information becomes available (for example through the IEA SITES study), indicators will provide more detailed information on the effective deployment of ICT and skills acquired (as currently in other areas such as mathematics or literacy). The map below provides a picture of uses of ICT in European countries showing where it is not as yet included in the curriculum, taught as a separate subject, or used as a tool for other subjects.

The map distinguishes four different uses of ICT. In most of the eastern European countries ICT is treated as a separate subject. In Norway, Sweden and Ireland it is seen as a tool for use across the curriculum, while more typically in central European Member States (plus Iceland, Finland and Latvia) it is both a subject and a tool. In Portugal, Cyprus and Italy it is not formally taught. In Finland, decisions are made at local level and the treatment of ICT may, therefore, differ widely. There will also be disparities within other countries despite the existence of national curricula or guidelines.

Caution has to be exercised in the interpretation of such data given that this is an area which is changing so rapidly and in which data cease to be 100 % accurate by the time they are published. Within a few years most, if not all, countries will be able to show that ICT permeates subjects across the whole curriculum and that pupils routinely use ICT for homework and study in all subjects. The precedent set by Iceland, where all senior pupils are provided with their own laptops, will become increasingly commonplace and such individual access will carry major implications for learning and teaching.

Nonetheless, the data provide an important baseline from which to monitor progress and raise policy issues for the future. Many countries have experimental and pilot projects in the use of ICT which are not represented on this map (see 'Examples of national initiatives', below).

Therefore, in interpreting data, caution needs to be exercised with regard to the changing scene and wide variations that may exist at local or school level. At national level there may be no obvious curricular policy on the use of ICT. Imaginative cross-curricular initiatives may still be found at individual school level and these may provide cutting-edge example for countries in which ICT is more widespread and institutionalised at national level.

In the longer term, data on ICT will need to go considerably further to say something about how ICT is being deployed and exploited for more effective pupil learning, for out-of-school learning (homework and study), for professional development of teachers, for school improvement and systemic change.

KEY POLICY ISSUES CONCERNING ICT

Inclusion: With access to information freely available, those who are motivated and skilled will increasingly benefit while those who are not will be at an increasing disadvantage. The gap between the 'haves' and the 'have nots' is likely to widen significantly in the future. **What forms of support or intervention can be provided for the most disadvantaged and vulnerable sections of the population?**

Special needs: Information and technology has a particularly significant role to play for children with special educational needs. **What can be done to identify good practice in this area and to disseminate it effectively for the benefit of special needs pupils, their parents and their teachers?**

Teacher skills: One of the obstacles to development of ICT skills of pupils is lack of teacher skills or resistance to the use of ICT among teachers who see it as a threat to their jobs. **How can teachers in every subject area be trained in skills which help them harness ICT to make for better teaching?**

Pupil expertise: Expertise of children and young people already far exceeds that of their teachers in many instances. **What might schools do to fully exploit the skills of young people to support teachers and teach their fellow pupils?**

EXAMPLES OF NATIONAL INITIATIVES

(For more information see Annex 1)

Europe – The eEurope initiative aims to make digital literacy one of the basic skills of every young European. eLearning is intended to implement the education/training part of eEurope.

Cyprus – The new 'unified lyceum' will have three key objectives: upgrading the ICT skills of pupils; upgrading schools' technological equipment; and improving staff competencies.

Estonia – In some Estonian schools, senior pupils are required to spend four hours a week on mentoring and tutoring younger children in ICT.

Hungary – Initiatives are underway to promote new methods and teaching aids that make use of ICT technology in a range of school disciplines.

Italy – The 'Programma di sviluppo delle tecnologie didattiche 1997–2000' was promoted to spread the use of information and communication technologies (ICT) and aims to improve the teaching/learning processes.

The 'Multilab' is aimed at embracing teaching through classroom use of computers, online and multimedia technologies. More information is available on the Internet (<http://multilab.tin.it>) (www.cede.it).

The Netherlands – 'Knowledge net' brings together pupils, parents, teachers and cultural organisations through a computer network which provides various services including information, discussion groups and technical facilities.

Poland – The 'Interkl@sa' programme aims to prepare young people for the information society and to develop the school as a modern centre for innovation and creation.

Slovakia – The 'Info-age' project (www.infovek.sk) is aimed at the improvement of ICT in primary and secondary schools.

Slovenia – In 1994 a long-term ICT programme 'Računalniško opismenjevanje' (<http://ro.zrsss.si/>) was established to spread the use of information and communication technologies.

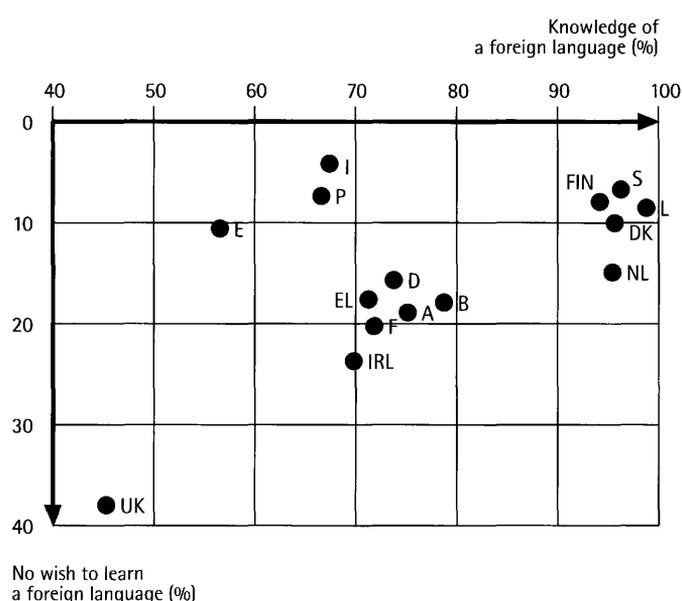
Spain – All Spanish State schools have an Internet account. More information (in Spanish) can be found on the Internet (<http://www.pntic.mec.es>).

Sweden – The Government offers in-service training for school leaders and teacher teams to learn how to use computers as a tool.

5. FOREIGN LANGUAGES

Proficiency in several Community languages has become a prerequisite if citizens of the European Union are to benefit from the professional and personal opportunities open to them in the single market. It is, to say the least, paradoxical that people and ideas circulate less freely within today's Europe than capital and goods. Difficulty with foreign languages, according to a Eurobarometer survey carried out in 1997, is by far the most feared problem when young Europeans contemplate working or studying abroad. Enlargement of the European Union in the future will make proficiency in modern languages even more important.

Language proficiency is a key instrument for a common understanding between citizens of Europe and for exploiting the rich cultural heritage of Europe. The decision of the European Commission to make 2001 the 'European year of foreign languages' underlines the political importance attached to knowledge of foreign languages.



ATTITUDE TO AND SELF-ASSESSMENT OF FOREIGN LANGUAGES AMONG THE 15- TO 24-YEAR-OLD POPULATION, 1997

Source: Eurobarometer.

It should first be made clear that, in the following paragraphs, the term 'foreign languages' refers to modern languages other than one's mother tongue, whether second languages, or actual foreign languages as such. Despite the importance of learning a foreign language, there is currently virtually no international data available about the linguistic competence of young Europeans. The next phase of the PISA survey will probably comprise a measure of the reading comprehension in a foreign language as an international option.

Pending more adequate information, we can use, with an appropriate degree of caution, the responses of young Europeans to a Eurobarometer survey. In early 1997, at the request of the European Commission's Education, Training and Youth Directorate-General (XXII), a sample of 9 400 young people, intended to be representative of those aged between 15 and 24 in every European country, was asked the following questions – 'Apart from your mother tongue, which of these languages can you speak well enough to take part in a conversation?' and 'Which ones, if any, would you like to learn?'. The 11 official languages of the European Union were proposed, as well as the answers 'other', 'none' or 'don't know'.

The graph shows, for each participating country, the percentage of young people claiming to be able to speak at least one 'foreign' language and the percentage of those who said that they did not want to learn a foreign language. It should be noted that the first question in this survey addresses the perceived personal abilities, and not the actual capacities, of the young people.

There seems to be a link between how widely spoken a country's official language is, and both the ability of young people to speak another language and their desire to learn another. This leads to the formation of two broad clusters seen on the graph, with countries such as Denmark, Netherlands, Sweden and Finland in one (countries whose languages are relatively less widely spoken) and France, Germany, Spain, Ireland and Austria in the other (countries whose languages are widely spoken). Greece, however, appears to be an exception to this rule. The situation in the UK is clearly more extreme, and unlikely to be the result solely of the linguistic dominance of the English language (English is the most widely spoken language in the European Union, the mother tongue of 16 % of the population and an additional 31 % of the adult pop-

ulation say they can hold a conversation in it). Competence and interest in foreign language learning thus seem to vary greatly from one country to the other and to depend on social and cultural factors, among others.

KEY POLICY ISSUES FOR DISCUSSION CONCERNING FOREIGN LANGUAGES

It must be remembered that valid measures of young people's proficiency in foreign languages are required. However, the data available indicate strongly the importance of several issues.

- The choice of the languages to be taught is both politically and pedagogically very important: if every European language is considered a part of cultural wealth and just as relevant as any other, active measures have to be taken. **How can young people's interest in people of other cultural and linguistic communities, and in their languages, be developed?**
- Some strategies aimed at promoting linguistic diversity concern language teaching itself: for example, the development of young children's interest and competency in several languages instead of introducing them to only one language ('language awareness' approach). **How can teachers' competency in these methods be increased?**
- Within the context of lifelong learning, but also in order to achieve good short-term results in language learning, it is important to increase young people's interest in foreign languages. **How can pupils be made aware of the advantages of good language skills?**
- Some degree of self-confidence is necessary in order to speak another language and to interact with people whose language is different to one's own mother tongue. **How can foreign languages be taught in a way which promotes students' self-confidence?**

The age at which language learning starts, the amount of time spent on language learning in the curriculum and the languages which may be chosen can all play an important part in the development of foreign language competency. **How should the curriculum be organised in order to make foreign language learning as efficient as possible?**

EXAMPLES OF NATIONAL INITIATIVES

(For more information see Annex 1)

European Union – The aim of the 'European label' is to help stimulate interest in language learning by highlighting innovative language learning projects at all stages of education and training.

Belgium – Department of Education offers courses in 18 languages, both European and non-European. Access to these courses is made easy and very cheap. Some language courses are available as distance learning

Bulgaria – In order to improve the teaching of foreign languages, the Bulgarian Ministry of Education and Science (MES) decided to create in 1996 a national network of so-called 'teacher methodologists'.

Hungary – The 'European language portfolio' (ELP) – a personal document in which the students can record their qualifications and other significant linguistic and cultural experiences in an internationally transparent manner.

Ireland – A project aimed at increasing the range of foreign languages taken by students in secondary school.

6. LEARNING TO LEARN

The true test of the lifelong learner is the extent to which he or she is able to go on acquiring skills and knowledge in a wide variety of life situations, once formal education has come to an end. Effective learners know how to learn and have a repertoire of tools and strategies to serve that purpose.

The flow of new information and the rise of international cooperation have increased the importance of such skills while the unpredictability and rapidity of change requires a closer connection between school education and lifelong learning. These are prerequisites for success in the academic world, the world of work and the society of the future.

Learning to learn encompasses intellectual skills, attitudes and motivation. For example, attitudes to one's self, perceptions of one's own competence, ability to think about one's thinking (metacognition), inferring meaning from a text, awareness of one's own preferred learning style, persistence in the face of difficulty, motivation to learn.

These are skills acquired and developed in various contexts – classrooms, homework, independent study, day-to-day problem solving situations. They are embedded in all subjects and areas of study and integral to 'cross-curricular competencies'. The challenge is to help people to:

- be reflective and self-critical learners;
- access tools which help them become more efficient and effective;
- be able to transfer learning to learn skills from one context to the next;
- equip themselves to deal with new and unpredictable situations in the future.

Data at European level do not as yet exist. This should, however, be treated as a high priority. It is important to identify examples of good practice and data which

can be used as a starting point for debate at the European level. A number of countries have already established systems to identify and measure 'learning to learn competencies' or are developing them with the aim of understanding success and failure at school and how these competencies can transfer to social and professional life (see 'Examples of national initiatives', below).

For the purposes of inter-country comparison, therefore, we may gather data to illustrate countries in which:

- learning to learn policies or guidelines already exist;
- there is public dissemination (e.g. Ministry web page, circulation of documents);
- pilot initiatives are taking place;
- courses/programmes exist in pre-service and/or in-service teacher education;
- no policy or initiatives yet exist.

The indicator may take the form of a map of Europe plotting policy development, for example, by degrees of shading to illustrate the development and penetration of policy initiatives. These data will illustrate a spectrum

of practice, showing clusters of countries that have made considerable progress in putting policy into place and from which important lessons may be learned.

In the longer term we could develop ways of gauging learning to learn competencies at student level through:

- students' own assessments of their knowledge, confidence, and competency in this area;
- performance assessment using standardised tests which provide comparable data on how students cope with new and unforeseen content.

The effectiveness of learning to learn skills is demonstrated in situations to which students bring no prior content knowledge but in which they are able to demonstrate that they know what to do in order to acquire, analyse and use new information, and to process new data.

In 2001, PISA data in this area will be available for the first time and will provide a new source of European level data. With a more informed body of data, future indicators will identify the acquisition of learning to learn skills at key stages of schooling. We can see from existing practice that different approaches are already in place and used at different ages and stages. In the Netherlands, for example, pilot initiatives are targeted at 14 to 15 year olds, in Italy for the 10 to 17 years' age range, while in Flemish Belgium these skills are a part of the compulsory curriculum for 6 to 18 year olds.

KEY POLICY ISSUES CONCERNING LEARNING TO LEARN SKILLS

Indicator data should provide a basis for considering a number of important policy questions.

Significant progress is being made through pilot projects in different European countries. The challenge for policy-makers is to identify, learn from and build on the best. **What short-, medium- and long-term initiatives will ensure that learning to learn skills become a policy priority?**

There is likely to be inertia and resistance, both at a structural and cultural level. **What are the main obstacles to progress and how can they be overcome?**

There are practical implications which flow from new policy directions. **What are the implications of new priorities?**

- for curriculum design and delivery?
- for teacher knowledge and skills?
- for school leadership and management?
- for teacher education – pre- and in-service?

EXAMPLES OF NATIONAL INITIATIVES

(For more information see Annex 1)

Belgium (Flanders) – Learning to learn skills are already a compulsory aspect of the 6 to 18 years' core curriculum. They are presented as a cross-curricular theme to be integrated and applied in as many subjects as possible.

England – The Department for Education and Employment has published a report on thinking skills.

Finland – Research has been conducted as a prelude to developing a new form of national assessment.

Germany – Widespread curriculum revision is taking place and pupils are being encouraged – through texts and questionnaires – to reflect on their working habits, their learning strategies, their ability to communicate and cooperate.

Italy – A repertoire of instruments has been developed to measure learning to learn competencies and to provide teachers with simple tools which they can use for remedial and individualised intervention.

