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# The Common European Objectives in Education and Training: Indicators and Benchmarks in the Lisbon Strategy

## A Norwegian perspective 2005

# Preface

This report focuses on the indicators and benchmarks of the Lisbon Strategy with a Norwegian perspective. It gives an overview on how Norway performs with regard to the European educational indicators and benchmarks. Furthermore, the report gives examples of Norwegian education policies in the different areas. The report is written by Ole-Jacob Skodvin and Øyvind Bjerkestrand from the Norwegian Ministry of Education and Research.

Oslo, January 2005

# Content

# Introduction

At the European Council meeting in Lisbon (2000) a whole new agenda for the European Union was announced by the Heads of State. Here it was stated that by 2010 The Union should become:

*"..the most competitive and dynamic knowledge-based economy in the world capable of sustainable economic growth with more and better jobs and greater social cohesion"*.

Moreover, the conclusions of the European Council outlined a new method of European co-operation for achieving the goal – namely the Open Method of Coordination (OMC).

The OMC is pointed to as a core instrument for achieving the ambitions of the EU in the area of education/training and research. The method is referred to as a new form of collective action to foster compatibility, consistency or convergence between Member States' public policies. According to the Conclusions of the Lisbon European Council (23/24 March 2000 - paragraph 37) this method involves:

- Fixing guidelines for the Union combined with specific timetables for achieving the goals which they set in the short, medium and long terms
- Establishing, where appropriate, quantitative and qualitative indicators and benchmarks against the best in the world and tailored to the needs of different Member States and sectors as a means of comparing best practice
- Translating these European guidelines into national and regional policies by setting specific targets and adopting measures, taking into account national and regional differences
- Periodic monitoring, evaluation and peer review organised as mutual learning processes.

The OMC is a procedure geared at developing a shared understanding of 1) what are important objectives to achieve, 2) what are good ways of achieving the objectives and 3) criteria for the assessment of the level of goal achievement. The OMC can thus be seen as a means for achieving voluntary coordination, and converging the policies of the countries involved (Gornitzka 2004). Clearly, with the emphasis put on subsidiarity, the aim is convergence of goals and not means.

The shared European ambition of becoming the most dynamic knowledge-based economy in the world could become hollow if it did not entail quantifiable policy measures in areas of relevance for the overall ambition. Therefore, indicators and benchmarks are needed to make progress conspicuous and to break down the overall ambition in achievable goals in the different policy areas.

The Conclusions of the European Council's Spring Summits in Lisbon (2000), Stockholm (2001) and Barcelona (2002) provided a first set of indications regarding required guidelines and benchmarks for fulfilling the ambition. During these meetings the European Ministers agreed on three strategic goals for European education and training systems: 1) Improving quality and efficiency of education and training systems in the EU; 2) Facilitating access to education and training systems for all; and 3) Opening up education and training systems to the wider world. Each strategic goal has a number of sub-objectives (a total of 13). The Council (Education) has since further elaborated this list of guidelines and benchmarks in an

ongoing process of finding relevant reference points for progress in contributing to the Lisbon ambitions by improving education and training in Europe. Although Norway is outside the decision-making structures in the European Union, we have a corresponding view on these strategic goals, and indirectly they are form part of our official educational and research policy.

Norway and the other EFTA countries have established an EFTA action plan for the follow-up of the objectives in the Lisbon strategy. The main intention is to combine the national policy with the goals that are put forward in the Lisbon strategy.

In principle indicators are used for measuring progress in all objective areas. "Benchmarks" function as reference points for where the European Union should be in 2004 and in 2010. They point to areas where special policy efforts are necessary in order to improve education and training in Europe.

This report emphasizes the role of indicators and benchmarks within the OMC in the framework of the Detailed Work Programme (2002).[1] We should emphasise that this is seen from a Norwegian point of view and is based on the Commission's report made in co-operation with the Standing Group of Indicators and Benchmarks (SGIB) (EU 2004).[2] The indicators used in this report are divided into the EU's three strategic objectives (and 13 sub-objectives).

**Strategic goal 1: Improving the quality and efficiency of education and training systems in the European Union**

**Improving the quality of Teachers and Trainers (Objective 1.1)**
Indicator No. 1 **Age of teachers**
Indicator No. 2 **Number of young people**
Indicator No. 3 **Ratio of pupils to teaching staff**

**Developing skills for the Knowledge Society (Objective 1.2)**
Indicator No. 4 **Completion of upper secondary education**
Indicator No. 5 **Low-performing students in reading literacy**
Indicator No. 6-8 **Performance in reading, mathematical and scientific literacy**
Indicator No. 9 **Participation in education or training of initially low qualified people**

**Ensure access to ICT for everyone (Objective 1.3)**

**Increased recruitment to scientific and technical studies (Objective 1.4)**
Indicator No. 10 **Enrolment in mathematics, science and technology studies**
Indicator Nos. 11-13 **Graduates in mathematics, science and technology**

**Making best use of resources Investments in Education and Training (Objective 1.5)**
Indicator No. 14 **Public expenditure on education**
Indicator No. 15 **Private expenditure on educational institutions**
Indicator No. 16 **Enterprise expenditure on continuing vocational training courses**

[1] "*Detailed Work Programme on the Follow-up of the Objectives of Education and Training Systems in Europe*" jointly adopted by the Council and the Commission on 14. February 2002.
[2] European Commission, January 2004. Commission staff working paper: Progress Towards the Common Objectives in Education and Training. Indicators and Benchmarks.

Indicator Nos. 17-18 **Total expenditure on educational institutions per pupil/student**

**Strategic goal 2: Facilitate access of all to education and training systems**

**Open Learning Environment (Objective 2.1)**
Indicator No. 19 **Participation in lifelong learning**

**Making Learning more Attractive (Objective 2.2)**
Indicator Nos. 20-21 **Participation in continuing vocational training**
Indicator No. 22 **Participation rates in education**
Indicator No. 23 **Early school leavers**

**Supporting active citizenship, equal opportunities and social cohesion (Objective 2.3)**

**Strategic goal 3: Opening up education and training systems to the wider world**

**The links between education and training, work and society at large (Objectives 3.1 and 3.2)**

**Improving foreign language learning (Objective 3.3)**
Indicator No. 24 **Pupils learning foreign languages**
Indicator No. 25 **Number of foreign languages learned**

**Increasing mobility and exchange (Objectives 3.4 and 3.5)**
Indicator No. 26 **Mobility of teachers and trainers**
Indicator Nos. 27-29 **Mobility of students and trainees**

It should be noted that not all of the thirteen objectives are covered by the present list of indicators. For example, very important areas such as: Access to Information and Communication Technology, Active citizenship, Equal opportunities and Social cohesion, Entrepreneurship or European cooperation, are not covered by indicators. In these areas further work on the choice of – and where relevant the development of – indicators will have to be made. This report, however, will describe these areas and the activities and development in Norway according to these objectives.

Adoption by the Council of Five European Benchmarks in Education and Training

In the Communication "European benchmarks in education and training: follow-up to the Lisbon European Council",[3] the Commission proposed five European benchmarks and invited the Council to adopt these benchmarks by May 2003.

Benchmarks were proposed in five areas which are central to the strategic goals set in Lisbon:

- **Decrease**
  - The rate of Early school leaving
  - Low performance in key competencies
- **Increase**
  - Graduates in mathematics, science and technology

[3] Communication from the European Commission "European benchmarks in education and training: follow-up to the Lisbon European Council" (COM (2002) 629 20.11.2002.

- Population having completed upper secondary education
- Participation in lifelong learning.

This Commission proposal was consequently followed up by Council Conclusions on European benchmarks.

The Council set five European benchmarks for the improvement of education and training systems in Europe up to 2010:

- **By 2010, an EU average rate of no more than 10% of early school leavers should be achieved.**
- **The total number of graduates in mathematics, science and technology in the European Union should increase by at least 15% by 2010 while at the same time the level of gender imbalance should decrease.**
- **By 2010, at least 85% of 22-year olds in the European Union should have completed upper secondary education.**
- **By 2010, the percentage of low-achieving 15 year olds in reading literacy in the European Union should have decreased by at least 20% compared to the year 2000.**
- **By 2010, the European Union average level of participation in Lifelong Learning should be at least 12.5% of the adult working age population (25–64 age group)**

These European benchmarks are not specific targets for individual countries to be reached by 2010; they are defined by the Council as "reference levels of European average performance". On the basis of these benchmarks national governments are invited to consider how, and to what degree, they can contribute, so that by 2010 the EU has reached the set targets. The challenge for each country in that connection is the translation of EU objectives and benchmarks into national objectives and target values. Translation difficulties can then easily show up, as for example a) explaining the rationale of EU target values; b) base year 2000; c) consistency between targets; d) existing national monitoring instruments do not link up satisfactorily with internationally comparable data sources etc.

All of these benchmarks are indeed also relevant in the Norwegian policy context. Our goals are to decrease early school leavers and low performers in key competencies, and to increase the number of graduates in Math, Science and Technology (MST), the completion rate in upper secondary education and the participation in lifelong learning. However, Norway has not made specific goals for measuring these goals by 2010.

# Strategic goal 1: Improving the quality and efficiency of education and training systems in the EU

This chapter describes the situation in relation to the five objectives contained within this goal.

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

(Objective 1.1)

### 1. Introduction

The Detailed Work Programme points out that "attracting and retaining well qualified and motivated people in the teaching profession, which is faced with massive recruitment needs due to the ageing of the teaching population, is a short and medium term priority in most European countries". The ageing population is a general concern in the Union which has led to a series of Community initiatives due to the increasing number of retirements foreseen for the coming years in many countries.

The Detailed Work Programme outlined the following four key issues:

- Identifying the skills that teachers and trainers should have, given their changing roles in the knowledge society
- Providing the conditions which adequately support teachers and trainers as they respond to the challenges of the knowledge society, including through initial and in-service training in the perspective of lifelong learning
- Securing a sufficient level of entry to the teaching profession, across all subjects and levels, as well as providing for the long-term needs of the profession by making teaching and training even more attractive
- Attracting recruits to teaching and training who have professional experience in other fields.