The Netherlands – A cohort study of 20 000 secondary students is repeated every five years using a test developed to measure the general problem solving capacities of 14- to 15-year-old pupils.

7. CIVICS

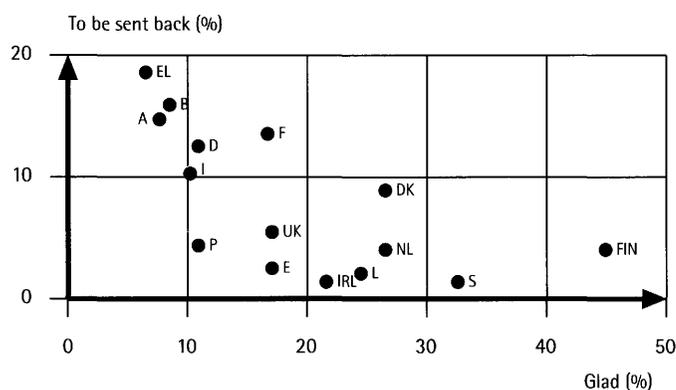
All societies have a continuing interest in the way their young people are prepared for citizenship, and how they learn to take part in public affairs.

In most countries, a considerable number of people tend nowadays to attribute problems such as violence, unemployment and criminality to those who are different, without a deeper understanding of the root causes of the issues.

The question of what effective citizenship means and the role of formal education in building a civic culture is important not only for governments and policy-makers but also for the public in general.

IEA has recently assessed the attitudes and competencies in the domain of civics of several thousand students in the modal grade for 14 year olds (in 20 countries out of those which are directly concerned by the present report). The study examines young people's knowledge, beliefs and attitudes in different areas – such as democracy, political authorities, rights and duties – in relation to citizenship, national identity, social cohesion, equal rights and tolerance. Unfortu-

nately the first report on the results of this study is not expected until February 2001. In the meantime, no recent international assessment of young peoples' attitudes and competencies in the domain of civics is available. However, *Eurobarometer* No 47.2, which reports the results of a survey of young people from 15 to 24 years old in the 15 European Union countries, gives some interesting information in this domain. The opinion survey was carried out in early 1997 at the re-



ATTITUDES OF THE 15- TO 24-YEAR-OLD POPULATION
TOWARD FOREIGNERS, 1997

Source: Eurobarometer.

quest of the European Commission's then Directorate-General XXII – Education, Training and Youth.

The graph shows the respective percentages of youngsters, in each of the 15 European countries surveyed, claiming that they agreed with two assertions about foreigners: 'I'm glad that foreigners live in (our country)' and 'All foreigners should be sent back to their country of origin'.

The graph shows the percentages of students agreeing with each assertion in each country. These are the results of an opinion poll and should therefore be treated with some caution, although it is difficult to find out about people's attitudes without asking them and surveys offer the best option in some cases. More in-depth information and analysis on such an important topic would, however, be desirable.

On average, 15 % of young people surveyed claimed that they were happy with the presence of foreigners, but 9 % felt that all foreigners should be sent back to their country.

Although there are no clear patterns or clusters apparent from the graph a negative relationship can be seen between the numbers of respondents who said they were 'glad' to have foreigners and the numbers of respondents who thought foreigners should be 'sent back'.

The percentages of those who said they are glad of the presence of foreigners range from 7 % (Greece) to 45 % (Finland), and at the same time the percentages arguing for foreigners to be sent back range from 1 % (Sweden) to 19 % (Greece).

The indicator highlights attitudes which are part of the school curriculum in a lot of countries but at the same time reflects values that might be influenced by a country's economic situation and trends in immigration. According to J. Torney-Purta et al. (1999), social diversity and the way it is understood by policy-makers and the public seems to have a great influence on schools, with implications for curriculum content and methodology.

KEY POLICY ISSUES FOR DISCUSSION CONCERNING CIVICS

In the many countries with economic or social difficulties, it is often tempting to blame foreigners for the problem. **What can be done to help school students**

to make a more informed analysis of social and economic problems, particularly in the light of human rights considerations, among others?

Social diversity may both create problems and enrich social life. **What should be done to promote social and cultural diversity?**

In some countries, civics is taught as a specific subject, whilst in others, civic education is an integral part of the curriculum. **What are the advantages and the drawbacks of different approaches?**

Whether or not civics is a special subject, all teachers should play a part in the civic education of their students. **How can teachers be made more sensitive to the importance of their role in students' development as citizens?**

EXAMPLES OF NATIONAL INITIATIVES

(For more information see Annex 1)

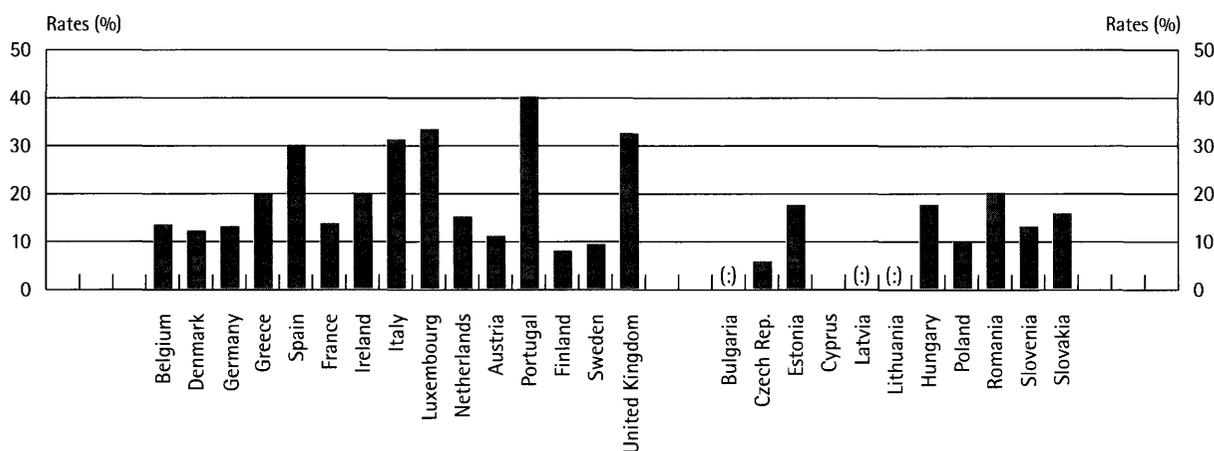
Greece and Cyprus – The 'Parliament of adolescents' is an annual project in which elected Lyceum pupils meet in the House of Parliament and discuss matters of concern of the young generation as well as matters of current importance to their country, Europe and the world.

Italy – In all secondary schools a statute of students' rights and duties was introduced in order to enhance democracy in schools and widen students' opportunities.

Poland – The KOSS programme has trained 2 000 teachers to teach civics to their students. It also creates and publishes civics programmes.

8. DROP-OUT RATES

Europe has faced considerable challenges in recent decades. The development of our economies and the demands of an increasingly competitive society continue to leave some members of society by the wayside. Today's learning or knowledge-based society is increasingly divided into those who have adequate skills and qualifications, and those who do not. In this rapidly changing environment, it is increasingly important for individuals to be able to continue to update their knowledge and skills throughout their lives. Many believe that a minimum knowledge base is required in order for this to happen, and that those who finish compulsory schooling without qualifications are consequently less likely to be able to participate effectively in life-long learning. Young people with a negative attitude to learning, and/or who leave school without qualifications are, therefore, likely to encounter significant problems later in life as a result.



PERCENTAGE OF THE POPULATION OF 18 TO 24 YEAR OLDS HAVING ACHIEVED LOWER SECONDARY LEVEL OF EDUCATION (ISCED 2) OR LESS AND NOT ATTENDING EDUCATION OR TRAINING, 1997

(.) Data not available

Source: Eurostat, Labour force survey.

Often, those who drop out of formal education lack the fundamental skills needed to find employment. They may have received no form of vocational training and are therefore likely to have difficulty in finding a job. In addition, since pupils who drop out of school without basic skills are generally less able and less willing than others to embark on a strategy of life-long learning, the threat of unemployment may be an ongoing factor for these people in the longer term. Life-long learning is becoming essential to the employability of the individual, and the number of jobs requiring no formal training is decreasing. This is particularly true of industrial countries with highly developed service sectors. In addition, young people without a complete education may experience greater difficulty than others with regard to social integration and active participation in democratic society. Those who leave school prematurely may consequently be at risk of marginalisation and social exclusion.

The indicator presented here is based on the 1997 *Labour force survey* (Eurostat) and is an approximation (proxy) of the drop-out rates from different Member States ⁽⁵⁾. Drop-out is defined here as the share of the total population of 18 to 24 year olds having achieved the lower secondary level of education (ISCED level 2) or less and not attending education or training.

As with other indicators, the data provided should be treated with caution as they are not sufficiently differentiated. In particular, they include pupils who did not gain qualifications at the end of lower secondary education as well as those who did, but who were unable to obtain further qualifications or who did not wish to pursue further education or vocational training. An indicator showing the percentages of pupils who did not obtain qualifications at the end of compulsory schooling would be preferable. The data required for this are not, however, available.

The graph shows that drop-out rates in the EU remain relatively high, with an average drop-out rate of 22.5%. There are, however, notable differences between Member States. The data suggest that northern Member States perform better in combating the phenomenon than do other Member States. Portugal (40.7%), Italy

(30.2%), Spain (30.0%) and the United Kingdom (31.4%) show alarmingly high drop-out rates, while drop-out rates in Germany (13.2%), Austria (11.5%) and the Scandinavian countries in particular (Sweden 9.6% and Finland 8.5%) fall significantly below the EU average. All of the central and eastern European countries have drop-out rates below the EU average. The highest rate among these countries is Romania (19.8%), while the Czech Republic has the lowest rate at 6.8%.

The indicator does not show, however, whether drop out in individual countries is the result of pupils not passing examinations at the end of lower secondary education or whether it is caused by a lack of opportunities for vocational training following lower secondary education. Nor does it illustrate regional differences in drop-out rates within individual countries.

The differences between countries are related to differences between educational systems but also to socioeconomic disparities. The better scores of some northern countries, for instance, are often attributed to the organisation of their educational systems, in the sense that the less selective mechanisms in education systems such as the integrated Nordic model could help to ease the transition between different school environments when a pupil moves from primary to secondary level. Such systems, which cater for pupils of all age groups, also allow adults to enrol and are therefore providers, to some extent, of 'life-long learning', allowing upper secondary education to be accessed by a wide range of people. It is thus easier for school drop-outs to return to education even after the normal completion age for school education. Such a system is likely to impact on aggregate drop-out rates. A further explanation for the comparatively low drop-out rates in Austria and Germany is the so-called 'dual system', whereby pupils undertake an apprenticeship within an enterprise as well as part-time vocational training. Such a system can help to allow less-able pupils, in particular, to obtain a vocational qualification, due to the high practical element involved.

On the other hand, high drop-out rates might be linked to economic factors such as high unemployment rates, or disparities between urban and rural economies or between central and peripheral regions. Research suggests, for instance, that young people attending school in rural areas are often indispensable to family businesses such as farming, and that they may be inclined to drop out of school in times of economic hardship. In such regions, the skills required for

⁽⁵⁾ The Community *Labour force survey* (LFS) is a harmonised sample survey of the inhabitants of the country at the time of the survey. Due to the particular socioeconomic and geographical situation of Luxembourg, the data on this indicator are not, therefore, comparable with those of the other countries.

employment are often seen as being passed from generation to generation rather than from teacher to pupil. The link between formal education and success in the labour market is often less evident in such rural economies than it is in the service-oriented economies.

KEY POLICY ISSUES CONCERNING SCHOOL DROP-OUT

Efforts to reduce the number of drop outs must take into account the three different sub-groups which make up drop outs. These sub-groups are:

- pupils who leave school before completing compulsory schooling
- pupils who do not achieve any qualifications at the end of compulsory schooling
- pupils who do not receive professional training after leaving school with or without qualifications.

What kind of support can be offered to each of these groups in order to reduce the drop-out rates?

What is link between drop-out rates and policies regarding children with special educational needs? Do different countries' arrangements for SEN provision affect their drop-out rates?

At its extraordinary meeting in Lisbon, in March 2000, the European Council set a target to halve by 2010 the number of 18 to 24 year olds with only lower secondary level education who are not in further education and training. **How can this reduction in drop-out rates be achieved?**

EXAMPLES OF NATIONAL INITIATIVES

(For more information see Annex 1)

Bulgaria – In 1997, a project named 'School for everybody' was launched. Its main goals were to build up expertise for coping with this complex problem.

Europe – The 'Second chance schools' project offers education and training to young people who lack the skills and qualifications necessary to find a job or benefit fully from conventional training. For further information, see the web site (<http://europa.eu.int/comm/education/2chance/homeen.html>).

France – A 'new chance' for young people who leave school without qualifications. This programme aims to: improve procedures for identifying the young people concerned and increase the available information about the issue of drop out.

Germany – Here it has proved useful to find local industry partners who can give potential drop-out pupils the chance to gain experience in practical working, in parallel with their school-based learning.

The Netherlands – Early school-leaving in the Netherlands is challenged by a policy of cooperation between schools at a regional level.

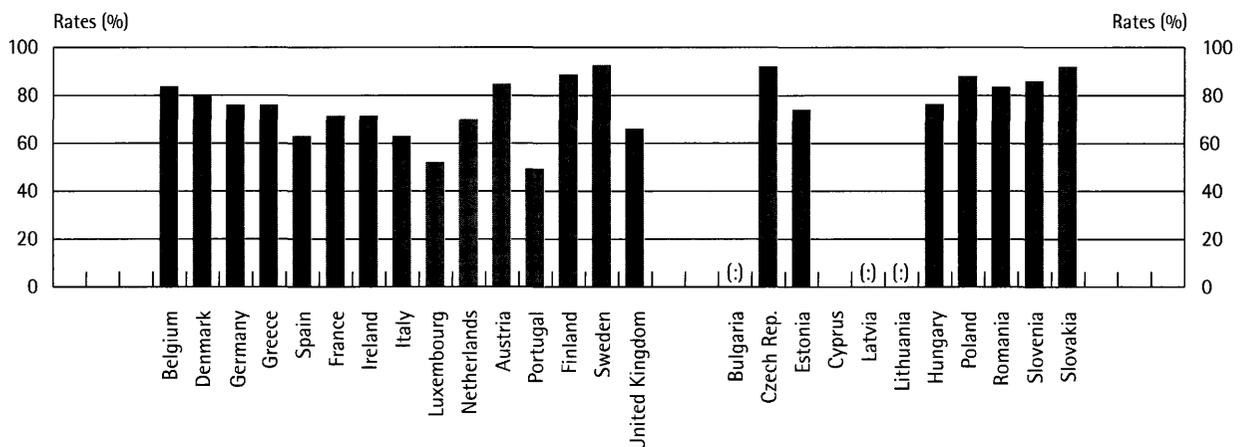
Poland – An educational psychology service has been set up and many educationalists and psychologists have been recruited to identify the individual needs of pupils, to analyse the causes of failure and to find ways to remedy them.

Spain – Among other initiatives one is for 16 to 21 year olds who have not finished secondary education or have no professional qualification for the labour market.

United Kingdom – 'New deal' is a key part of the UK Government's 'Welfare to work' strategy. It gives job-seekers aged 18 to 24, 25+ and those with disabilities a chance to develop their potential, gain skills and experience and find work (<http://www.newdeal.gov.uk>).

9. COMPLETION OF UPPER SECONDARY EDUCATION

Completion rates of upper secondary education are – like low drop-out rates – important indications of successful education systems. The completion of upper secondary education is considered as increasingly important, not just for successful entry into the labour market, but also in allowing students access to the learning and training opportunities offered by higher education. In addition, the contribution made by school education in helping young people deal with the demands of modern society should not be underestimated. The internationalisation of trade, the global context of technology, and above all, the rapid development of information technology have made societies increasingly complex. Successful participation in the learning society requires the basic building blocks offered by a secondary education.



PERCENTAGE OF YOUNG PEOPLE AGED 22 WHO HAVE SUCCESSFULLY COMPLETED AT LEAST UPPER SECONDARY EDUCATION, 1997

(:) Data not available

Source: Eurostat, *Labour force survey*.

The indicator shows the percentage of young people aged 22 who have successfully completed upper secondary education (ISCED 3). This level of education may either be 'terminal' (i.e. preparing students for entry directly into working life) or 'preparatory' (i.e. preparing students for tertiary education). The figures for each country indicate the percentage of young people aged 22 who have successfully completed at least upper secondary education. Since some students will achieve this level in later years, the percentages reported for the individual countries may yet rise in the older age groups. The data shown are based on the 1997 Labour force survey ⁽⁶⁾.

A number of factors should be remembered when considering the information presented. The chart shows the percentage of 22 year olds who have successfully completed upper secondary education (ISCED 3). The remaining group – those who have not attained this level – consists of two categories: those covered by the 'drop-out rates' indicator, and those who are continuing to work towards an equivalent level of education at the age of 22. The indicator does not show the relative proportions of these two groups. An indicator giving information on the number of pupils without final school-leaving qualifications at the end of 'lower secondary education' (ISCED 2; see in addition the 'drop-out rates' indicator) and an indicator describing the successful completion of 'upper secondary education' (ISCED 3) at a later point in time (for example at the age of 25), would be more suitable. The data which would be required for this are not, however, readily available.

The average percentage of those who successfully completed upper secondary education at the age of 22 years was 71.2 % in the European Union in 1997. However, there are considerable differences between the various countries. On the one hand, there is a group of countries whose completion rates exceed 70 %, in some cases by a significant amount; this category includes particularly countries such as the Czech Republic, Poland and Slovenia, but also the northern European countries Finland and Sweden. On the other hand, there is a group of countries whose completion rates fall below 70 %; this category includes in particular southern European countries such as Spain, Italy and Portugal and also the United Kingdom.

⁽⁶⁾ See footnote 5 on data concerning Luxembourg.

In view of the complementary nature of this indicator and the indicator covering drop-out rates, the commentary on the interpretation of the data obtained through the 'drop-out' indicator also applies to this one.

KEY POLICY ISSUES CONCERNING COMPLETION OF UPPER SECONDARY EDUCATION

The failure to complete the upper secondary level of education successfully cannot be considered in isolation from the rest of a young person's school career. Nor can the impact of a country's economic situation be ignored. Measures aimed at increasing success rates should therefore take both of these factors into account.

- What efforts can be made to make upper secondary education more attractive to all?
- What are the challenges, in terms of quality of upper secondary education, of the increased emphasis on life-long learning? How should upper secondary level education adapt to such developments, and to the changes taking place in subsequent educational stages?
- What are the effects of the balance between general education and vocational training? Should opportunities for practical learning in the business and administrative sectors be expanded in order to increase young people's motivation and give them a better understanding of the connection between theoretical learning and practical activity?

EXAMPLES OF NATIONAL INITIATIVES

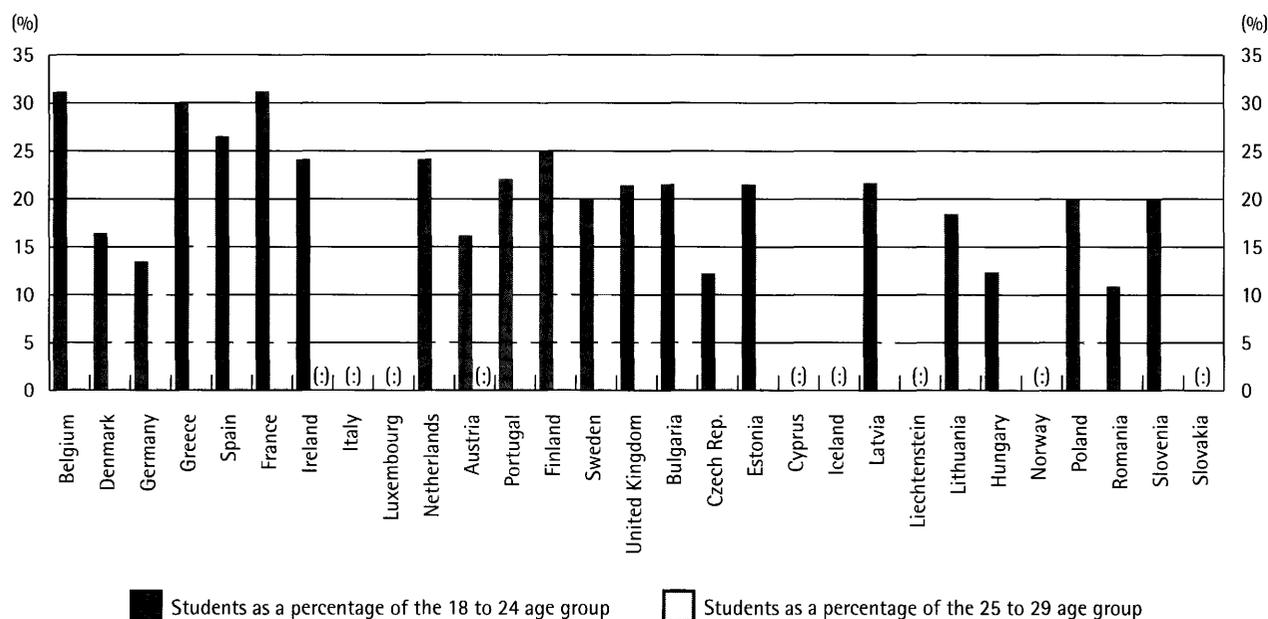
(For more information see Annex 1)

Ireland – The 'Leaving certificate applied' – This alternative learning programme focuses on the needs and interests of students using a range of methodologies. It seeks to develop in students an enterprising outlook, self-confidence and other skills related to success in the workplace.

Spain – The 'Educación a distancia' programme intends to facilitate access to education to adults and also to non-adults who due to personal, social, geographical or other exceptional circumstances cannot follow education at school with daily attendance.

10. PARTICIPATION IN TERTIARY EDUCATION

The opportunities offered by tertiary education are becoming more and more important. The demands of today's labour market are markedly different from those of even 10 or so years ago, and are continuing to evolve rapidly. If young people are to succeed in this increasingly competitive and global environment then it is crucial that they acquire the skills and competencies which will enable them to compete effectively with others.



PARTICIPATION RATES IN TERTIARY EDUCATION, AS A PERCENTAGE OF TOTAL POPULATION, BY AGE GROUP – ISCED 5, 6 AND 7, 1996/97

(:) Data not available

Source: Eurostat, UOE.

In recent years, higher education institutions have responded more and more to the changing demands of the labour market, endeavouring to equip their students with the specific skills they need to succeed. Many courses have moved away from a purely academic focus towards a more vocational one, and the links between higher education and industry have consequently become clearer. For this reason, tertiary education is, more than ever before, seen as the means to taking part in the high-value-added international industries.

It is not necessarily desirable, however, to have ever increasing levels of participation, if these are not matched to national and international needs. Of key importance is the need to match the supply of graduates to current demand, and to predict trends in demand in the light of the development of future new technologies, employment trends etc.

The data presented in the graph show the proportion of students in certain age groups participating in tertiary education (ISCED 5, 6 and 7), as a percentage of the total population of that age group. The graph presents this information for two age groups: those aged up to 24, and those aged from 25 to 29 (?).

It is clear from the data that the participation rates in tertiary education vary greatly between countries. In the younger age group, participation ranges from 11 % in Romania to 32 % in Belgium; in the older age group participation varies from 3 % in Estonia to 16 % in Greece. In all countries the participation rate in the younger age group is higher than in the older one.

However, there are countries in which the two rates resemble each other far more closely than in other countries. In Germany in particular there is scarcely any difference between the two rates (14 % and 13 % respectively). Countries such as Germany, where the duration of courses is relatively long and the age at which students begin tertiary education is more varied, will not have such high participation rates for a given age group as countries where courses are shorter and the age of students is more uniform.

The diagram does not differentiate between participation of men and women. Generally, however, it is the case that participation rates of men and women are fairly similar in the majority of countries although, in al-

(?) Due to the particular socioeconomic and geographical situation of Luxembourg, the data on this indicator are not comparable with those of the other countries. Most students study outside the country.

most all cases, they are actually higher among women than among men.

As for other indicator areas, caution should be applied in drawing conclusions from the limited data available. The very different tertiary education systems in the countries from which data was collected, and the different characteristics of the countries themselves, make it especially difficult to draw meaningful conclusions from this data. Nevertheless, some reasons for the varying participation rates in tertiary education between countries and between men and women can be suggested.

- In some countries, training for certain occupations takes place as part of upper secondary education or a further (post-secondary non-tertiary) level, whereas, in other countries, training for these occupations takes place at the level of tertiary education.
- In certain countries the lack of opportunities for undertaking vocational training pushes young people towards tertiary education. This may be the case particularly for young women, as the opportunities open to them outside tertiary education may be less attractive than those open to young men.

Participation rates may also be linked to the prevailing conditions of the labour market. A weak labour market could lead to an increase in the number of students enrolling on higher education courses as those having difficulty in finding a job, or who have lost their jobs, may decide to enrol instead in higher education. It should be remembered, however, that enrolment rates and graduation rates cannot necessarily be equated. Equally, the effect of numbers enrolling in higher education may in turn impact on the labour market in a number of ways. High participation rates will ultimately lead to a well-qualified workforce, making it more difficult for those without a higher education qualification to find work in particular sectors. High participation rates spread across a wide age range will also have a significant impact on the proportion of the population which is unavailable for work at any time.

KEY POLICY ISSUES CONCERNING PARTICIPATION IN TERTIARY EDUCATION

As a result of the very varied systems in place within the tertiary level of education, discussion of issues surrounding the data is of a fairly speculative nature. In summary, although the data collected using this indicator provide only limited information about trends in participation in higher education, the findings raise a

number of policy issues which could be explored in more depth, in particular as follows.

- The relative proportions of men and women participating in higher education. Why is the relative number of women increasing? What is the male/female balance in certain subject areas (for example the sciences and the humanities)? What is the effect of increased participation in terms of unemployment rates among women?
- The link between higher education and the labour market. To what extent is the choice of higher education a direct response to the labour market? Is a country's production of graduates well matched to its overall needs (in terms of the labour market etc.)? Are there too many or too few graduates in particular countries? What is the effect on the labour market of the trends in participation?
- The effects of high/low participation rates. What is the relationship between participation rates among older age groups and the productivity of the labour market? Can the benefits of higher education be measured in other ways, such as increased maturity, social awareness etc.?
- The connection between secondary and tertiary education. What are the possibilities in secondary education for increasing the number of those – particularly young women – aiming to take up take up mathematical, scientific or engineering studies?

EXAMPLES OF NATIONAL INITIATIVES

(For more information see Annex 1)

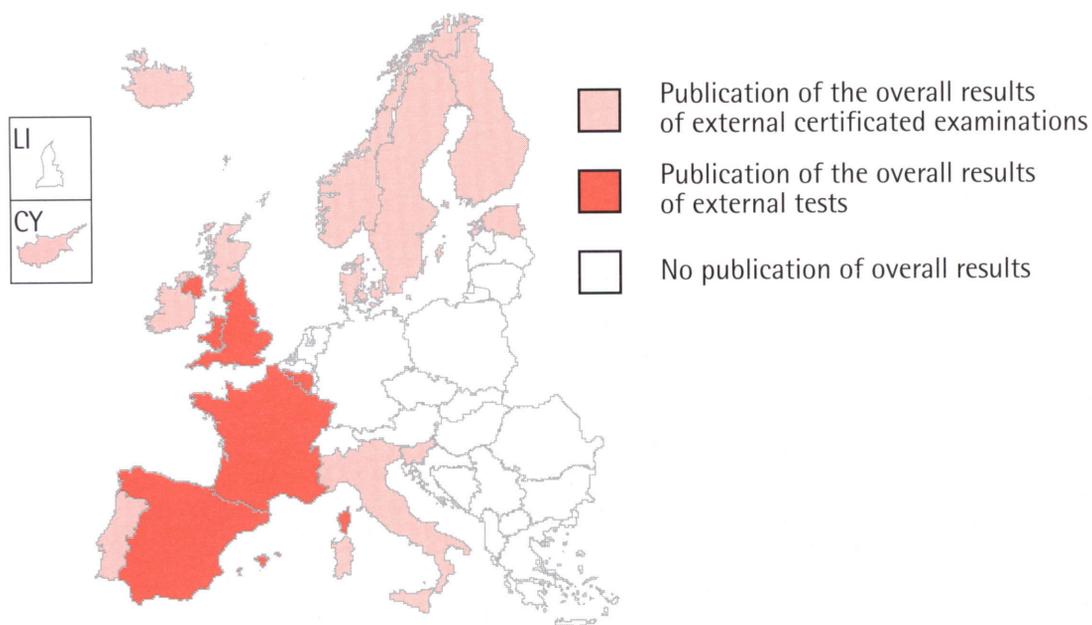
Ireland – Universities and other tertiary institutions now have programmes which are aimed at redressing the current imbalance in the representation of the social classes in the universities and other tertiary institutions.

Scotland – The 'University of the Highlands and Islands' is making extensive use of remote access teaching technology to link a number of centres with students across the remote rural region of northern Scotland.

11. EVALUATION AND STEERING OF SCHOOL EDUCATION

All educational systems require evaluation and steering. At national, local and school level evaluation serves a number of essential purposes. It measures whether the education system lives up to the objectives set. It offers diagnostic and formative information for system managers, headteachers, teachers and a wider public. It opens up dialogue and provides the basis for development planning and school improvement. Benchmarks allow schools to measure themselves against other comparable institutions. They can be used by inspectors or other external agents to compare the outcomes of individual schools. They help focus on processes intended to achieve those outcomes

Evaluation may be either internal (self) or external, or a combination of the two. Both forms of evaluation carry resource and training implications. With this in mind, most European countries are seeking the best and most productive combination of the two forms of evaluation. Ideally, external and self-evaluation complement each other as vital sources of information.