### 2. Indicators for monitoring performance and progress

Three indicators have been identified to address the issue of teachers and trainers:

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

These indicators do not adequately reflect the complexity of this objective area. The only indicator that policy makers can influence in the short term is the indicator of the ratio of pupils to teaching staff. The three indicators selected in this objective area measure solely issues that relate to shortages/surpluses of teachers and do not address the quality and content of teaching. Furthermore, the issue of the definition of "qualified teachers", which varies widely between European countries, will have to be addressed as well as the recognized shortcomings with regard to clear definitions and data on "trainers". There is therefore an urgent need for a further development of quality indicators in this area.

**Demography and the Teaching Profession**

The number of young people in the Union is falling sharply, and has decreased by almost a quarter since 1975, from 83 million aged 0–14 in 1975, to 64 million in 1999. We find the same trend in European non-EU member (e.g. Norway) and in the new Member States. In these last-mentioned countries the decline in the number of young people is even more pronounced.

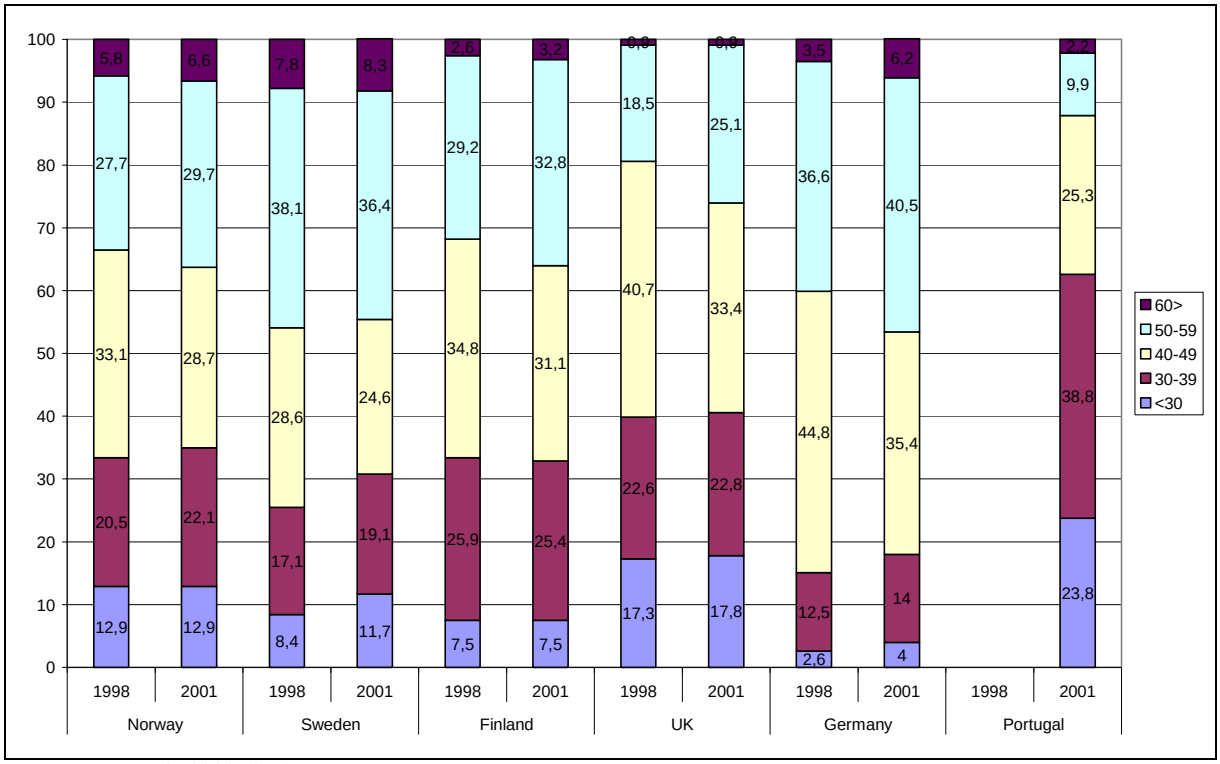
Regarding Norway we find an interesting development in the 0–14 age group. From 1980 to 1995 the proportion of youth has fallen dramatically from 905 687 to 803 313, but subsequently increased to almost the same level as in 1980 (904 367) in 2001. A similar trend has also occurred in Denmark, while Portugal has had a large decrease in youth throughout the period in both age groups (0–14 and 15–19). For more details see table A1.1 in the Appendix.

The teaching profession itself has also to face up to demographic changes. In many European countries more than 30% of secondary teachers are older than 49, and the proportion of older teachers has been growing in recent years. If we look more closely into the situation in different countries, we find that at lower and upper secondary level more than 40% of teachers are older than 49 in Sweden whereas in other countries the situation is very different: in Portugal, for example, the percentage of teachers older than 49 is under 20%.

In Norway the proportion of teachers older than 49 is at the same level as Iceland, The Netherlands and Finland – approximately 36% (Figure 1.1). In Norway the proportion of older teachers has been increasing during the last decade, and will continue to increase in the future. The number of pupils in the relevant age group who are attending or will attend primary school and lower secondary school will be relatively stable in Norway for the next decade, but the number of pupils in upper secondary education will increase by almost 20 per cent by 2010, putting even more pressure on the recruitment of new teachers.

At the primary level, more than 40 % of teachers in Germany and Sweden are older than 49 years, while in Portugal the same percentage is below 20. (Table A1.2 in the Appendix for more details).

*Figure 1.1: Age distribution of teachers in secondary education (1998–2001)*




*Data source:* EAG, 2003, OECD

The high proportion of older teachers give us a relatively more experienced teaching staff. This implies an increased need for continuing training for updating and renewing professional competencies. However, one consequence is an increased need for recruiting new teachers to replace retiring teachers. This is an issue further accentuated by the fact that most teachers leave the profession before "normal" retirement age. The implications of these two factors for teacher training and recruitment are serious, particularly if combined with the difficulty which some countries experience in attracting highly qualified recruits.

Regarding Norway, only ten per cent of the teachers were working until the official retirement age in 2002,[4] and approximately 60 per cent retired because of disability with an average age of 54.

**The Ratio of Pupils to Teaching Staff**

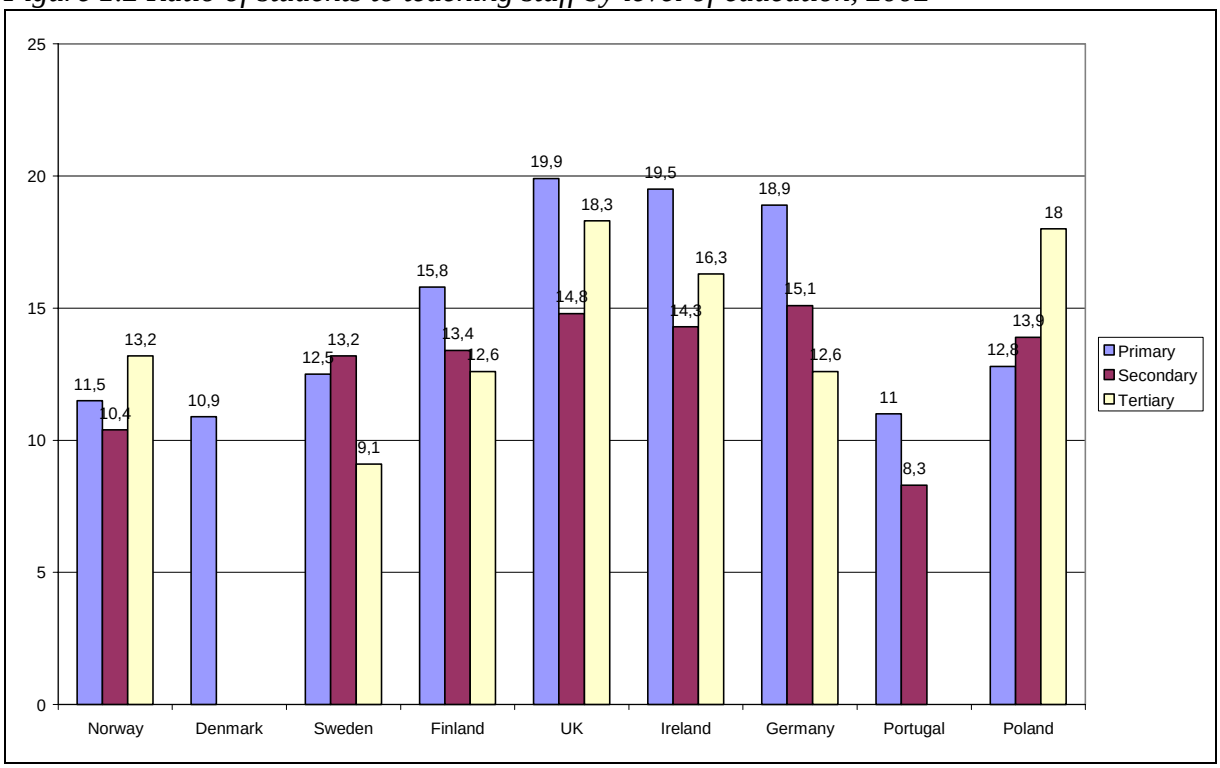
Although the ratio of pupils to teaching staff fluctuates exogenously as a consequence of demographic changes in the number of pupils, it can also be subject to policy initiatives in many countries and used by policy makers to counterbalance the effect of retirement and a possible shortage of teachers.

This ratio is also an important indicator of resources devoted to education, and it is often used as a proxy for quality of teaching and learning, assuming that a smaller ratio of pupils to teaching staff means better pupil access to teaching resources. The link between the ratio of pupils to teaching staff and quality of education is nevertheless highly complex and subject to debate. It is obvious that many factors contribute to differences in the ratio of pupils/students to teaching staff, including the number of hours during which a student attends class each day,

[4] In Norway the normal retirement age is 67 although it is possible to retire at the age of 62.

the length of a teacher's working day, the number of classes or students for which a teacher is responsible, the subject taught, the division of the teacher's time between teaching and other duties, the grouping of students within classes and the practice of team-teaching.