MONITORING EDUCATION SYSTEMS AT PRIMARY AND/OR SECONDARY LEVEL – PUBLICATION OF THE OVERALL RESULTS OF EXTERNAL TESTS, 1997/98

Source: Eurydice.

As the movement for more rigorous evaluation gathers momentum, more data will be forthcoming in the next few years. Currently we have information on the publication of examination and test results. These are sometimes used for diagnostic, or developmental, purposes, sometimes for accountability and reporting to parents and public.

The country map shows how practice between Member States varies with respect to the publication of results of external tests.

The map shows a majority of countries, mainly pre-accession countries, where there is no publication of external test results. In 10 countries, including all the Scandinavian countries, there is publication of overall examination results. In four countries more detailed publication of attainment testing is published. However, policies and practices in these four countries vary considerably.

The UK (except Scotland), Spain, France and Belgium (French) are all represented by the same colour yet are very different not only in what they do but in their policy purpose. In England, for example, results at key stages (ages 7, 9, 12, 14, 16 and 18) are published primarily for accountability purposes and to raise standards through encouraging parental information and choice. In France, by contrast, tests are administered yearly for diagnostic purposes and examination results are published as benchmarks for schools to compare their own performance and thereby raise standards. Legislation prevents parental choice of school in the State sector. In Spain, individual schools make their data available but publication of results is intended to provide information on standards overall and is based on a sample of schools. Scotland, in common with its other UK partners, publishes results of external examinations at 16 to 18. Attainment test scores within the national 5 to 14 programme are used both diagnostically and for targets relevant to national standards.

In a number of countries, for example Lithuania, Bulgaria and Portugal, piloting of new approaches is taking place and policies are changing as a consequence. The impact at school and classroom level cannot be illustrated by a map but it is the attitudes and competencies of individual teachers which will put the efficacy of the policy to the test.

The publication of examination performance reflects a belief in the importance of accountability to a wider public. However, the data highlight different policy

perspectives and raise questions about whether it is preferable to account for the performance of the system as a whole; whether to present comparative data at school level; or whether to make public data which may have been designed to serve a diagnostic purpose.

All European countries are seeking the best way in which to report school performance and to reconcile diagnostic/developmental purposes with accountability objectives. This is an area where policy is changing rapidly and in which there will be different configurations and more complex variations in the future as schools and teachers become more confident in self-evaluation and external monitoring systems adapt their function and purpose to complement schools' own internal evaluations.

A relatively short-term goal for the presentation of indicators in the future could be to illustrate different patterns of internal and external evaluations for schools across Member States. Much of this information is already available through the Standing International Conference of Inspectors (SICI) but some work is needed before it can be presented in the form of an informative indicator profile.

A longer-term goal could be to provide data which show the development of self-evaluation in Europe and its relationship to external evaluation. Such data will illustrate the nature of the balance between internal and external evaluation and the role that each of these plays in the steering and evaluation of school systems.

As for other indicators, the data above provide a starting point for a closer look at policy rationale, effectiveness and viability.

KEY POLICY ISSUES CONCERNING EVALUATION AND STEERING OF SCHOOL EDUCATION

Reporting of data is not a stand-alone exercise. It is related to systems of monitoring, inspection and self-evaluation, implicitly or explicitly conveying messages about purpose, policy and priority. **What are the key messages which should be conveyed through the publication of school performance data?**

Monitoring schools' performance is critical to raising standards for all pupils but it is both expensive and difficult to raise standards from the outside. **What powers and roles should be given to schools in the**

reporting of their own performance and how can that be achieved?

As schools' expertise in self-evaluation increases and their access to appropriate tools and strategies grows, the role of inspection changes. **What role is there – if any – for external monitoring systems in these circumstances?**

The trend to publish performance data is likely to grow rather than diminish and data will continue to serve different purposes, such as: accountability, benchmarking or informing parental choice. **At what level (individual school, school clusters, regional, national) should reporting be focused in order to fulfil its purposes most effectively and economically?**

Scotland – In 1996, 'How good is our school?' was published. It is a toolkit for schools to use in self-evaluation, based on a set of 33 performance indicators. For more information, see the web site (<http://www.scotland.gov.uk/structure/hmi/default.htm>).

Spain – INCE (Instituto Nacional de Calidad y Evaluación) was created to design evaluation systems for the different types of education governed by the LOGSE (new law for education).

EXAMPLES OF NATIONAL INITIATIVES

(For more information see Annex 1)

Europe – Pilot project 'Evaluating quality in school education', see the web site (<http://europa.eu.int/comm/education/poedu/finalrep/rep.pdf>).

Austria – Rich resource site on the Internet has been established, for schools, allowing them to access information, ideas, procedural proposals, instruments and other support for schools' programme development and self-evaluation (<http://www.qis.at>).

Denmark – The Danish Evaluation Institute is a single organisation for the evaluation of all levels of education.

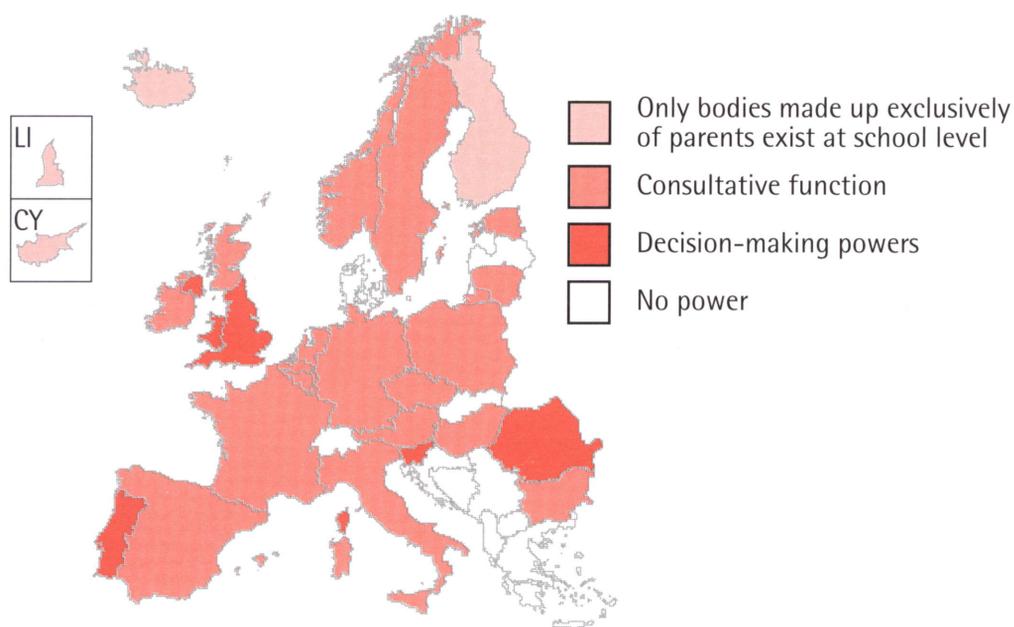
Hungary – A new pilot project the 'Quality development programme' will be launched, involving more than 400 public institutions. It will focus on operation and management.

The Netherlands – About 0.5 % of the budget for primary and secondary education is spent on external evaluation activities. Schools also have their own systems for internal evaluation of the quality of education.

Portugal – PEPT (Education for every student), a programme designed to foster students' completion of compulsory education, involves a self-evaluation plan which includes an observatory with 15 indicators relating to context, process, resources and outcomes.

12. PARENT PARTICIPATION

The participation of parents in their children's education has policy implications in every European country. Parents have strong feelings about their children's schools and are becoming increasingly demanding and critical consumers in the field of school education. They can make an effective contribution to school improvement through supporting school management and teachers, or they can hinder progress and create conflict. There are a number of ways, at both national and local level, in which the participation of parents may impact on the quality of children's education.



POWERS OF SCHOOL-LEVEL BODIES WHICH INVOLVE PARENT REPRESENTATIVES, IN THE PREPARATION OF THE SCHOOL DEVELOPMENT PLAN – COMPULSORY EDUCATION, 1997/98

Source: Eurydice.

Parental participation may, for example, take place through:

- statutory advisory and decision-making bodies (e.g., school boards)
- evaluation of their schools
- voluntary associations (e.g., parent associations)
- voluntary involvement in after-school activities and clubs
- voluntary involvement in classroom activities (e.g., paired reading)
- communications with the school and support of their children's learning and progress.

There are a number of areas in which parents may participate.

The map shows one significant aspect of parental involvement, namely in the preparation of the school development plan:

The data reveal that in five countries parents have decision-making powers in relation to the preparation of the school development plan. This is generally through a representative body such as a council or board. It is more common (18 countries) for parents to have a consultative or advisory function. In some countries, for example the Netherlands, the council ratifies the plan developed by the authority. In four countries, parents have no powers in respect of development planning although in each of these four countries they do have powers in other areas such as school rules, control or allocation of expenditure.

Finland represents an exception because the powers of councils vary so much between municipalities and the most recent legislation (1 January 1999) does not contain provisions for parental consultation in its school system.

These data do not tell us about the strength and composition of the parent constituency at school level, its contribution or impact. Further research would be needed in order to identify the most effective forms of membership and the most helpful ways in which parents consult and speak on behalf of their constituencies. Consultative bodies by their nature involve a minority of parents – those who volunteer and those most likely to have the confidence, expertise or interest in playing a role at whole school level. While parents are a valuable resource and potentially powerful allies

of schools (for example, school governors with business experience and connections) the majority of parents will not be motivated to become involved at that macro level of school policy/practice. The large majority will wish to be involved where issues are of direct relevance to their own children's welfare and progress.

There are many good practices which involve a wider group of parents at school and classroom level and which illustrate how parents can make a significant contribution to quality and standards. This indicator provides a good starting point for further research and raises important policy questions about the role and influence of parents. There are further implications for the role of all stakeholders and how they work together for school quality and improvement. European unions of parents, teachers, school students and head-teachers have already, through joint conferences, laid the groundwork for fuller and richer collaboration.

KEY POLICY ISSUES CONCERNING PARENT PARTICIPATION

School development planning should not simply be a mechanistic operation nor one which is confined to school leaders or teachers. It benefits from the involvement of parents and a wider constituency of stakeholders. **What particular insights and added-value do parents bring to the process of school development planning?**

Parental involvement is often regarded as 'a good thing' but it needs to be examined in the light of its relevance for different purposes and contexts. **In what areas of consultation and decision-making are parent powers most relevant and useful? In what respects might policy-makers wish to limit parental powers as well as to increase them?**

Extending parent participation raises questions about other forms of stakeholder involvement. **For example, what steps can be taken to give greater responsibility to school students and exploit the considerable resource and expertise they offer for improving schools?**

EXAMPLES OF NATIONAL INITIATIVES

(For more information see Annex 1)

Europe – EPA's 'Training programme for parents' is an example of how to improve quality through coopera-

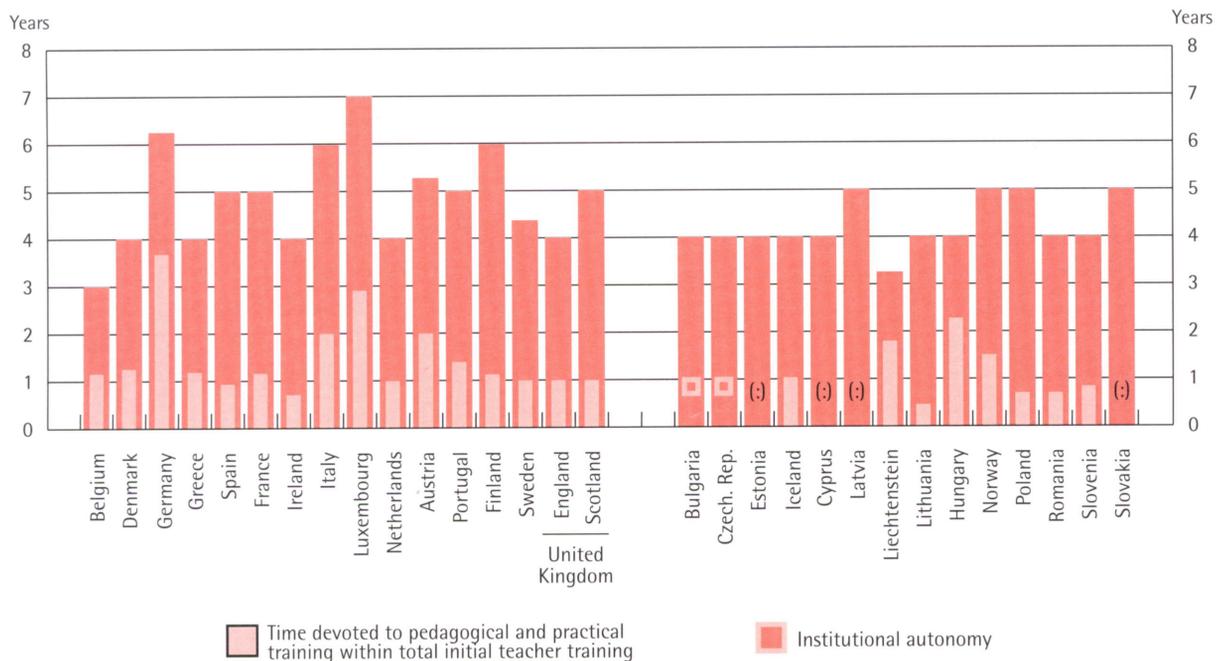
tion and constructive dialogue between parents and teachers at school level.

Germany – Seminars for parents aim to: inform them of new developments in learning and teaching; establish consensus on areas of school; and to motivate them to participate in wider policy as aspects of school.

13. EDUCATION AND TRAINING OF TEACHERS

Teachers throughout Europe are experiencing an unprecedented transition in their role and status and demands on them are becoming increasingly multi-faceted. The greater the flexibility and choice for school students, the more teachers are required to be flexible in their responses to students' changing needs and expectations. Swiftly changing social and economic conditions pose additional challenges, sometimes exacerbated by serious family or social breakdown. Many teachers do not have the training or experience to cope with this changing role.

In European countries, there is an urgent need for high-quality initial training, supported by good induction and continuing professional development. Opportunities for greater transnational mobility are set to increase, putting at a premium those skills and experiences which help teachers to operate in very different cultural and historical contexts. Countries that will benefit most from this increasing mobility will be those which are best equipped at national and school level to take advantage of new opportunities.



DURATION OF INITIAL EDUCATION AND TRAINING OF TEACHERS FOR LOWER GENERAL SECONDARY SCHOOLS, 1999/2000

(:) Data not available

Source: Eurydice.

The data shown here are for initial teacher education in lower general secondary schools only. Data exist for primary and upper secondary schools too (Eurydice key data, 2000). The graph illustrates similarities and differences among countries in:

- the length of initial training courses
- the balance in training between general education and pedagogic practical training.

For the purposes of this indicator, two key distinctions have been made:

- **general or subject-based education and training:** knowledge related to what the trainee will be required to teach, as well as general education which is directly linked to teaching
- **pedagogic and practical training:** practical placements in schools, plus a range of other courses which are related to the teaching profession (for example, theoretical courses on didactics, adolescent psychology, methodology, history of education, use of ICT).

In some cases it has been hard to separate the two categories, for example where general and pedagogic training are taught together. In these cases 50 % of time has been attributed to each in the graph.

The graph provides information on two aspects of initial teacher training: firstly, the length and, secondly, the amount of time spent on pedagogic and practical training. It should be noted that, for Germany and Austria ⁽⁸⁾, only training for teachers in Gymnasium or AHS (allgemeine höhere Schule) respectively is included (two routes are possible, depending on the type of secondary education).

With regard to the first aspect, the data show that the most common length of course is five years (eight countries) or four years (14 countries). In Germany, Luxembourg and Italy, initial courses are longer than average, while in Belgium and Liechtenstein they are shorter.

The graph also shows the amount of time spent on pedagogic and practical training. This varies greatly, from the equivalent of less than a year in Ireland,

Lithuania, Poland, Romania and Slovenia to the equivalent of almost four years in Germany.

In addition, the time spent on pedagogic/practical training in relation to the total duration of the training differs widely. In Finland and the Netherlands, for example, the equivalent of one year is spent on pedagogic and practical training. However, as a proportion of the total length of training this represents approximately one sixth and one quarter of the total duration of the courses in these countries, respectively. By contrast, the proportion of time spent on pedagogical/practical training in Germany is closer to two thirds.

The data reveal very different patterns of provision but also conceal underlying complexities. They tell us nothing about the balance, nature or relevance of studies nor about their effectiveness in developing the core competencies required by teachers. As countries develop criteria for teacher competencies, they must look again at course provision and consider its relevance to teachers' needs. Nor do the data show whether practical training is higher-education-based or school-based, a factor which has major resource implications.

The data relate only to lower secondary education. In some, but not all countries, there will be different arrangements for primary and upper secondary teacher training.

KEY POLICY ISSUES CONCERNING TEACHER EDUCATION

The balance of time given to teaching of subject knowledge and pedagogy is a matter of concern to all countries. **What steps must be taken to ensure that teacher training institutions achieve the optimum balance in their teaching, taking into account cost-effectiveness?**

The continuing professional development of teachers will be an increasing priority in the immediate and long-term future. **What provision should now be made to ensure that teachers update their knowledge and practice?**

Teacher recruitment and retention is more of a problem in some countries than others but the situation is liable to change as social and economic conditions change. **What can be learned from countries with a surplus of teachers, and from others with a shortage, in order to plan for the future?**

⁽⁸⁾ In Austria, teacher training for the Hauptschule, which represents around 70 % of teachers, is a three-year non-university education where theoretical and practical elements are integrated and cannot be displayed separately.

As teacher retention becomes a more pressing priority, issues of separate pay and promotion arrangements for particularly effective or 'expert' teachers will become a more pressing policy issue. **What can be done to reward and retain particularly effective teachers?**

EXAMPLES OF NATIONAL INITIATIVES

(For more information see Annex 1)

Hungary – The in-service teacher training system – The Act on Public Education has declared that each teacher should participate in at least 120 contact-hours of in-service teacher training during seven years of practice.

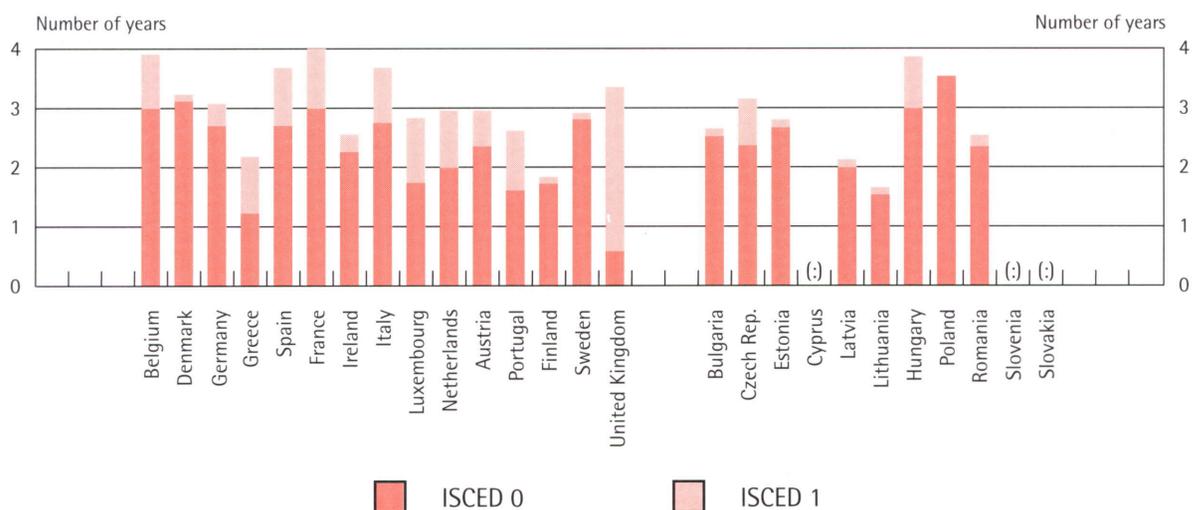
Portugal – 'Sailing through the Portuguese language' is the name given to an initiative of the Department of Secondary Education of the Portuguese Ministry of Education, designed to provide teaching training using Internet facilities.

14. PARTICIPATION IN PRE-PRIMARY EDUCATION

Pre-primary education is significant in many different respects. Firstly, it makes an important contribution to the emotional and cognitive development of children and to their social integration, thereby helping to prepare them for the school environment and reducing the likelihood of failure at school later on. Secondly, it plays an important part in supporting families. The changing role of the family as a social institution often means that parents are no longer at home full time and that, as a result, they are unable to provide an adequate educational and social environment for their children.

Pre-primary education is defined as the initial stage of structured teaching. It is usually centre- or school-based, designed to meet the educational and developmental needs of children of at least three years of age, and provided by adequately trained staff.

Even if the significance of pre-primary education is acknowledged across Europe, opinions as to its educational function differ. Some believe that children should play as long as possible, while others argue that pre-school education is essential in order to facilitate



AVERAGE DURATION OF ATTENDANCE BY CHILDREN AGED THREE TO SIX AT AN EDUCATION-ORIENTED INSTITUTION, 1996/97

(:) Data not available
Source: Eurostat, UOE.

a child's transition to primary school. Regardless of these different approaches of individual countries, it is the case that participation rates have been increasing markedly during the last 30 to 40 years in almost all European countries.

The indicator provides information about the average attendance of children aged three to six years at pre-primary (ISCED 0) and primary (ISCED 1) education-oriented institutions during 1996/97. The data used are based on information compiled by Eurostat using the results of the UOE data collection and population statistics. They take into account the fact that compulsory primary education begins earlier in some countries than in others. The graph does not, however, provide information about whether attendance at the institution is full time (all day) or part-time (half a day).

The diagram shows that a considerable number of countries are able to offer children a place for three full years of pre-primary education. Belgium, Denmark, France, Italy, Hungary and Sweden are among these countries. In many countries (including Austria, Germany and the Netherlands), pre-primary places for children aged over three are only available for two to three years. In other countries (such as Finland, Greece and Portugal), however, a child would, on average, spend less than two years in the pre-primary sector. In evaluating the differences between countries, it must be taken into account that in some, primary education begins at a comparatively very early age, meaning that that fewer pre-primary places are required. This applies particularly to the United Kingdom.

The information presented in the chart does not show whether pre-primary provision in each country corresponds to parental demand. Theoretically it is conceivable that in countries with comparatively low participation, supply meets demand more closely than in some of the countries with high participation.

The data illustrated in the chart show that the majority of the countries attach high importance to pre-primary education. Even if attendance at institutions is generally voluntary among this age group, there is an emerging trend for childcare to be provided for almost all children of three years and older. This indicator does not provide information about the educational content of the programmes offered by institutions in the various countries.

KEY POLICY ISSUES CONCERNING PARTICIPATION IN PRE-PRIMARY EDUCATION

As participation in pre-primary education increases across Europe, it is increasingly important to ensure that the links between pre-primary and primary institutions are strengthened. It is widely acknowledged that early measures can play a significant part in reducing school 'failure' in later years. **What measures can be taken in order to facilitate successful learning at primary level and beyond, and to ensure that the transition from playful learning in the pre-primary setting to more formal learning within the school setting is successful?**

EXAMPLES OF NATIONAL INITIATIVES

(For more information see Annex 1)

Italy – In Italy, three initiatives concerning quality in infant education have been promoted by the Ministry of Education and by the National Institute for the Evaluation of Education Systems.

Luxembourg – All children aged between four and six years are obliged to attend institutions of pre-primary education. In addition, a third of three-year-olds currently attend these institutions.

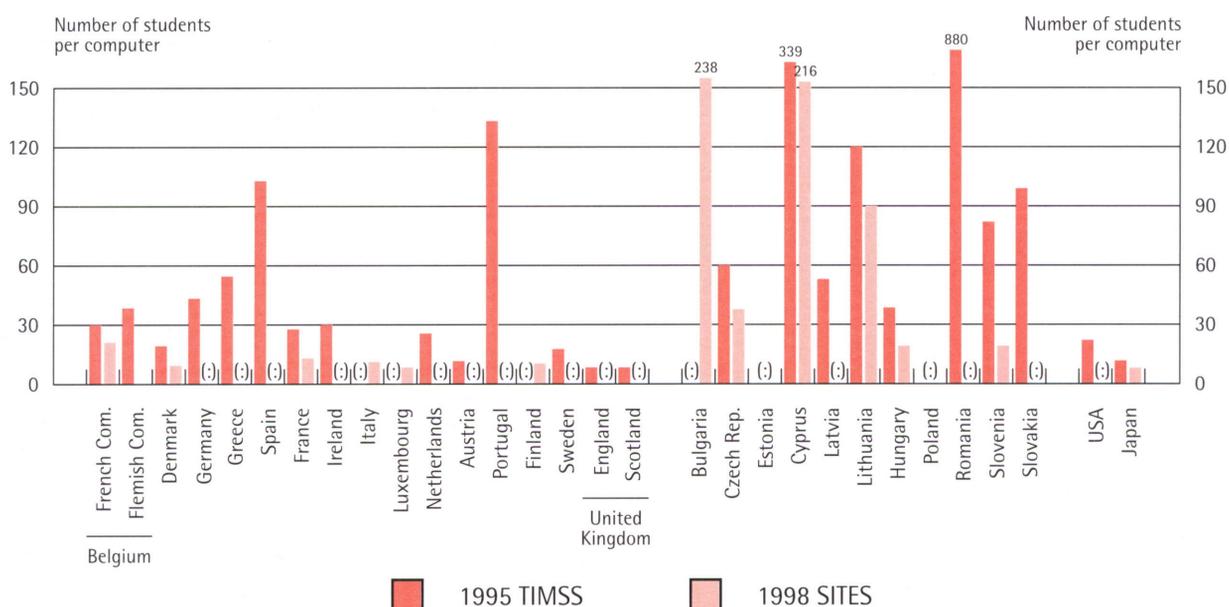
Netherlands – In the Netherlands, two experimental programmes have been implemented for early childhood education with a view to stimulating the cognitive, social-emotional and linguistic development of disadvantaged children aged between three and six years.

15. NUMBER OF STUDENTS PER COMPUTER

The information society will not only open up new channels of communication amongst people, but it is likely to have a considerable impact on the way we live, work, consume, interact with government as well as express and entertain ourselves.

If every European citizen is to be able to use computers effectively, schools must offer all students the opportunity of learning to use them. Moreover, if the potential of the Internet and educational software is to be fully exploited by teachers and students, a sufficient number of effective and sufficiently up-to-date computers must be available.

It should not be forgotten, however, that infrastructure in itself does not guarantee the development of high-level competencies by students. Schools' organisation, the management of technology, the use of high-quality software, and above all teachers' competencies are all important factors (see also the indicator about ICT).



NUMBER OF STUDENTS PER COMPUTER – LOWER SECONDARY SCHOOL, 1995 AND 1998

(:) Data not available

Source: IEA, TIMSS (OECD-OCTO) & SITES.

The number of students per computer in the schools where eighth grade students are enrolled was measured both in 1995 (IEA-TIMSS) and in 1998 (IEA-SITES).

The above graph shows the number of computers at a particular time (in a domain in which changes are taking place very rapidly). The information about the number of computers was derived in different ways in different surveys. In TIMSS, the issue addressed was the number of computers 'available for use by teachers or students' in the school, whereas in SITES it was the number of computers 'available for use by students in the entire school'. The ratios may be seen as fairly close and comparable, although not strictly identical. OECD (1998) underlines that, in TIMSS, the indicator may apply to a slightly different population. In addition, it should be noted that some countries did not satisfy the IEA sampling requirements.

The statistics illustrated do not provide information about the adequacy of computers in relation to current requirements – for example connection to Internet, or ability to run powerful software – nor about their actual use. Moreover, the indicator could vary according to the level of the education system: the ratio of students to computers is considerably more favourable at upper secondary level than at lower secondary education (nine countries provided information about both levels).

The graph shows that the range of countries' scores is very large in both studies: from nine (Scotland) to 880 (Romania) in TIMSS, and from 9 (Denmark) to 238 (Bulgaria) in SITES.

In every country which took part in both surveys, the availability of computers in schools rose between 1995 and 1998. In those European or pre-accession countries which took part in both surveys, the number of students per computer decreased from 90 to 55 on average, that is 39 % in less than four years. It may be assumed that a similar decrease also took place in the other countries.

Eight of the participating countries, among which three are northern, had fewer than 20 students per computer in at least one survey. The number of students per computer is shown in brackets, according to TIMSS; then SITES; '-' means that the country did not take part in the survey): United Kingdom (11 for England and 9 for Scotland; -), Denmark (17; 9), Austria (19; -), Sweden (19; -), Finland (-; 10), Luxembourg (-; 12), Italy (-; 16) and France (29;17). Japan and the

United States also have a high number of computers: Japan (27; 14) and United States (16; -).

According to SITES, central and eastern European countries (Bulgaria, Lithuania, the Czech Republic, Slovenia and Hungary) are less well-equipped than most others. However, Cyprus also ranks very low, but the situation seems to be changing very fast in those areas: between 1995 and 1998, the decrease in number of students per computer ranged from 23 % (Lithuania) to 70 % (Slovenia).

It is important to emphasise that the indicator represents an average, concealing very different situations in individual schools: a fairly similar level of equipment in all schools, or possibly very well-equipped schools alongside schools without any access to new technologies.

The data clearly show a trend towards an improvement of ICT resources in lower secondary schools. The resourcing of schools appears to depend on the wealth of the country, but the relation is not a simple one: major progress made by several countries between 1995 and 1998 shows that solutions to a lack of resources can be found, in some cases, through partnership.