*Figure 1.2 Ratio of students to teaching staff by level of education, 2002*




Source: EAG 2004, OECD

There is considerable variation in the ratio of pupils to teaching staff across countries (Figure 1.2). In primary education[5] –, the ratio of pupils to teaching staff, expressed in full-time equivalents, ranges from almost 20 pupils per teacher in UK and Ireland to 12 in Norway and Sweden and only 11 in Denmark and Portugal. At the secondary level pupil/teacher ratios range from 8 in Portugal and 10 in Norway, to 15 in Germany and the UK.

The ratio of students to teaching staff in public and private European tertiary institutions ranges from 13 or below in countries such as Norway, Sweden and Germany, to more than 18 in Poland and the UK. However, such comparisons in tertiary education should be made with caution since it is difficult to calculate full-time equivalent students and teachers on comparable basis at this level.

## 3. Norwegian policy in the area

Due to the present demographic situation of the teaching profession in the Union, over 1 million new teachers will have to be recruited in primary and secondary education during the period 2000–2015 just to ensure replacements. We find the same trend in Norway. Statistics Norway has constructed a model to analyze the demand for and supply of teachers in the future based on a number of different assumptions. In the basic model it is assumed that the demand for general teachers in primary and lower secondary schools will increase from 2002 to 2006 and then stabilize until 2015. The supply is more stable in the period resulting in a

[5] Primary education (ISCED 1) is possible the most relevant level to compare the ratios. At this level one teacher is in general responsible for the class in most of the European countries.

demand gap from 2005 until 2015. When we look at all teachers (primary to upper secondary education) the difference between demand and supply is almost equal.

As part of an agreement (between the Ministry of Education and Research and the Norwegian Teacher's Union) the teaching hours for teachers aged 58 and above has been reduced by 6 per cent. At the same time younger teachers have had their teaching hours increased. By means of compensation the wage was increased proportionately.

According to the SGIB report, demographic developments imply that a number of countries should have policies in place for handling this situation in terms of:

- Recruitment,
- maintaining teachers in the profession, and
- retirement.

Norway is aware of this situation and has already adopted strategies in the areas mentioned. Norway has already implemented:

- Action plans to recruit more and better qualified teachers
- Strategies for making the teacher profession more attractive (increasing their status)
- Development of a policy that will make it possible for older teachers to remain in the profession up to the official retirement age. This includes longer vacations, fewer teaching hours and shorter working days.

## *II. DEVELOPING SKILLS FOR THE KNOWLEDGE SOCIETY*

(Objective 1.2)

### 1. Introduction

The challenges to individuals and societies imposed by globalization and modernization are widely acknowledged and apparent. The increasingly technological changes in the workplace and in everyday life presents us with continually new challenges and demands regarding the kind of competencies that are required. Education and learning are the driving forces of welfare and economic growth in knowledge-based societies. These topics have been put on the policy agenda by both the OECD and the EU. As a response, Norway has initiated systematic efforts to survey knowledge resources as well as the ability to activate them.

In the OECD project DeSeCo (Definition and Selection of Competences, 2003) the concept of competence is defined as the ability to deal with complex demands, situations and challenges. The SGIB report emphasises that "key competencies represent a transferable, multifunctional set of knowledge, skills and attitudes that all individuals need for personal fulfilment and development, social inclusion and employment. These should have been developed by the end of compulsory school or training, and should act as a foundation for further learning as part of Lifelong Learning". Furthermore the report stresses the importance of completing upper secondary education and to ensure that as many as possible acquire an adequate level of key competencies.

## 2. Indicators for monitoring performance and progress

Regarding the area "Developing Skills for the Knowledge Society, the European Union has established two European benchmarks:

- **"By 2010, at least 85% of 22-year olds in the European Union should have completed upper secondary education"**

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

The following six indicators have been chosen in the Commission's indicators and benchmark report to monitor the progress towards these benchmarks

- *Percentage of those aged 22 who have successfully completed at least upper secondary education (ISCED 3)*
- *Percentage of those aged 20–24 who have successfully completed at least upper secondary education (ISCED 3)*
- *Percentage of pupils with reading literacy proficiency "level 1 and lower" on the PISA reading literacy scale*
- *Distribution and mean performance of students, per country, on the PISA reading literacy scale*
- *Distribution and mean performance of students, per country, on the PISA mathematical literacy scale*
- *Distribution and mean performance of students, per country, on the PISA science literacy scale.*

**Increasing the level of completion of upper secondary education**

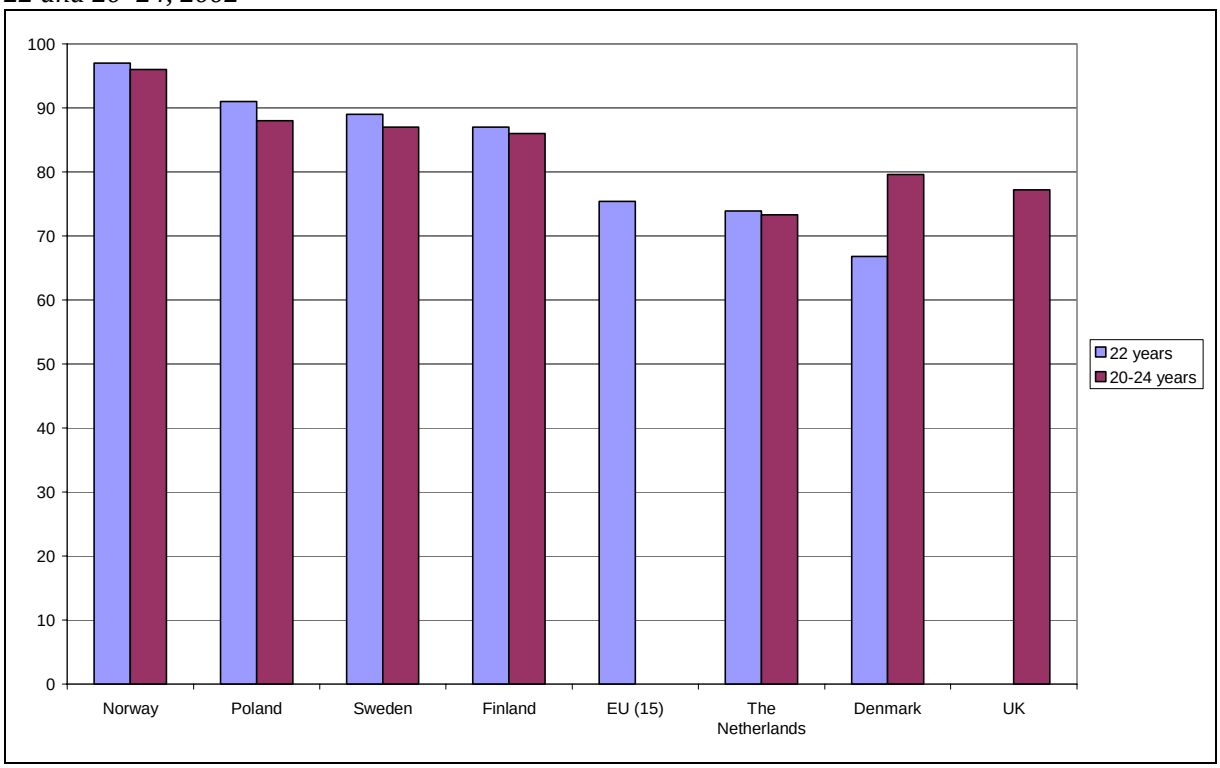
A basic assumption in our modern knowledge-society is the completion of minimum upper secondary education. The SGIB report states that: "Without high levels of general education especially among the active population, the dynamism and competitiveness of the economy and the society at large would be jeopardized. This is why completion of upper secondary education was singled out by the Ministers for education as one of the main areas for European Benchmarks".

Figure 2.1 shows that the target of reaching a level of completion of upper secondary level education of 85% in 2010 for those aged 22, is already fulfilled in Norway, Sweden, Finland and Poland, while other countries as, for example, Portugal (45%), Denmark (67%) and Spain (67%) has a significant challenge regarding fulfilling this benchmark based on these data. The present average level in the Union is 75.4% (2002). The use of the age group 20–24 that have completed upper secondary education results in almost the same picture for most countries. The main exception is Denmark which shows a much better performance using the age group 20–24.

However, it is important to emphasise that both these data sets have several weaknesses,[6] so we should be cautious with the interpretation and analysis of the data.

[6]"Upper secondary level education" (ISCED 3) covers educational strands of very different order. "ISCED 3" education covers both upper secondary education that gives access to a higher educational strand (ISCED 3A and 3B giving access to 5A and 5B respectively) and an upper secondary education strand, ISCED 3C, that does not give such access. In some countries "upper secondary level education" includes a relatively high proportion

*Figure 2.1 Completion of upper secondary education. Percentage of the population aged 22 and 20–24, 2002*




*Data source:* Eurostat, Labour force survey, 2002.

On the other hand, new, valid and reliable Norwegian data on completion rates in upper secondary education show that only 63% of youth commencing upper secondary education had completed the 3-years education and training course after 4 years. Consequently, the Norwegian situation is indeed not as good as illustrated by the Eurostat-data[7] used in the SGIB report. The Norwegian Government is therefore currently implementing different strategies for increasing the completion rates in upper secondary education, as for example more focus on the follow up service (see following chapter).

**Developing key competencies**

The indicators linked to the area of "skills for the knowledge-society" relate specifically to the measurement of attainment levels. At present, the most reliable comparable indicator of key competencies is provided by the OECD PISA 2000 survey that covers the proficiency levels in reading literacy for 15 year olds. The ability to read, understand and use information is at the heart of academic and personal development. Reading literacy is the foundation for learning across school subjects, and it equips individuals with the ability to participate more fully in their communities and society, which is fundamental for the well- being of nations.

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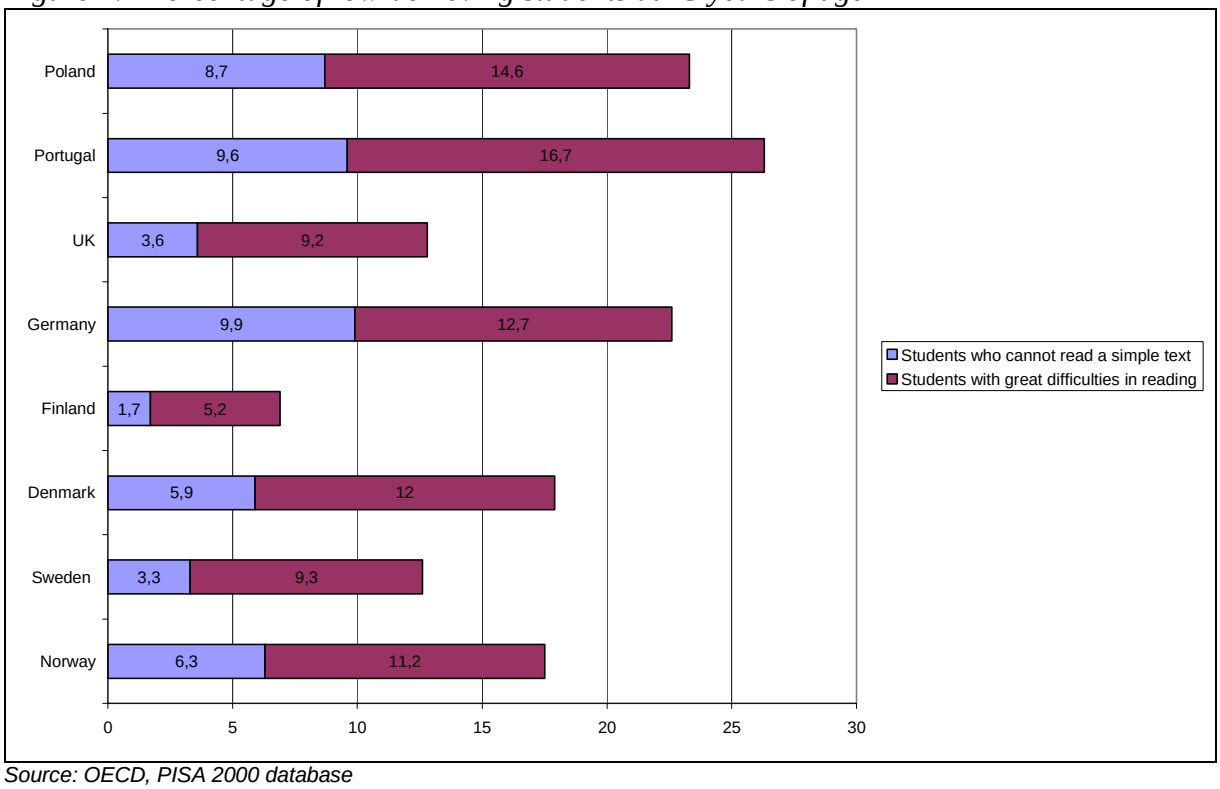
of ISCED 3C that does not give access to higher education (ISCED 5). This is the case in France, Poland, Slovenia and the UK.

[7] It has to be stressed that this indicator which has been chosen in accordance with the benchmark adopted by the Council which refers to 22-year olds, is also considered of limited validity by Eurostat due to the relatively small sample upon which it is based within the Labour Force Survey.

Figure 2.2. shows the distribution of low-performing pupils in Norway and some other selected countries.[8] The picture for Norway is not satisfactory. 17.5 per cent of pupils perform at Level 1 and lower. Among the Nordic countries, only Denmark has a similar large proportion of "weak pupils". Both Sweden (12.6%) and especially Finland (7.0%) have a very low proportion of "weak pupils". The mean proportion in this group in the EU (15) is 17.2%.

Among the European Countries with 20 per cent or more of pupils at Level 1 or below are Germany, Switzerland, Poland, Hungary, Latvia, Luxembourg, Lichtenstein, the Russian Federation, Greece and Portugal.

*Figure 2.2 Percentage of low-achieving students at 15 years of age*




*Source: OECD, PISA 2000 database*

Following the European benchmark adopted by the Council this proportion decrease by 20% to a level of 13.7% in 2010 as a European average performance level. Reaching such levels by 2010 will be a major challenge for many countries including Norway. In this field it is very clear that some countries have very good experience and practices which may be shared to the benefit of others.

Table 2.1 shows the relative distribution of the score and mean performance in reading, mathematical and scientific literacy of 15 year olds within selected countries. The table shows that the variation in student performance on the reading literacy scale within most countries is

8 The PISA survey describes the pupils' reading attainment in relation to five levels. Each proficiency level is associated with certain tasks which students at this proficiency level are assumed to be able to complete. Students who have reached the highest level (5) are expected to be capable "of completing sophisticated reading tasks, such as managing information that is difficult to find in unfamiliar texts" or " being able to evaluate critically and build hypotheses" (OECD, 2001). At the lowest level of proficiency (1), students are capable of "completing only the least complex reading tasks developed for PISA, such as locating a single piece of information, identifying the main theme of a text, or making a simple connection with everyday knowledge" (OECD, 2001).

large, also for Norway. Together, these findings suggest that educational systems in for example Norway, Denmark and especially Germany face significant challenges in addressing the needs of all students, including those most in need as well as those performing exceptionally well. In the other end of the scale we find countries like Finland and the Netherlands where the difference in reading literacy attainment is low. Sweden is in a mid-range position.

As a consequence of the relatively poor score in the PISA reading literacy test, for example, Norway has implemented several strategies and effort in improving both the reading and writing skills of Norwegian pupils (see following section: Norwegian policy in the area).

Although testing mathematical and scientific literacy was less comprehensive in PISA 2000 than that of reading literacy, this provides additional information about the skills acquired by 15 year old students. The figures for Norway show again an average score, and a relatively large gap between the best and poorest performers (Table 2.1) in both mathematical and scientific literacy. Finland is again the best performing country.

*Table 2.1 Mean and variation in performance in reading, mathematical and scientific literacy of 15 year olds*

| Countries | Reading literacy | | | Scientific literacy | | | Mathematical literacy | | |
|---|---|---|---|---|---|---|---|---|---|
| | Mean | 10th | 90th | Mean | 10th | 90th | Mean | 10th | 90th |
| **Norway** | **505** | **364** | **631** | **500** | **377** | **619** | **499** | **379** | **613** |
| Sweden | 516 | 392 | 630 | 512 | 390 | 630 | 510 | 386 | 626 |
| Denmark | 497 | 367 | 617 | 481 | 347 | 613 | 514 | 401 | 621 |
| Finland | 546 | 429 | 654 | 538 | 425 | 645 | 536 | 433 | 637 |
| UK | 523 | 391 | 651 | 532 | 401 | 656 | 529 | 412 | 646 |
| Germany | 484 | 335 | 619 | 487 | 350 | 618 | 490 | 349 | 619 |
| Portugal | 470 | 337 | 592 | 459 | 343 | 575 | 454 | 332 | 570 |
| Poland | 479 | 343 | 603 | 483 | 359 | 610 | 470 | 335 | 599 |
| EU 15 | 500 | 369 | 622 | 499 | 364 | 627 | 499 | 369 | 623 |

Source: OECD, PISA database 2001.

## 3. Norwegian policy in the area

There has been much disagreement in Norway regarding evaluation of the quality of schools. It is claimed that the school is such a complex organisation that measuring will never give a satisfactory picture of the actual situation. In addition it is also claimed that assessments and evaluations will be used solely for ranking purposes, and that this is unfair for schools who have students from disadvantaged areas. Also at the political level, discussions have traditionally been centred on input factors such as the level of school resources while there has been little concern about output factors such as learning outcome. This situation became radically changed when the results from international comparative tests such as PISA and PIRLS were presented.

As a part of the overall strategy for improving the quality of education in Norwegian schools, the Ministry of Education and Research has initiated a process on improving the organisation of the national central school administration. The main idea behind the new organisation is to ensure a better division of labour between the public agents in primary and secondary education. The new system is also meant to ensure that the new national system for *quality assessment* contributes to *quality development*, and to clarify the responsibility of school managers (the municipalities) for quality development. An important innovation in this

connection is the recent establishment of a new Directorate for primary and secondary education. The main goal of this agency is to make a major contribution to quality development and quality assurance work in the Norwegian school system in at least two ways:

- forming the framework for, and
- supporting and developing the quality work in primary and secondary education.

More specifically, the new Directorate will assess and evaluate the quality of the Norwegian school system through the use of documentation, statistics and analysis that describe and monitor the current situation and developments in the field. The Directorate will be responsible for the new, transparent national system for quality evaluation and development system consisting of:

- a special website called the School Portal – that contains information on pupils' learning environment, achievements in basic skills, the resource situation in each individual school and development resources;
- national tests in basic skills: reading, writing, English and mathematics;
- research and analysis: the new agency also has a role as a "mini-research council" in the area of primary and secondary education. It is responsible for initiating, co-ordinating and follow-up of long term applied and strategic research in the field.

However, the success of the quality evaluation system is heavily dependent on the diffusion of the evidence-based knowledge and research to all the stakeholders in the field as for example, policy makers (at national and local levels), school leaders, teachers, teachers unions, parents, students etc.

The School Portal has been active since August (2004). Among other things this special website contains information on pupils' learning environment,[9] the benefits they gain from learning, and the resource situation at each school.[10] At the same time national tests have been introduced in reading, writing, English and mathematics in order to better monitor and compare results at school, municipal, county and national levels. The tests – which form the basis for learning outcome data in the School Portal – include performance benchmarks that pupils at particular grade levels should reach ($4^{th}$ grade, $7^{th}$ grade, $10^{th}$ grade and first year of the upper secondary school). 'Value-added' indicators will be constructed.

In short, the purpose is to give pupils, parents, teachers and school-managers information that can be used to make improvements. This is not a specific Norwegian innovation – on the contrary the scheme has already been introduced in several other countries.

In the latest White Paper the Ministry has proposed introducing five basic skills: to be able to express one self orally, to be able to read, to be able to express oneself in writing, to be able to do arithmetic and to be able to use ICT. These basic skills will be an integrated part of the syllabus in all subjects throughout primary and secondary education.

[9] The School Portal data on the pupils learning environment is based on a national Internet-based system for self review – called "Pupil Inspectors". The pupils from $7^{th}$ To $10^{th}$ grades and $1^{st}$ year of the upper secondary school may evaluate their own school with regards to motivation, student participation, physical and psychological learning environment. Many schools use the survey as part of their own system for quality development. The schools can use the results to evaluate and to acquire more knowledge about the learning environment at the school.