KEY POLICY ISSUES FOR DISCUSSION CONCERNING THE NUMBER OF STUDENTS PER COMPUTER

Faced with the necessity of providing expensive equipment to a large number of schools, some educational systems turn to a partnership approach, in which the partner organisation must benefit in some way from its contribution but must respect national rules regarding school education. (It may not, for example, interfere with the curriculum.) Exchange of experiences in this area could eventually help countries less well-equipped to find a means of improving their resources. **How would it be possible to create partnership with institutions or organisations which could help to increase the availability of computers in schools? How can schools be guaranteed a real long-term benefit from such an approach?**

As technology changes rapidly, it is wise to bear in mind from the outset the need to upgrade computers, replace outdated models, or repair faulty machines. It may be preferable to provide the schools with a smaller number of computers in the first instance, in order to ensure that the hardware remains usable and at a suitable level of performance over time. **How can**

schools ensure that their equipment remains appropriate while costs are kept at a manageable level?

Hardware alone cannot guarantee efficient use of ICT in schools; teachers must be able to use ICT effectively themselves. **How should teacher training in this field be organised?**

The importance of computer skills in today's society is widely recognised. **How should the use of computers in primary and secondary schools be organised in order to ensure that pupils acquire these skills?**

EXAMPLES OF NATIONAL INITIATIVES

(For more information see Annex 1)

Belgium (French) – 1998 partnership offering all primary and secondary school a 'cyber centre': computers and facilities to connect to Internet.

Estonia – The 'Tiger leap' programme is a national target programme with the overall objective of improving the educational system in Estonia through the introduction of modern information and communication technologies (<http://www.tiigrihype.ee/english>).

Italy – 1999, companies and banks provided schools with their old (but perfectly working) computers.

Portugal – New regulations on school administration and management, issued in 1998, created clusters of schools (agrupamentos) which allow for the sharing of human as well as material resources.

16. EDUCATIONAL EXPENDITURE PER STUDENT

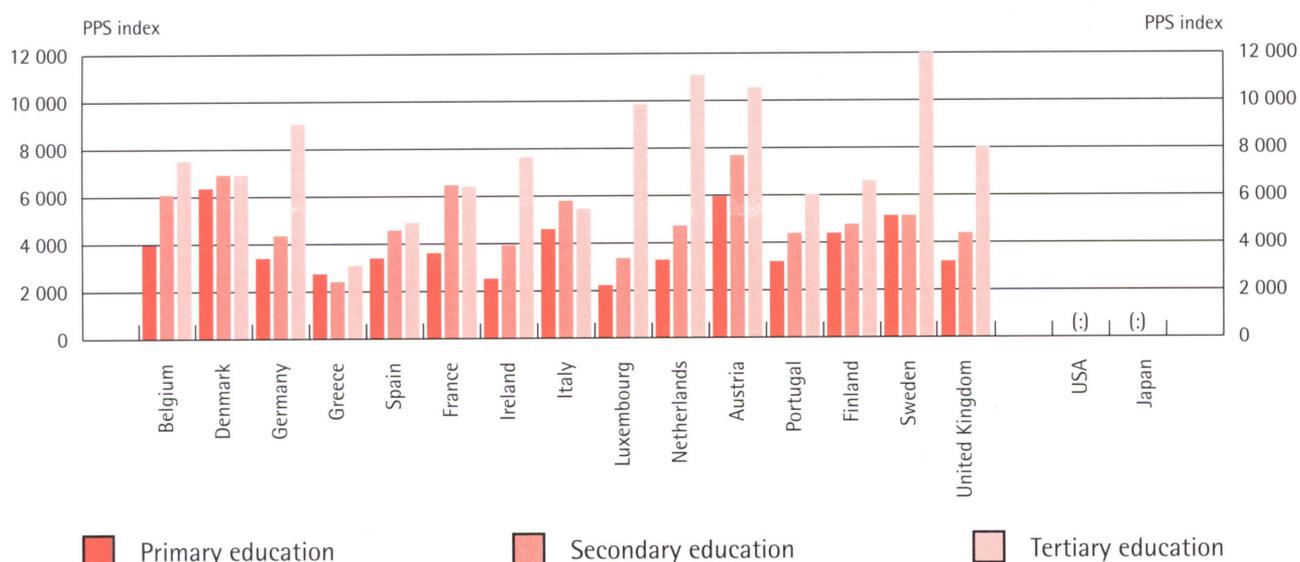
The share of total financial resources devoted to education is a key decision for national governments. It is an investment with long-term returns, and most governments consider it to be something which impacts on several key political challenges such as social cohesion, international competition, and sustainable growth.

The chart summarises educational expenditure per student, differentiated according to level of education, namely primary (ISCED 1), lower and upper secondary (ISCED 2, 3 and 4) and tertiary education (ISCED 5 and 6). The information is based on the UOE finance data provided by countries for the financial year 1997; information is presented for EU countries only, as data for the remaining countries were unavailable.

The data cover only expenditure on public institutions. They include expenditure for ancillary services such as

meals, transport and other welfare services, but do not generally include expenditure on student fees. Expenditure for research is not included if it is carried out by separate research institutions with a purely administrative link to universities.

A straightforward comparison of expenditure per pupil is problematic on the basis of these figures. It would not, for example, take into account national variations in the costs of educational resources of comparable quality. A teacher in one country could incur greater



EXPENDITURE PER PUPIL/STUDENT (PPS) IN PUBLIC INSTITUTIONS BY LEVEL OF EDUCATION, 1997

(:) Data not available
Source: Eurostat, UOE.

expenditure than a teacher in another country as a result of higher salary costs. However, the work of a teacher in the first country is not necessarily of better quality than that of a teacher in the second country. The reason for differences in expenditure can be attributed largely to differences in salary levels. However, factors such as the number of students enrolled and the different duration of studies also have a decisive influence in the amount of educational expenditure per student.

The graph shows clearly that expenditure per head differs greatly between individual countries. Greece, for example, has rather low levels of expenditure, while countries such as Austria have above average expenditure. The extent of the differences between the countries can be demonstrated clearly by taking the example of secondary education. Greece spends 2 150 PPS (purchasing power standards expressed in ecus) on each pupil, whereas Luxembourg spends 10 009 PPS. Between these two extremes lies a group of countries with relatively low levels of expenditure, including countries such as Ireland (3 637 PPS) and the United Kingdom (3 808 PPS), as well as a group of countries with comparatively high levels of expenditure on secondary education, such as Austria (7 676 PPS), Denmark (6 699 PPS) and France (6 501 PPS). With respect to the comparatively very low level of expenditure in Germany (4 196 PPS) it must be taken into account that training within the dual system of the upper secondary level is financed to a considerable extent by business, and the expenditure is not, therefore, included here. Under the dual system, approximately one third of students' training takes place in schools which are financed by the State, and two thirds in companies which are not normally publicly funded.

The differences between countries can be explained in part by their differing levels of prosperity. Nevertheless, it is interesting that in those countries which had very high levels of expenditure per pupil, expenditure also represents a relatively large proportion of the gross domestic product per head of the population. In Denmark and Austria, expenditure per pupil on education comprised 28 % and 33 % respectively of the gross domestic product per head of the population in 1995, taking into account the higher prosperity of these countries, whereas it represented 16 % in Greece, 19 % in Ireland and 24 % in the United Kingdom in that year (source: *Education at a Glance*, 1998).

A number of observations, beyond those already discussed, can be made on the basis of the data shown. Even taking into account the differences in prosperity between countries, the priority given to education seems to vary considerably. Wealthier countries seem to be able to 'afford' to make education a priority. It is clear that different countries pursue different strategies regarding expenditure on education. In the majority of countries, expenditure per student increases in line with the age of students. The variation in funding levels between the different levels of education within individual countries is quite marked. In Denmark, for example, expenditure on each of the three stages is quite similar, whereas there are clear differences in the funding allocated to the three stages in the Netherlands, where the difference between secondary and tertiary level is explained by the inclusion of research expenditure.

KEY POLICY ISSUES CONCERNING EDUCATION EXPENDITURE

This comparative overview of expenditure on education, combined with a knowledge of the situation of the economies of the different countries, gives rise to the following questions regarding the financing of education:

- How, and according to which criteria, should priorities be set – particularly with respect to the different levels of education?
- How can we make sure that expenditure on education is an investment?
- What is the role of the private sector in funding education, especially in the context of life-long learning? Is the contribution of private sector funding an opportunity or a danger, particularly for the less wealthy countries?
- What is the implication of the expansion of life-long learning on education expenditure? Who will meet the costs of this expansion: the State, the individual participant, the private sector?
- Is the balance of expenditure between the different educational levels right? What are the priorities in terms of funding? What are the consequences of increasing funding at local/regional level? How could this affect the quality of educational establishments?

EXAMPLES OF NATIONAL INITIATIVES

(For more information see Annex 1)

Scotland – New public–private partnership arrangements allow local authorities to fund school re-building programmes, which they otherwise would not have been able to fund on such a scale.

ANNEXES

1. EXAMPLES OF NATIONAL INITIATIVES

1. MATHEMATICS

Austria

In Austria, as a consequence of the poor results of Austrian upper secondary students – different from the students of the seventh and eighth grades – the Austrian Ministry of Education has begun a project with two principal objectives:

- to establish measures for the further development of instructional methods in mathematics;
- to develop a methodology for the use of materials relevant to TIMSS in mathematics instruction.

These materials will serve as a tool in voluntary self-evaluation of schools. The project is intended to be a first step in relating international studies of student achievement to practical work in schools.

Cyprus

The Mathematical Society of Cyprus, in cooperation with the Ministry of Education and Culture, has initiated mathematical contests covering all areas of the country and all ages of pupil. The response from pupils has been very high. The contests are helping to build a culture which promotes excellence in mathematics.

France

In France a national 'observatory' for mathematics teaching and achievement has been developed jointly by the Mathematics Teachers Association (APMEP) and the National Institute for Pedagogical Research (INRP). Surveys carried out over 10 years have produced many assessments tools and teaching references for pupils from grade 6 to grade 12. These are already used by hundreds of teachers and are now available on the Internet, and on CD-ROM, for all teachers.

Germany

In Germany, materials have been developed for mathematics teachers, in which the TIMSS results are explained and suggestions for the improvement of mathematics teaching are presented. These materials include a CD-ROM containing excerpts from a study video, produced in the context of TIMSS, on the teaching of mathematics in Germany, Japan and the USA.

United Kingdom

Launch of the Maths Year 2000 in January to raise expectations, promote a 'can do' attitude towards maths and get rid of the national fear of figures. Maths Year 2000 will make maths fun and accessible for everyone. And most importantly, Maths Year 2000 will support the efforts of primary teachers to drive up standards in

maths through the government's national numeracy strategy. Some 27 000 teachers from schools with the biggest challenges will receive intensive maths training.

As a response to the Unesco initiative to declare 2000 'the year of mathematics', most countries have set up an agenda and projects which can be consulted (<http://wmy2000.math.jussieu.fr/>). As an example, the United Kingdom has organised a high-profile campaign promoting mathematics as an enjoyable and interesting topic. The campaign is being led by a high-profile media personality famous for her numerical skills. For more information go to the web site (www.mathsyear2000.org).

2. READING

Denmark

The results from the IEA reading literacy survey from 1991 showed that Denmark was not at a high or nationally acceptable level. Since then, Denmark has made efforts to increase the reading level in compulsory education. One of the projects has been to strengthen educational/pedagogical research in the field. Furthermore, the in-service training of school teachers has been expanded and municipalities have decided to increase the amount of lessons in reading and writing. Teacher training colleges have, in accordance with the latest ministerial order, upgraded the importance of Danish as a subject.

The Ministry of Education, the National Association of Local Authorities and the Danish Union of Teachers have together launched a big national programme 'Folkeskolen 2000'. The aims of the programme include setting standards for core knowledge and proficiency for each subject. Additionally, a project named Quality in Education, was introduced by the Danish Government in 1998 with the aim of strengthening qualifications in Danish, mathematics and English.

Germany

Newspapers in schools – A large number of local and regional newspapers in Germany take part in this project: pupils receive over the period of three months 'their' daily newspaper (without paying for it). The

newspaper is integrated in different subject matters at school. After four weeks of reading the local newspaper and getting familiar with structure, special language and different types of texts (report, comment, etc.), the pupils also receive other newspapers (trans-regional and weekly papers). The guided comparative reading also makes a remarkable contribution to political education and to media-education in general. The project is an excellent instrument to stimulate interest in reading, in public affairs and promotes critical judgement. The project is financed by the publishers and by industry-sponsors. The participation rate is high.

Italy

In 1998, the Ministry of Education launched the 'Progetto lettura 2000' programme aiming to promote the development of school libraries and to encourage reading among students of all kind of schools. Among the initiatives proposed by the schools, two are to be mentioned:

Students (last year of lower secondary schools and all grades of upper secondary) can take part in their own school in a jury which has to select the 20 most important books of 20th century from 100 youth books proposed by a group of writers. The selected books must be reviewed explaining the reasons of the choice; the reviews can be considered as a credit. The list of the most favourite books at national level will be presented at the Book Fair (May 2000) and discussed with the students.

A web site on reading 'Giovani lettori protagonisti – Young readers are protagonists', wholly addressed to pupils of primary and lower secondary schools will be ready next April as a 'virtual' online library. There will be also a section for teachers with suggestions and didactic proposals in order to motivate pupils toward book reading (www.galassia.org).

Sweden

Research has shown that young people improve their reading skills when they participate in joint reading experiences with a close friend or relative. Based on this finding, regional and local school authorities in Sweden have asked and actively encouraged parents of students aged 10 to 12 to spend half an hour per day reading a good book with their child. Half the time, the student reads aloud to the parent and the other

half the child listens to the parent reading. The authorities have supported this programme by funding the purchase of interesting books that both students and parents enjoy.

3. SCIENCE

Europe

'Women in Science' is a mobile exhibition, obtainable on request from the Member States' Education Ministry departments, which deals with equal opportunities and gender-related issues to be shown in the secondary schools.

It illustrates the history of science through the achievements of women in different periods of history and current trends in the feminist approach to science, accompanied by figures and bibliographies, and also illustrates initiatives organised by European networks and by the European Commission to promote equal opportunities at school, at university and in careers.

The content of the exhibition can be put to use by teachers as a platform for discussing equal opportunities in schools and perhaps for getting more girls to opt for scientific and technical subjects.

Ireland

European Union Physics Colloquium – The Colloquium on Attainment in Physics at 16+ was held in 1998 and involved Ireland and eight other European education systems. The colloquium examined approaches to physics education at upper secondary level in the participating countries. Each country prepared a detailed paper on physics education. The outcome of the colloquium was a report on the principal issues in physics education in upper secondary education in Europe.

Italy

In 1999, a national four-year programme 'Progetto SET – SET project' was launched, aiming to enhance pupils' scientific and technological skills and to raise their achievement levels. The programme is based on four basic assumptions: a unified vision of science and technology; a wider concept of laboratory skills including experimental skills and capacity to evaluate

the social relevance of science and technology; the strategic role of multimedia, telematics and information technologies; the interdisciplinary meaning of the content areas proposed by the programme.