[10] Typical indicators under the quality area "resources" are "hours of teaching per pupil", "costs per pupil" etc.

Regarding the area of mathematics, the Ministry has proposed introducing more compulsory mathematics in upper secondary education in the study programmes leading to entrance qualifications for higher education. The pupils must be allowed to choose between a theoretical and a practical approach to the subject. In addition a strategic plan for 2003 to 2007 in the field of MST has also been introduced. (Se Chapter IV).

Furthermore, a particular strategy has been established (2003–2007) for stimulating the motivation to read, and to increase the reading skills of children, youth and adults.

The completion rate in upper secondary education in Norway is higher for theoretical courses than for practical courses. The Norwegian government is introducing a strategy to make the education system more flexible such that pupils participating in practical courses will be able to undertake part some of their training in a firm rather than at school at a lower level. The White Paper "Culture for learning" introduces some changes which aim at reducing the number of drop-outs. A new structure in upper secondary education will enable more pupils to follow their first choice of course, and also that fewer pupils will have to re-locate in order to attend school offering their chosen course. This may assist in reducing the number of drop-outs.

In addition, Norway has already established a youth follow-up service (1994). This service was established in order to follow up all young persons aged 16–19 who are neither attending school nor at work. The primary objective of this service is to encourage these young persons to return to education, or – with the aid of the public employment service – to get a job or to be offered a place on a publicly-funded labour-market-related programme. The service is managed at the county level. In some counties it is closely linked to the Educational-Psychological Service; in others with the counselling services in the upper secondary schools alternatively with the school administration in the county's municipalities.

## *III. ENSURE ACCESS TO ICT FOR EVERYONE*

(Objective 1.3)

### 1. Introduction

Through "The Detailed Work Programme on the Follow-up of the Objectives of Education and Training Systems in Europe" (2002), the Commission emphasised the importance of ensuring access to ICT for everyone. This objective is also highly prioritized in Norway – and the so-called digital competence is actually considered as one of the basic skills necessary for all to obtain in the modern knowledge-society.

As other economies, Norway depends increasingly on technological knowledge and skills in the labour force. Thus, schools have an important role to play in providing pupils and students with the necessary skills to succeed in today's competitive technology-based labour market. But the successful integration of ICT in schooling requires more than investment in hardware and software for schools. ICT must be incorporated into national policies and school curricula as a tool to achieve educational objectives. Teachers must receive appropriate training to understand how to effectively assimilate computer technology in the teaching and the learning processes and in their administrative duties. The organisation of instruction time and use of learning and teaching strategies must be sufficiently flexible to allow for the most effective use of ICT in lesson time (OECD 2003).

## 2. Indicators for monitoring performance and progress

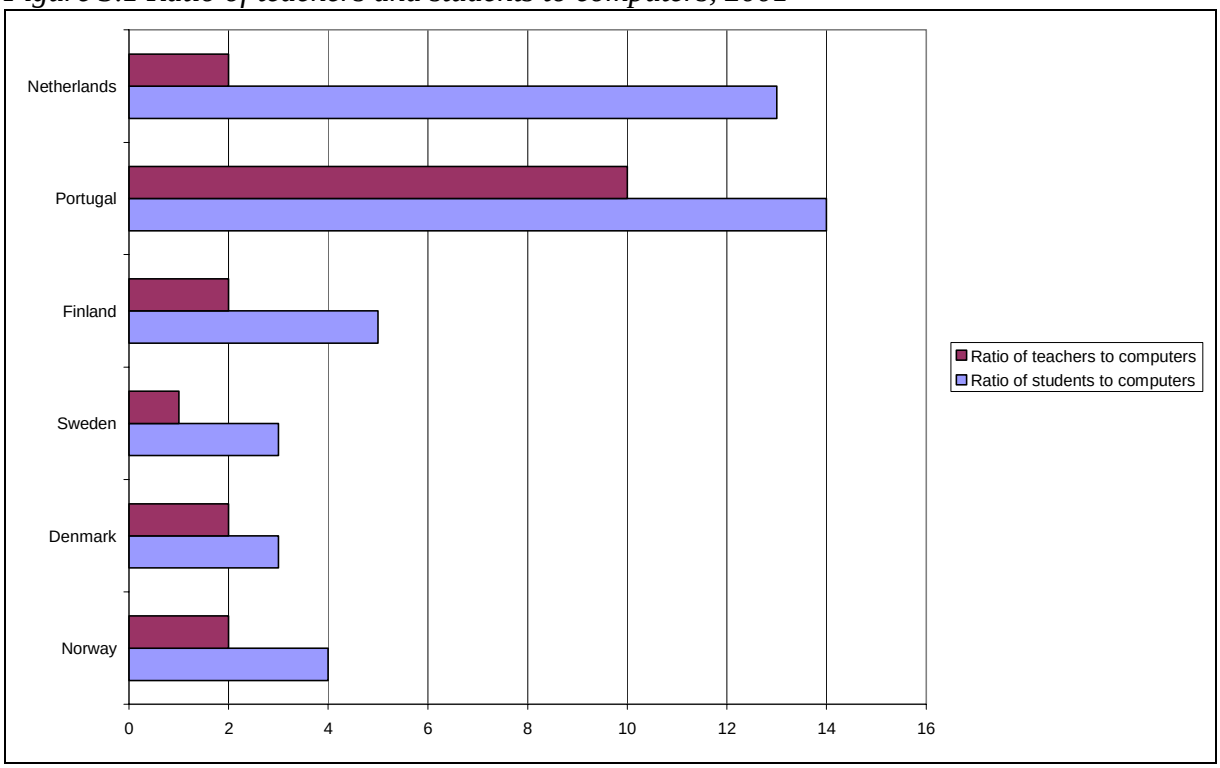
Regarding the use of indicators in this field, it is useful to distinguish between three ways of measuring ICT:

- Input-based (Access to ICT equipment; Training of teachers in ICT)
- Process-based (Integration of ICT within the curriculum)
- Output-based (Learning outcomes from ICT).

At the present time there is no existing data on this in the SGIB report. Unfortunately satisfactory data do only exist on the input-based measure. However, having a high quality ICT infrastructure is a prerequisite for being able to participate in ICT-based modes of learning. In recent years computers and Internet link-up have become usual in Norwegian schools and education institutions, and further upgrading in this area will occur. Together with the other Nordic countries, Norway is in a very good position internationally. This is illustrated in Figure 3.1, which shows the ratio of teachers to computers and students to computers respectively in Norway and certain selected countries. Furthermore, data from PISA 2000 and PIRLS 2001 show that almost all of the Norwegian 9-year olds and 15-year olds have access to computers and Internet at home (93 and 92 per cent respectively). We find almost the same levels in Sweden and the Netherlands, while the percentage of pupils with a computer at home remains marginal in many Central-Eastern and Southern European countries.

However, access to ICT equipment and facilities does not mean that they are being used effectively to promote learning.

*Figure 3.1 Ratio of teachers and students to computers, 2001*




Source: EAG 2003, OECD

## 3. Norwegian policy in the area

The Norwegian Government has identified ICT as a vital element of lifelong learning. The Government has pledged NOK 400 million to help develop the market for continuing education and training, with a focus on ICT and multimedia technologies. The purpose of ICT in education is to contribute to a system of education that develops ICT and uses it as a subject and a tool, in the way it is organized, applied and used pedagogically. It is a key tool in providing:

- General access to relevant and new knowledge
- Equal opportunities in acquiring expertise in and access to ICT, irrespective of gender, address and social situation
- Flexible and user-friendly learning opportunities
- New forms of co-operation, learning and assessment, nationally and internationally, to provide individuals who have learning difficulties with the opportunity to improve their quality of life, learning and participation in communal and working life.

In this matter a program called “Dill@” has been developed (and available on CD-ROM) with the aim of motivating and training adults who want to learn more about how to use the Internet. The program is easy to understand and includes meaningful exercises.

The Norwegian Ministry of Education has also recently established a new long term action plan (2004-2008) called ‘Program for Digital Competence. The main goal for the project is to broaden and strengthen the knowledge about how ICT influences the quality of education and training, motivation for learning, different ways of learning and the learning outcome. The vision is “Digital competence for all”, the four main objectives for the programme being:

1. All Norwegian schools should be equipped with a high quality ICT infrastructure by 2008. Technical equipment and high quality Internet connections will be standard in all the different learning arenas.
2. By 2008, digital competence should be a central element of education and training at all levels.
3. By 2008, the Norwegian education system should be a world leader with respect to the use of ICT in teaching and learning.
4. By 2008, ICT should be an integrated tool for innovation and quality development in Norwegian education based on methods of organisation and work which enhance learning, innovation and entrepreneurship.

Furthermore, in several Norwegian higher education institutions, web-based education and training are used as a supplement to the more traditional teaching and learning methods, and distant education (to a large degree is based on ICT and web-based training) has an important role in further and continuing education.

# *IV. INCREASING RECRUITMENT TO SCIENTIFIC AND TECHNICAL STUDIES*

(Objective 1.4)

## 1. Introduction

Highly developed skills in the field of mathematics, science and technology (MST) is an important part of the creation of values and economic growth. But in most countries – including Norway – there is a lack of persons with high skills in the field of MST, and the numbers of graduates in these fields have continuously decreased in most countries. It is therefore important to encourage children and young people (especially women) to take a greater interest in MST.

## 2. Indicators for monitoring performance and progress

The European Council has established a benchmark for increasing the number of graduates in MST:

- **The total number of graduates in mathematics, science and technology (ISCED 5A, 5B and 6) in the European Union should increase by at least 15% by 2010 while at the same time the level of gender imbalance should decrease.**

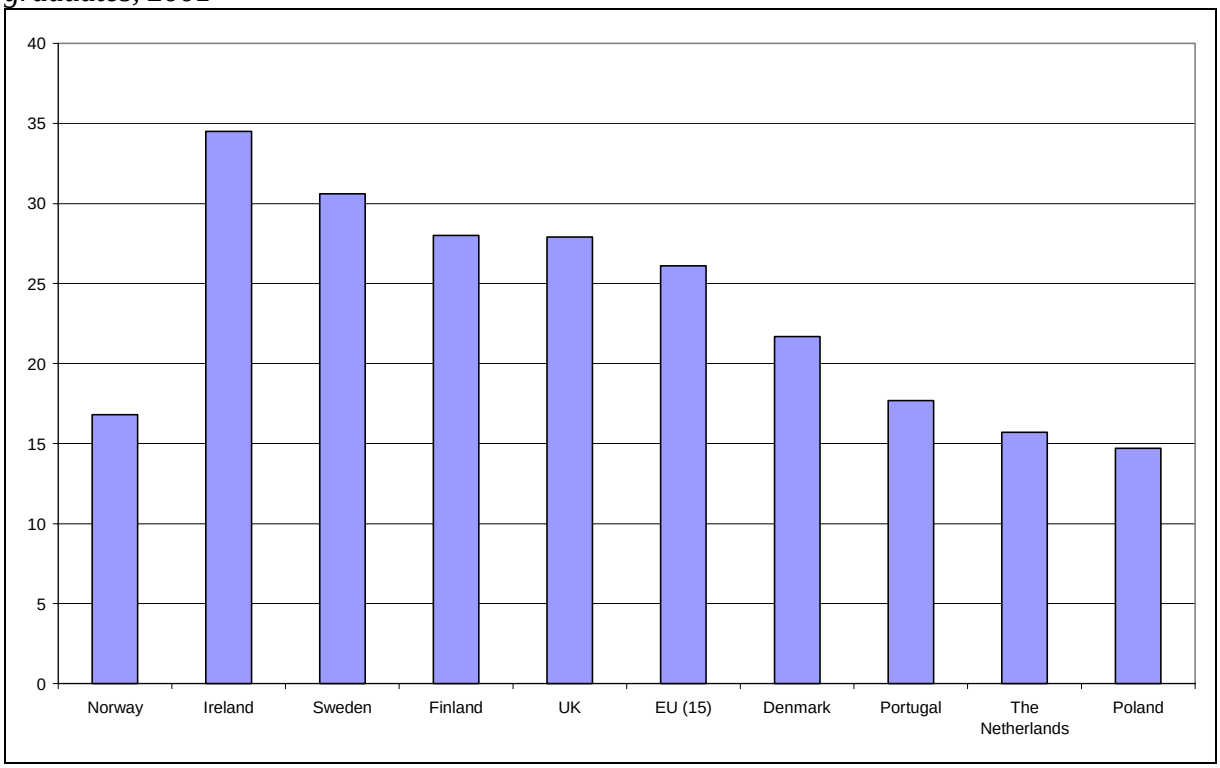
The following indicators have been selected to monitor progress in the area:

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

The selected indicators covers the key issues of a) increasing interest in mathematics, science and technology from an early age; b) motivating more young people to choose studies and careers in the fields of mathematics, science and technology; c) improving gender balance among those studying mathematics, science and technology; and d) the goal of securing a sufficient numbers of qualified teachers in mathematics and scientific and technical subjects.

Figure 4.1 illustrates that only 16.8 per cent of all graduates in Norway were in MST subjects. This is among the lowest rates in Europe, and much lower than the other Nordic countries. Sweden and Finland have among the highest percentage of graduates in this field in Europe while Ireland has the highest rate in Europe.

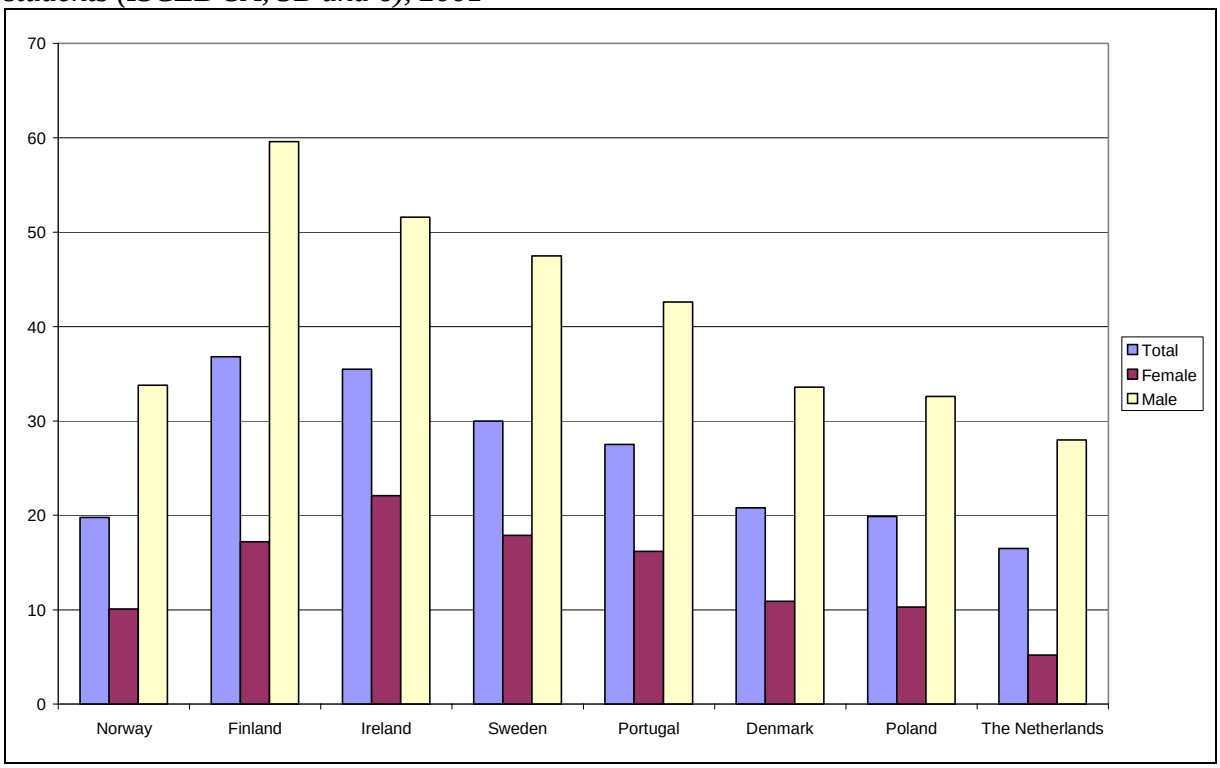
*Figure 4.1 Graduates in mathematics, science and technology as percentage of all graduates, 2001*




Source: Eurostat, UOE

When studying enrolment rates in MST studies, it is clear that the gender imbalance is a highly relevant issue. In fact, Ireland is the only country where more than 20% of women in tertiary education are enrolled in the fields of MST in Europe. By contrast, only 10 per cent of the females in tertiary education in Norway and Denmark are enrolled in MST studies. Therefore, improving the gender balance of students in the area of MST might actually contain the answer to increasing the overall level of graduates in these fields. Finland and Sweden stand out as those countries where the proportion of males enrolled in MST is by far the highest in Europe (Figure 4.2).

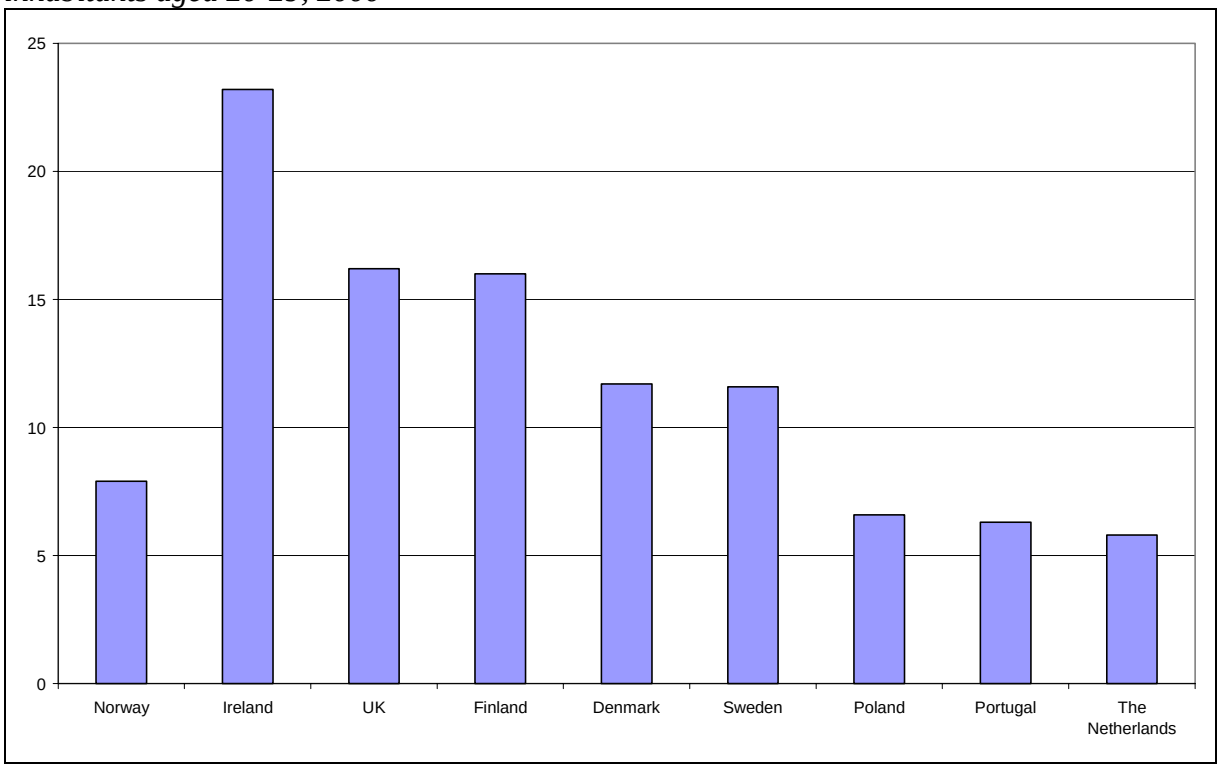
*Figure 4.2 Students enrolled in mathematics, science and technology as a proportion of all students (ISCED 5A, 5B and 6), 2001*




Source: Eurostat, UOE

The last indicator in this field, the number of tertiary graduates in MST per 1000 inhabitants aged 20–29 will be affected by the other indicators. According to this indicator, Norway is also performing at a low rate with about 8 graduates per 1000 inhabitants aged 20–29 who are graduates in MST. The highest proportion is found in the UK and in Finland where about 16 graduates per 1000 inhabitants aged 20–29 are MST graduates (Figure 4.3). (For further details see Tables A4.1, A4.2 and A4.3 in the Appendix).