An initiative has been carried out aiming to improve teaching/learning processes in science and to prevent learning difficulties during the last year of primary school (fifth grade) by means of individualised learning units and materials. The experience was based on the DIVA model of individualised teaching (Didattica individualizzata con valutazione analogica/Individualised teaching with analogical assessment): using analogy, this approach allows diagnostic tests to be developed which identify potential learning difficulties regarding specific subject content. In this way remedial action can be planned before failure has actually happened and individualised learning/teaching units can be prepared. The content area selected for this innovative initiative deals with physical, chemical and biological phenomena.

Slovakia

'Schola Ludus', launched by scientists of Comenius University, is an NGO operated, and MoE supported, programme commemorating Jan Amos Comenius' belief in the effectiveness of learning by playing. 'Schola Ludus' promotes science education by interactive exhibitions touring the country.

Spain

The National Science Museum has a guide of school programmes for permanent exhibitions, temporary exhibitions, workshops, guided visits, didactical materials and courses.

The 'Consejo Superior de Investigaciones Científicas' organises guided visits for groups to several scientific institutes to acquaint young people with scientific research.

4. ICT

Europe

One of the objectives of President Prodi's eEurope initiative is to make digital literacy one of the basic skills of every young European. eLearning is intended to implement the education/training part of eEurope. This

initiative has four components: to equip schools with multimedia computers; to train European teachers in digital technologies; to develop European educational services and software and to speed up the networking of schools and teachers.

Most of the resources to be mobilised will be national, but they should be backed by European Structural Fund assistance in the eligible regions, mobilisation of the Community programmes to promote digitalisation and development of partnerships between public authorities and industry.

Cyprus

From the school year 2000–01, the new type of lyceum – ‘the unified lyceum’ (upper secondary education) – will be introduced in Cyprus. Following an extensive four-year pilot, the new lyceum will have three key new elements:

- upgrading the ICT skills of pupils by introducing curricular changes that provide for more teaching periods in ICT;
- upgrading schools’ technological equipment;
- developing the skills of staff to enable the provision of a more flexible programme of studies to suit the needs and aspirations of all pupils.

Estonia

In some Estonian schools, senior pupils are required to spend four hours a week on mentoring and tutoring younger children in ICT, acting as a mediator between them and their teachers. The benefits to older pupils are seen to be as significant as those for the younger children who gain from working with peers whose experience is more relevant. This takes place as part of a wide national initiative to increase the use of ICT and develop the expertise of teachers.

Hungary

In Hungary, initiatives are underway to promote new methods and teaching aids that make use of ICT technology in a range of school disciplines. Successful applicants are expected, in exchange for funds for equipment and software, to develop and test computer-assisted sequences of lessons and give reports on student develop-

ment. A scheme to offer tax reductions for the purchase of home computers is currently being developed along with support schemes for teachers to acquire PCs for home use.

Italy

A large-scale programme, the PSTD ‘Programma di sviluppo delle tecnologie didattiche 1997–2000’, was promoted to spread information and communication technologies (ICT) and aims to improve the teaching/learning processes.

The programme has defined three large categories of objectives:

1. to promote students’ mastery of multimedia in terms of understanding and using different tools, or adopting new cognitive styles in the study, design and the conduct of experiments in communication.
2. to improve the effectiveness of the teaching/learning processes and the pedagogical organisation either regarding subject-bound competencies or the acquisition of cross-curricular skills.
3. to develop the professionalism of teachers not only through education, but also by giving them tools and services for their daily job.

An experimental teaching project called ‘Multilab’ (multimedia laboratory) aims to revolutionise teaching through the use of computers in classrooms. A network of seven schools has been set up in each of the 20 cities involved in the project and one of the upper secondary schools selected is responsible for the coordination and implementation of the initial in-service training phase for the teachers.

Multilab does not, however, propose a single model for methods of teaching. The project is presented to the schools as an offer of the necessary structure and equipment.

The Netherlands

The Dutch ‘knowledge net’ is a project of the Ministry of Education bringing together pupils, parents, teachers and cultural organisations. It is a computer network which also provides services: information, discussion groups, and technical facilities. Business firms receive tax benefits if they provide computers to schools. Pupils (and teachers) receive a qualification, called the

'digital educational driver's licence' (digitaal rijbewijs) which sets a standard for basic ICT skills.

Poland

The 'Interkl@sa' programme aims to prepare young people for work in the information society and to develop schools as modern centres for innovation and creation. It also brings together two projects: the first establishing an Internet workshop in each commune, and the second planning an Internet workshop in each secondary school.

Slovakia

Info-age – Infovek, in Slovak (www.infovek.sk) – is a non-profit-making NGO operated programme aimed at the improvement of ICT in primary and secondary schools. Reflecting US and EU activities of this type, access to Internet, at least one multimedia laboratory and training of teachers is to be provided for all primary and secondary schools. The programme was launched in 1999. It is supported by MoE and backed by the President of the Parliament. It continues the efforts of Dutch–Czechoslovak project Comenius from early 1990s and the recent 'Open society fund' programme which have already provided Internet access to 138 schools.

Slovenia

The objective of the 'Developing computer literacy' programme (<http://ro.zrsss.si/>) is to: train teachers and pupils for the use of information technology; implement a standardisation of computer supported transfer of data between schools and other institutions; unify the computer software used for teaching and administration purposes in schools; supply schools with up-to-date computer and data equipment; and provide the possibilities for research and development in the field of implementing new information technologies in schools.

Spain

All Spanish State schools have an official Internet account and space to publish a web page. Many schools have created their own website. All teachers of State schools have the opportunity to ask for a personal ac-

count for e-mail and access to Internet. Around 65 000 teachers have an account. More information (in Spanish) is available on the Internet (<http://www.pntic.mec.es/>).

Sweden

In Sweden the government offers in-service training for school leaders and teacher teams to learn how to use computers as a tool. Money has been allocated by the government to supply 60 000 teachers with a personal computer. A specific State allowance is given to each school so that they can link up to the Internet. Within a few years all Swedish students will have their own personal e-mail address.

5. FOREIGN LANGUAGES

Europe

The aim of the 'European label' is to help stimulate interest in language learning by highlighting innovative language learning projects at all stages of education and training. The European label was launched in the context of the Commission's 1995 white paper 'Teaching and learning: towards the learning society', which set the objective of helping all EU citizens to be proficient in three European languages.

The label can be awarded to any initiative in the field of language teaching and learning, whatever type of organisation is responsible and whatever the age of the learners involved. Some projects will involve the use of new technologies, but that is not essential. What is important is that a project makes good use of the resources available to it.

Belgium

Due to the limited international importance of Dutch (the mother tongue in Flanders), foreign language learning has a prominent position in Flanders. An impressive number of people attend foreign language courses, not only in compulsory education (from age 12 to 18), but mainly in all kinds of adult education.

The most important provider is the Department of Education, which offers courses in 18 languages (both, European and non-European). Access to these courses

is made easy and very cheap. Some language courses are on offer as distance learning. In addition, specific types of work-related language training courses are offered in the sector of occupational (VDAB) and self-employment training (VIZO). Finally, many companies invest in modern foreign language training.

The wish to interrelate the general and vocational language offer has resulted in developments on the macro-level. The educational authorities have decided to work out a qualification structure in which both types of language offer are integrated.

To that end the Department for Educational Development (DED) has worked out a common tool for building user-friendly and transparent language learning curricula. It is a common framework to describe the entire language offer (both general and occupational) provided by the Department of Education. This framework uses a European-level indication as described in the common European framework of the Council of Europe 'Breakthrough up to effectiveness'. The framework:

- is based on the need for effective communication;
- meets the demands of society and the world of work by describing final objectives in terms of language tasks. These tasks are described in a systematic way, using a fixed set of building blocks. The final objectives are then clustered into certified modules.

The first new curricula based on this framework will be on offer by September 2000 (basic level to Breakthrough); higher levels of proficiency will be introduced in 2001.

Bulgaria

Improving foreign language (FL) teaching through creation of a network of 'methodology teachers' In order to improve FL teaching, the Bulgarian Ministry of Education and Science (MES) decided to create in 1996 a national network of so-called 'teacher methodologists'. After a highly competitive selection process, over 150 candidates in four languages (English, German, French and Russian) were appointed to attend one- to two-year special part-time 'training of trainers' programmes, and sat exams to become teacher methodologists. In 1998, corresponding legislative changes were made and the position of 'teacher methodologist' was introduced in the school system. About 150 teacher methodologists took this position all over the country.

They have half-time classroom work. They have additional duties, aimed at regular training of other FL teachers in several neighbouring municipalities in state-of-the-art teaching methods; analysing the needs of in-service training for the municipalities for which they are responsible, planning and managing the in-service training jointly with the regional inspectors in FL. This cascade model of teacher training is proving very successful, and currently similar considerations are under way for all other subjects.

Hungary

Hungary, as other countries, has been participating in an experience of the Council of Europe (Modern Languages Division) concerning a European language portfolio (ELP) since its launch in 1998. The ELP is a personal document in which students can record their qualifications and other significant linguistic and cultural experiences in an internationally transparent manner, thus motivating learners and acknowledging their efforts to extend and diversify their language learning at all levels in a life-long perspective.

Ireland

In Ireland, a project has commenced aimed at increasing the range of foreign languages taken by students in secondary school. At present, French has by far been the dominant foreign language taught in Irish schools with the number of students taking German less than one-third of the number taking French. Very few students take Spanish and far fewer take Italian. The project is aimed at increasing the numbers taking Spanish and Italian by increasing the number of schools which offer these languages. It is also intended to introduce Japanese to the school curriculum. In its initial stage the project is exploring how best this extension of foreign languages may take place.

6. LEARNING TO LEARN

Belgium (Flanders)

In Flemish Belgium, learning to learn skills are already a compulsory aspect of the 6 to 18 core curriculum. They are presented as a cross-curricular theme to be integrated and applied in as many subjects as possible. Skills include

the ability to reflect on your own learning, choose appropriate strategies for solving problems, being aware of feelings and be able to channel these effectively, and to make informed choices about subjects and careers.

England

In England, the Department for Education and Employment (DfEE) has commissioned and published a report on thinking skills (McGuinness, *Thinking Skills*, DfEE, 1999) and made a Ministerial press release indicating the importance of this is an emerging government priority. At the level of practice level there are numerous authorities and schools undertaking training and examples of large-scale initiatives such as the University of the First Age, in Birmingham, which holds summer schools in which schoolchildren of secondary age practice accelerated learning techniques.

Finland

In Finland, research has been conducted as a prelude to developing a new form of national assessment. The research analysed factors which cut across and permeate school subjects and came to be called 'learning to learn competencies'. Identification of these factors will, it is hoped, help to explain relative success and failure in general and in specific subjects. The national study of sixth graders in 1996 has provided a national norm for later testing, leading in 1997 to a study of ninth graders, similarly furnishing a national norm. Further extensions and developments are now building on this work.

Germany

In Germany, widespread curriculum revision is taking place, encouraging pupils through the use of texts and questionnaires to reflect on their working habits, their learning strategies, their ability to communicate and cooperate. Teachers are given criteria for the measurement of self-regulated, cross-curricular work, in order to certificate competencies in these areas.

Italy

In Italy, a repertoire of instruments has been developed to measure learning to learn competencies and to provide teachers with simple tools which they can use for remedial and individualised intervention. Question-

naires have been developed for two age groups. One, for students of 10 to 15 years of age, covers four main areas: learning strategies; learning styles; awareness of learning ('metacognition'); and attitudes to school and learning. The second, aimed at students aged 14 to 17 in general and vocational education, has 14 scales, seven of which tap cognitive, or thinking, skills while the other seven tap into affective, or feeling, aspects such as test performance anxiety, self explanations for success and failure, perceptions of one's own competence or ability.

The Netherlands

In the Netherlands, a cohort study of 20 000 secondary students is repeated every five years using a test developed to measure the general problem solving capacities of 14- to 15-year-old pupils.

7. CIVICS

Greece and Cyprus

In Greece and Cyprus, the 'Parliament of adolescents' is an annual project in which elected Lyceum pupils act as representatives of all other pupils living in all areas of the two countries. They meet in the House of Parliament and discuss matters of concern of the young generation as well as matters of current importance to Greece and Cyprus. In their discussions they follow the rules and regulations of the real Parliament. The project has been successful in providing pupils with rich experiences in civics education.

Italy

In all secondary schools a 'Statute of students' rights and duties' was introduced in order to enhance democracy in schools and widen students' opportunities (i.e., the right to be informed about learning goals and assessment criteria, to participate in support activities to prevent drop out; the duty of the schools to respect cultural and religious values of foreign students and to organise intercultural activities etc.).

The following are examples of courses and initiatives of 'cross-curricular education' dealing with civics at both curricular and extra curricular level:

- peace and human rights education: Amnesty International organised in-service teachers' training and

elaborated students' and teachers' materials and teaching units for schools in Rome and other Italian towns (<http://www.amnesty.it/edu/index.html>);

- environmental education and education for cultural heritage: at national level many schools are involved in initiatives for the 'adoption' of monuments and local areas allowing students to develop a sense of belonging to their local communities. See the web site (<http://www.legambiente.com/scuola/index.html>), which is in Italian;
- intercultural education: *Peter Pan* is a European multilingual school magazine, on paper and online. The online version (<http://www.geocities.com/CollegePark/Theater/8153/index.html>) and chat-line (<http://members.xoom.it/PeterPanNews/chat.html>) can be found on the Internet;
- education for lawfulness: the national cultural association LIBERA (Associations, names and numbers against mafias) signed an agreement with the Italian Ministry of Education in order to carry out a plan of action-research in schools aiming to define specific competencies in this area. The agreement provides for the collaboration of all provincial representative councils of students.

Poland

In accordance with the requirements and needs of the education reform taking place in the country, the KOSS programme has trained 2 000 teachers to teach civics to their students. It also creates and publishes civics programmes.

'Law and civics education in secondary schools' is a programme which deals with the creation of courses in cooperation with the pupils. Within the framework of this programme, lessons are developed and conducted with the active participation of pupils.

An estimated 200 000 pupils from primary and secondary school (the 'Gymnasium' system, implemented following educational reform) have learned and are learning civics through the KOSS programme.

'Young citizens are active' is a project aiming to teach young people to participate in everyday life in an active and productive way. Pupils have to try to find solutions to the most important problems they feel exist within their society and to convince the local authorities to develop their ideas.

In the field of 'Education for Europe', the National Centre for Teachers' Improvement has trained 1 200 teachers using a multimedia methodological tool 'An educational package on the European integration'.

8. DROP-OUT RATES

Europe

At European level, the 'Second chance schools' project offers education and training to young people who lack the skills and qualifications necessary to find a job or benefit fully from conventional training. The project aims to set up long-term partnerships between all those concerned, at local level, with the social and economic integration of young people at risk of social exclusion. More information can be found on the Internet (<http://europa.eu.int/comm/education/2chance/homeen.html>).