*Figure 4.3 Number of tertiary graduates in mathematics, science and technology per 1000 inhabitants aged 20-29, 2000*




Source: Eurostat, UOE, 2000

## 3. Norwegian policy in the area

The Norwegian Government is indeed aware of the critical situation in the MST area, and is continuously working on improving the situation. The most important effort occurred in November 2002, when a strategic plan on MST ("Math, Science and Technology – naturally... Strategy for raising the competence lever in math, science and technology 2002-2007") was presented.

The Norwegian strategic plan is a dynamic scheme that will be updated each year. Much effort was made in 2003, but changing the attitudes towards and interest in MST among pupils, students and society in general – and thereby increasing recruitment – will be a long process. One immediate positive effect of the strategic plan is that it has resulted in a full presentation of the actions in which the Ministry is generally involved. It has also drawn attention to the roles of the various players, thus contributing to coordinating efforts to reach common objectives.

The overall objectives of the Norwegian strategic plan are:

- to build up competence in MST for pupils and teachers, of leaders and employees in the working community, and of the general public
- to improve the motivation of pupils and teachers with regard to MST in education, and to increase recruitment in MST education
- to bring out the utilitarian value of MST in order to promote the further development of the welfare state, and to create more positive attitudes to these subjects among the general public

The main goals are:

- To improve the quality of education with regard to scope, content, working methods and relevance. Norwegian pupils must acquire good all-round knowledge and skills in mathematics and the sciences, and shall be ranked in the top quartile compared with other OECD countries.
- To foster gender equality. In upper secondary education, at least 40% of the pupils specialising in mathematics and physics should be girls.
- To ensure the adequate recruitment of teachers with competence in mathematics and science. By 2007 the number of recruited teachers holding a graduate degree in mathematics and physics for upper secondary education must be equal to the number of those leaving the profession.
- To increase competence in MST in the working community and among the public
- To improve research conditions and to increase the number of doctoral degrees in mathematics, science and technology.
- To ensure adequate recruitment of students to Mathematics, Science and Technology at universities and university colleges.
- To enhance the quality of competence in MST for first-year students at universities and university colleges, and to ensure the adequate scope of compulsory subjects and subjects in the different areas of study in upper secondary education. For studies that provide qualifications for higher education at the level of final-year upper secondary education, 40% of the pupils must specialise in mathematics and 25% in physics by 2007.
- To establish easy-to-follow information bases on the status quo of education in MST and on the present and future needs of the working community for graduates in this field.

It is also important to emphasise that in a recent White Paper the Ministry has proposed the introduction of more compulsory mathematics in upper secondary education in the study programmes leading to entrance qualifications for higher education. Pupils must be allowed to choose between a theoretical and a practical approach to the subject.

## *V. MAKING BEST USE OF RESOURCES*

(Objective 1.5)

### 1. Introduction

The SGIB report underlined that “investments in human resources is an issue of great importance and the level of investment in education and training has implications for all 13 objectives and most key issues in the Detailed Work Programme”.

The following key issues are highlighted In the Detailed Work Programme:

1. Increasing investment in human resources while ensuring an equitable and effective distribution of available means in order to facilitate general access to and enhance the quality of education and training.
2. Supporting the development of compatible quality assurance systems respecting diversity across Europe.
3. Developing the potential of public–private partnership.

In the Norwegian country report from the international PISA Study, Norway's potential for having a high-achieving education system is summed up as follows (Lie et al. 2001):

- Norway is one of the richest countries in the world.
- Few countries spend more money, proportionally, on education.
- The idea of a comprehensive school has characterized the Norwegian school system for more than a hundred years. Development towards education for all has been one of the most important goals of the school.
- Norway has an adult population of highly educated people, and Norwegian adults belong to the world elite with regard to measured reading competence.

## 2. Indicators for monitoring performing and progress

In this area the following indicators are currently used for monitoring progress in the SGIB report:

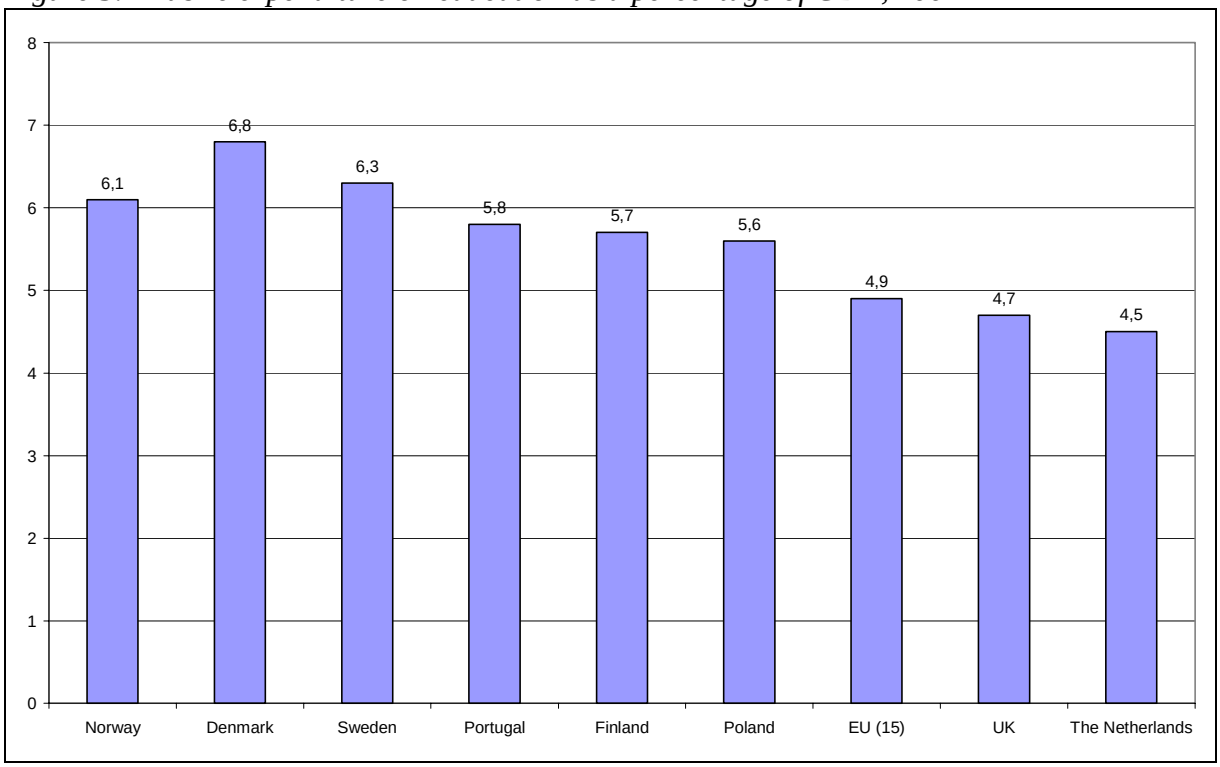
- *Public expenditure on education as a percentage of GDP*
- *Private expenditure on educational institutions as a percentage of GDP*
- *Enterprise expenditure on continuing vocational training courses as a percentage of total labour costs.*
- *Total expenditure on educational institutions per pupil/student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

The five chosen indicators cover what the Lisbon Summit conclusions explicitly targeted,, i.e. "levels of investment in human resources". However, none of the indicators on the current list addresses the central question of efficiency of investments.

**Public expenditure on education and training**

The data in Figure 5.1 shows that "*public expenditure on education and training as a percentage of GDP"* differs greatly between the individual countries. The three Nordic countries, Norway, Sweden and Denmark, spend most public resources on education. The average among the EU countries is about 5% of GDP.

*Figure 5.1 Public expenditure on education as a percentage of GDP, 2001*




Source: EAG 2004, OECD.
Note: EU (15), based on Eurostat data 2000.

**Private expenditure**

Private expenditure in education and training in Europe is structured differently to Japan, Korea and the US. In the latter, private investments amount to 1.2%, 3.4% and 2.2% of GDP respectively.[11] Only Germany with 1.0% comes close to Japan while most other EU countries attract less than 0.5% of GDP in private investment. In Norway, the size of private investments amount is 0.2%. In other words, the public authorities are responsible for virtually all educational investment resources in Norway. (For more details see Tables A5.1 to A5.5 in the Appendix).

**Expenditure on vocational training**

An analysis of "*Enterprise expenditure on continuing vocational training (as a percentage of labour costs)*[12] shows broad differences in enterprise spending on continuing vocational training and thus in the provision of lifelong learning opportunities. In Denmark, the Netherlands and Sweden, enterprises spend nearly 3% of labour costs on continuing vocational training. The figure for Norway is 2.3% is somewhat similar and is quite close to the EU average.