Bulgaria

In 1997, a Phare project was launched to cope with the increase in school drop outs as a result of the unstable economic situation. The project was named 'School for everybody'. Its main goals were to build expertise for coping with this complex problem through appropriate training, involving all concerned stakeholders, and building centres of expertise and aid throughout the country. As a result of the project, 13 project centres were established countrywide, three of which are resource centres for teacher training, and the rest are centres for school dialogue. Considerable training of teachers, headmasters and other stakeholders took place too. At the end of the project the 13 centres officially became part of the educational system. They offer various expertise and training in methods, curriculum design, psychology training, advice, pupil consultancy services, and support to schools, municipalities, parents and pupils to cope with the drop-out problem. They are obliged to train staff for other such centres to be created in each of the 28 regions of the country.

France

A 'New chance' for young people who leave school without qualifications. Each year some 57 000 young

people leave the educational system in France without qualifications and therefore risk social and professional exclusion. The French Government takes the view that schools are not only responsible for education and training of the young people attending them, but also for the future of those who leave school where no arrangements for transition are in place. This new action:

- encourages responses for each young person rather than general solutions;
- facilitates initiatives and supports innovation;
- acts together with partners, particularly enterprises.

The programme, which was launched in May 1999, has a number of objectives. It aims to: improve procedures for identifying the young people concerned and increase the available information about the issue of drop out; prevent disaffection in upper secondary schools; enrich training up to the level of CAP; and develop a European dimension (the integration of the European 'Second chance schools' projects into the 'New chance' programme is explicitly mentioned).

Germany

Some pupils will become drop outs because they lose interest in theoretical learning at school. In Germany it has proved useful to find local industry partners who can give those pupils the chance to gain experience in practical working, in parallel with their school-based learning. It has been shown that a relatively large number of pupils gain new motivation for education at school as a result of this approach.

The Netherlands

Early school-leaving in the Netherlands is challenged by a policy of cooperation between schools at a regional level. Early school-leavers are registered and are put back into schools as much as possible in order to give them the opportunity to achieve an upper secondary qualification. To achieve this, 39 regional centres (RMC) have been formed with responsibility for registering early school-leavers and coordinating actions. These regional centres take into account the different responsibilities of the stakeholders in the region (school, employment agencies, justice, youth care, municipalities, etc.) in deciding how best to act. A law is currently being prepared which will make it obligatory

for schools to report early school-leavers to the municipality.

Poland

To help reduce the numbers of those dropping out in Poland, an educational psychology service was set up and, in 1998/99, 7 646 school educationalists were recruited by schools to identify pupils' individual needs, to analyse the causes of failure and to find ways of remedying them. In the same year, 978 psychologists were hired by schools to look at the potential difficulties facing pupils and to organise different forms of psychological therapy. In addition, they provide advice to students and teachers and cooperate with the educationalists and parents in order to prevent behavioural disorders and initiate educational assistance inside and outside schools.

Spain

Three different initiatives, two of them depending on the Ministry of Education or the autonomous community, the other depending on the Ministry of Labour or the autonomous community.

- 'Programas de garantía social' for 16 to 21 year olds who have not finished secondary education or have no professional qualification to the labour market. These programmes are described (in Spanish) on the Internet (http://www.mec.es/cnrop/portada_cnrop_40.htm).
- 'Formación profesional ocupacional' provided by the Ministry of Labour and funded by the European Social Fund. Details, in Spanish, can be found on the Internet (http://www.inem.es/ciudadano/p_formacion.html).
- Secondary education for adults (ESPA).

United Kingdom

'New deal' is a key part of the UK Government's 'Welfare to work' strategy. It gives jobseekers aged 18 to 24, 25 + and those with disabilities a chance to develop their potential, gain skills and experience and find work. It also provides an opportunity for businesses to make use of the untapped energies and talents of a new labour force. More than 67 000 companies have signed 'New deal' employer agreements so far. Partnership between the Employment Service and a wide range of organisations is crucial to the success of 'New

deal'. 'New deal' was created to help unemployed people into work by closing the gap between the skills employers want and the skills people can offer.

9. COMPLETION OF UPPER SECONDARY EDUCATION

Ireland

In Ireland, one of the most important aims of education policy is to maximise the numbers of students who complete upper secondary education. To that end an alternative programme, the 'Leaving certificate applied', has been devised for students for whom the mainstream programmes are not suitable. This programme focuses on the needs and interests of students using a range of methodologies. It also seeks to develop in the students an enterprising outlook, self-confidence and other skills related to success in the workplace. Students are required to perform tasks during the two years of the 'Leaving certificate applied', which are assessed and count towards the student's final examination. Work experience and preparation for the world of work are also important aspects of the programme.

Spain

The 'Centro para la Innovación y Desarrollo de la Educación a Distancia' (CIDEAD) organises and coordinates 'Educación a distancia' intending to facilitate access to education to adults and also to non-adults who due to personal, social, geographical or other exceptional circumstances cannot follow education at school with daily attendance. It provides primary education, secondary, and secondary for adults and non-compulsory post-secondary education.

10. PARTICIPATION IN TERTIARY EDUCATION

Ireland

In Ireland, many of the universities and other tertiary institutions now have programmes which are aimed at redressing the current imbalance in the representation of the social classes in the universities and other tertiary

institutions. These are organised at institutional level and between institutions, in line with Government policy, and are supported in different ways by the State. One example is the 'Accessing college education' project. Sixty students were accepted into the project and while at school they benefited from extra classes and supervised study and also tuition in study skills. As the students are encouraged to forgo paid employment while at school, they are each given money each month by the project. They are also provided with academic, personal and financial support while they are in college.

Scotland

In Scotland, the 'Open University' and 'Open College' are interesting examples of making tertiary education more available to mature students and those in remote areas. Perhaps more topical is the development of the new 'University of the Highlands and Islands', which is making extensive use of remote access teaching technology to link a number of centres with students across the remote rural region of northern Scotland.

11. EVALUATION AND STEERING OF SCHOOL EDUCATION

Austria

In advance of the general introduction of compulsory school planning and self-evaluation, a rich resource site on the Internet has been established for schools, allowing them to access information, ideas, procedural proposals, instruments and other support for schools programme development and self-evaluation (<http://www.qis.at>).

Denmark

Denmark launched the Danish Evaluation Institute, in August 1999, a single organisation for the evaluation of all levels of education. The mandate of the institute is internationally unique, because it is given the task by Parliament to undertake systematic and mandatory evaluation of teaching and learning at all levels of the educational system from kindergarten classes to post-graduate courses.

In order to understand the expectations of Government and Parliament it is necessary to point to two highly vis-

ible elements in the recent Danish political debate on education. Firstly, there has been much concern about the transition from one level to the next in the educational system, whether it be the transition from primary to secondary or from secondary to tertiary education. Secondly, OECD surveys during the 1990s have questioned the skill levels of Danish primary school pupils in elementary reading and mathematics.

Europe

The European pilot project 'Evaluating quality in school education', a self-evaluation profile, provided a highly stimulating starting activity and influenced policy developments in a number of countries and in some, for example Italy and Portugal, the pilot has been extended to involve a wider group of schools.

For the full report see the web site (<http://europa.eu.int/comm/education/poledu/finalrep/rep.pdf>).

Hungary

The improvement of quality has a prominent place in the strategy of the Ministry of Education in Hungary. A comprehensive programme of quality development has been initiated by the Ministry. A new pilot project will be launched with more than 400 public institutes, nursery schools (pre-primary education institutes), primary and secondary schools (including the vocational training schools) and hostels. The programme focuses on the operation and management of the schools, thus internal development work will be carried out by the institutions themselves. The success of the quality development programme is largely based on the cooperation of teachers, providers, and those responsible for quality assurance in the domain of industry. One of the most important elements of professional support is the *Manual of Quality Improvement*, published by the Ministry, which is available for each institution.

The Netherlands

About 0.5 % of the budget for primary and secondary education is spent on external evaluation activities such as tests, examinations, evaluations by the inspectorate, and large-scale evaluation research. School also have their own systems for internal evaluation of the quality of education.

Portugal

Evaluation and steering of schools is now seen in Portugal as very much connected with the definition of educational plans which schools are required to elaborate and follow.

PEPT (Education for every student), a programme designed in 1991 to foster students completion of compulsory education, made it obligatory for every school to structure a self-evaluation plan which includes an observatory with 15 indicators relating to context, process, resources and outcomes.

Similarly the Institute of Educational Innovation (IIE), is currently taking forward work on self-evaluation of quality education in schools first developed and financed by the European Commission.

Scotland

Scotland has a well-developed approach to promoting self-evaluation in schools, backed up by publication of examination results and a regular programme of independent inspections of individual establishments. 'How good is our school?' was published in 1996. It is a toolkit for schools to use in self-evaluation, based on a set of 33 performance indicators. These were organised into seven key areas. In the latest development of this approach many schools across the country (in some cases schools within a local authority) are beginning to publish their own self-evaluation reports (standards and quality reports) in which they summarise their own evaluation of their performance in each of the key areas for their stakeholders. Development of the self-evaluation approach in Scotland is being taken forward through the nationally coordinated 'Quality initiative in Scottish schools'.

Spain

- INCE (Instituto Nacional de Calidad y Evaluación) was created to design evaluation systems for the different types of education governed by the LOGSE (new law for education).

- Self-evaluation of schools is mandatory in Spain; schools are free to follow their own model of self-evaluation. The Ministry of Education has published the 'Modelo Europeo de Gestión de Calidad', but training is needed to put the model into practice.

The Ministry of Education holds an annual contest for an award of quality in education, the objectives of which are to foster quality improvement in education through quality in the management of schools and to foster use of the 'Modelo europeo de gestión de calidad' as a systematic tool of self-evaluation for improvement.

12. PARENT PARTICIPATION

Europe

EPA's 'Training programme in partnership' is an example of how to improve quality through cooperation and constructive dialogue between parents and teachers at the school level.

Many parents do not come to the school – through fear, lack of knowledge, lack of time or lack of awareness. EPA's training course targets these parents and highlights their important role and responsibility in the education of their own child. It provides them with the confidence to communicate effectively with teachers.

Germany

In Germany, seminars for parents are provided at both classroom and school level with three primary aims:

- to inform them of new developments in learning and teaching and the part they can play in supporting their children's learning;
- to establish consensus on areas of school life, such as social education and values education;
- to motivate them to participate in wider aspects of school policy such as school rules and policies on violence, drugs, etc.

13. EDUCATION AND TRAINING OF TEACHERS

Hungary

The in-service teacher training system – the Act on Public Education has declared that each teacher should participate in at least 120 contact-hours of in-

service teacher training during seven years of practice. The courses could be supplied by any kind of training organisation including HE institutions, pedagogical institutions, schools, training firms, NGOs or even private individuals. The courses should go through an accreditation process which includes two phases: first, the professional accreditation of the programme and, second, the accreditation of the local implementation of the programme – this allows organisations to implement programmes created by others if they agree. Each programme is required to have an internal quality assurance and quality management system. All education institutions receive per capita funding based on the number of teachers employed from the state budget to cover the costs of the courses (tuition and other expenses).

Portugal

'Sailing through the Portuguese language' is the name given to an initiative of the Department of Secondary Education of the Portuguese Ministry of Education, designed to provide teaching training using Internet facilities. This initiative started in October 1999 and is intended for teachers of the Portuguese language who work with 11th grade students. There are now 158 teachers following this initiative. 'Sailing through the Portuguese language' offers a range of opportunities including glossary, activities and solutions to problems and participating in a group discussion through the Internet.

14. PARTICIPATION RATES IN PRE-PRIMARY EDUCATION

Italy

In Italy, three initiatives concerning quality in infant education have been promoted by the Ministry of Education and by the National Institute for the Evaluation of Education Systems.

A four-year national programme of in-service teacher training aims to:

- promote a process of action research and implement innovations in four areas: curriculum, educational organisation, life contexts of children, professional identity of teachers;

- encourage and record innovative experiences;
- disseminate relevant results and practices at regional and national level;
- enhance teachers' expertise;
- set up a network of professional resources able to support innovative processes and to meet new demands of teacher training.

A project entitled 'Special actions to evaluate quality in infant schools' aims to:

- carry out a national survey of schools' experiences of self-evaluation in the context of factors which contribute to children's learning and development;
- develop a scale to be used by teachers for evaluating the quality of different aspects of the school setting.

The project QUASI (Quality of infant school) is a study aiming to define a repertoire of quality indicators relevant to infant schools.

Luxembourg

In Luxembourg, all children aged between four and six years are obliged to attend institutions of pre-primary education. In addition, a third of three-year-olds attend these institutions. Pre-primary education places considerable emphasis on language development in a multilingual environment.

The Netherlands

In the Netherlands, the Ministry of Education and the Ministry of Health have implemented two experimental programmes for early childhood education (Pyramide and Kaleidoscope) with a view to stimulating the cognitive, social-emotional and linguistic development of disadvantaged children aged between three and six years. The programme aims to give these children a better start in primary education. The programmes are implemented in close cooperation with both childcare centres and schools for pre-primary education, and allow the children to receive more personal attention. Evaluation shows that there is a significant (initial) effect, especially on the cognitive development of these children, and also on their vocabulary and thought processes.

15. NUMBER OF STUDENTS PER COMPUTER

Belgium (French)

In 1998, a partnership was signed between the French Community of Belgium (responsible for education and teachers training), Walloon or Brussels Capital regions (responsible for technology and equipment) and the Federal State (responsible for telecommunications) in order to offer to each primary and secondary school a 'cyber centre': computers and facilities to connect to Internet.

Estonia

The Estonian 'Tiger leap' programme is a national target programme with the overall objective of improving the educational system in Estonia through the introduction of modern information and communication technologies. The programme is aimed at general education systems, but it also involves vocational education. Further information can be found on the Internet (<http://www.tiigrihype.ee/english>).

Italy

In 1999, many important companies and banks (Telecom, Enel, Alitalia, Benetton, Banca di Roma, etc.) provided schools with their old (but perfectly working) computers. In March 2000, the Italian Government launched a national plan for spreading the use of computers among students at home, based on an agreement with the Italian Association of Banks. The initiative provides an interest-free loan for purchasing a computer.

Portugal

Computers have been provided to schools in recent years and, currently, every school, from 5th through to 12th grade, has a least one computer with access to the Internet. The new regulations on school administration and management, issued in 1998, created clusters of schools (agrupamentos) which allow for the sharing of human as well as material resources.

FOCO – the Portuguese programme for teacher training – defined the area of technology information and communication as one of its first priorities. FOCO is developed in the 150 teacher training centres created by the association of several schools.

16. EDUCATIONAL EXPENDITURE PER STUDENT

Scotland

In Scotland, the Government has encouraged the use of new public-private partnership arrangements to allow local authorities to fund school rebuilding programmes which they otherwise would not have been able to fund on such a scale. These arrangements make it attractive for private investors to put the money up front for major building programmes. In Glasgow, for example, this is allowing the authority to create several completely refurbished schools at once, thus rationalising inefficient, under-capacity schools and replacing poor-quality buildings. This sort of initiative allow major quality improvements in education to be funded efficiently without capital funds all having to come from the public purse.

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