**Total expenditures on education per pupil/student by level of education (PPS)**

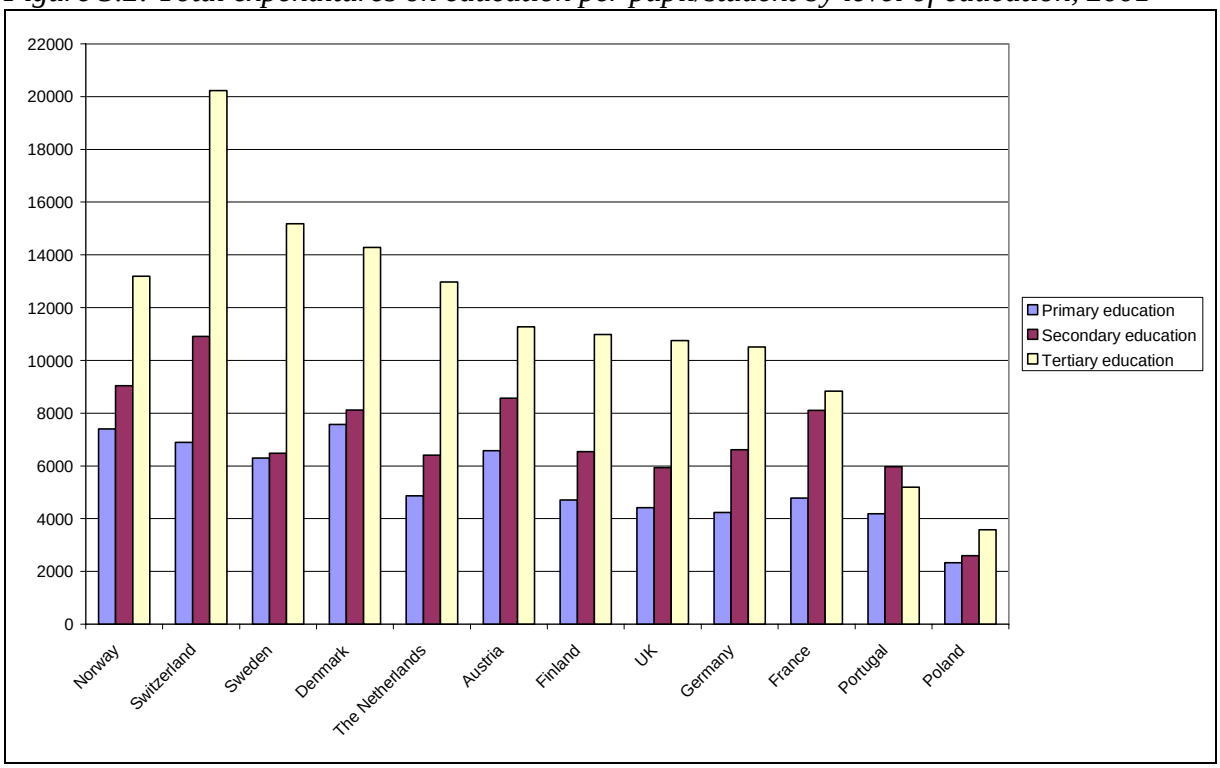
Figure 5.2. shows total expenditure per pupil/student at primary, secondary and tertiary level in Norway compared to a number of other European countries. Norway belongs to the group of countries which spends most resources on education at all levels.

[11] OECD "Education at a Glance 2004" page 229 op. cit.

[12] Total expenditure on CVT (continuing vocational training) courses is the sum of direct costs, staff time costs and the balance of contributions to national or regional training funds and receipts from national or other funding arrangements

Norway and four other European countries (Denmark, The Netherlands, Switzerland and Sweden) are spending more than 12 000 US dollars per student at the tertiary level. At the other end of the scale we find countries such as Portugal and Poland. The average amount spend in the OECD countries is just above 10 000 US dollars. The amount spend in secondary and primary education for Norway are respectively 9 000 and 7 400 US dollars, which are among the highest in Europe. The average figures for OECD are 6 500 and 4 800 respectively.

*Figure 5.2: Total expenditures on education per pupil/student by level of education, 2001*




Source: OECD, EAG, 2004

## 3. Norwegian policy in the area

Norway is in that group of countries which spends most resources on education at all levels. However, compared to countries that invest less in education, international studies show that several of these countries perform as well or better than Norway (PISA 2000; PIRLS 2001). Based on these studies it seems as though the challenge is to improve the relationship between resources and results – in other words to increase the quality and efficiency in the education system.

International and Norwegian research show that more resources spent on education do not automatically lead to improved learning for the pupils and students. There may be many reasons for this. For instance, lack of supervision or incentives may result in an increase in resources being spent for many other purposes than furthering the pupils and students' learning.

We will always be able to find cases where more money will lead to better results, and cases where spending of money may be reduced without this affecting the results. Regardless of the level of expenditure, it will always be of decisive importance as to how resources are utilized.

In order to obtain a better education system, it is therefore necessary that focus is moved from the level of resources to conditions that we know will yield better results.

Regarding the work on increasing the efficiency in the primary and secondary education sector, the Norwegian Ministry of Education has recently put considerable effort into changing attitudes and increasing the motivation and ambitions of school managers, teachers and school owners. Increased competence regarding teacher training education and continuing and further education for teachers are central elements in this work. Other important issues are to simplify rules, regulations and agreements. To be more concrete, these issues will give the local authorities more freedom in the management and organization of primary and secondary schools and in more efficient ways. It is both rational and efficient that the local authorities (the municipalities and counties) with their close contacts with the users of the education system are the decision-makers at local level.

In higher education, a comprehensive quality reform has recently been implemented (2002). Some of the main objectives correspond to the main signals from the Sorbonne (1998) and the Bologna declarations regarding a common degree and credit system. Furthermore, priority is given to a new combination of teaching methods involving a high level of student activity, new forms of assessment and regular feedback which promote the quality and efficiency of learning. Some of the core elements of the reform are: 1) a new more concise Bachelor/Master/PhD-structure; 2) greater institutional autonomy; 3) a new funding system for universities and colleges, to a larger extent based on academic performance and output of student credits; 4) the introduction of an independent agency for accreditation and evaluation, which, among other things, carries out cyclical audits of quality assurance arrangements in all higher education institutions, accredit institutions and study programmes etc.

# Strategic goal 2: Facilitating the access of all to education and training systems

## *VI. OPEN LEARNING ENVIRONMENT*

(Objective 2.1)

### 1. Introduction

Good stimulation at an early age is import for learning later in life. Research indicates that kindergartens can help reduce differences in learning achievements and give better school results. Increased investment in continuing education and training is a goal across the EU. To progress in this area we need to improve our knowledge of the *effects* of education and training, both for the individual and the enterprise. To monitor this process the participation in any kind of education and training must be analysed.

The key issues within this area were identified as follows:

1. Broadening access to lifelong learning by providing information, advice and guidance, on the full range of learning opportunities available
2. Delivering education and training so that adults can effectively participate and combine their participation in learning with other responsibilities and activities
3. Ensuring that learning is accessible for all, in order to better respond to the challenges of the knowledge-society
4. Promoting flexible learning paths for all

5. Promoting networks of education and training institutions at various levels in the context of lifelong learning.

## 2. Indicators for monitoring performance and progress

Increasing "Participation in lifelong learning" was among the five areas chosen by the Council when setting European Benchmarks, formulated as follows:

- **By 2010, the European Union average level of participation in lifelong learning should be at least 12.5% of the adult working age population (25–64 age group)**

In this area the European Union has chosen one indicator:

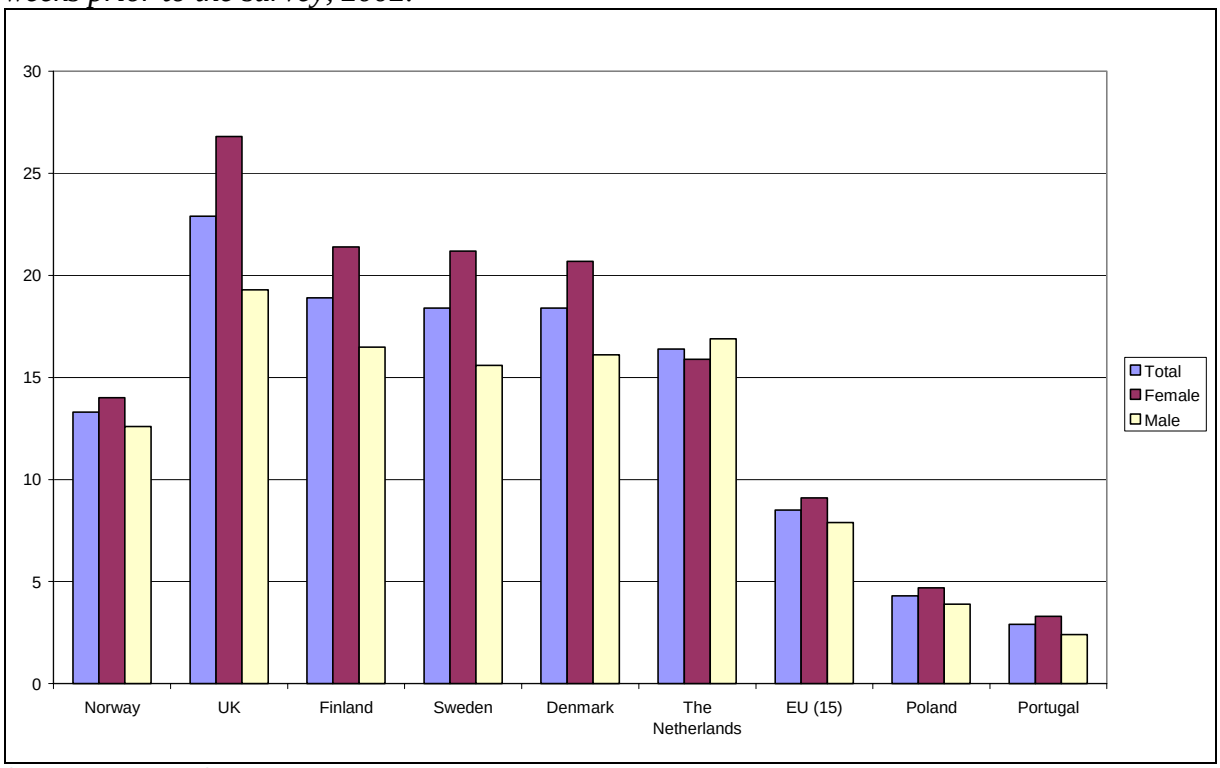
- *Percentage of the population between 25 and 64 participating in education and training in the 4 weeks prior to the survey, by educational attainment*

This indicator does not cover all the key issues within this area and new indicators need to be created in order to give a better perspective on this important issue.

The SGIB report also stressed that the indicator is not ideal for measuring the open learning environment, and hence "it should be considered mainly as an indicator of trends in participation in education and training as it underestimates the absolute level of participation in adult learning, because of the short reference period. The data available refer to persons aged 25 to 64 who answered that they received education or training in the four weeks preceding the survey (numerator). The denominator consists of the total population of the same age group, excluding no answers to the question 'participation in education and training'".

Figure 6.1 illustrates that there is a broad variation between countries regarding participation in lifelong learning. The UK, Finland, Sweden and Denmark perform best in Europe. Norway performs at a lower level, but is still higher than the Benchmark set by the Council for the Union. In most countries women participate more than men in lifelong learning.

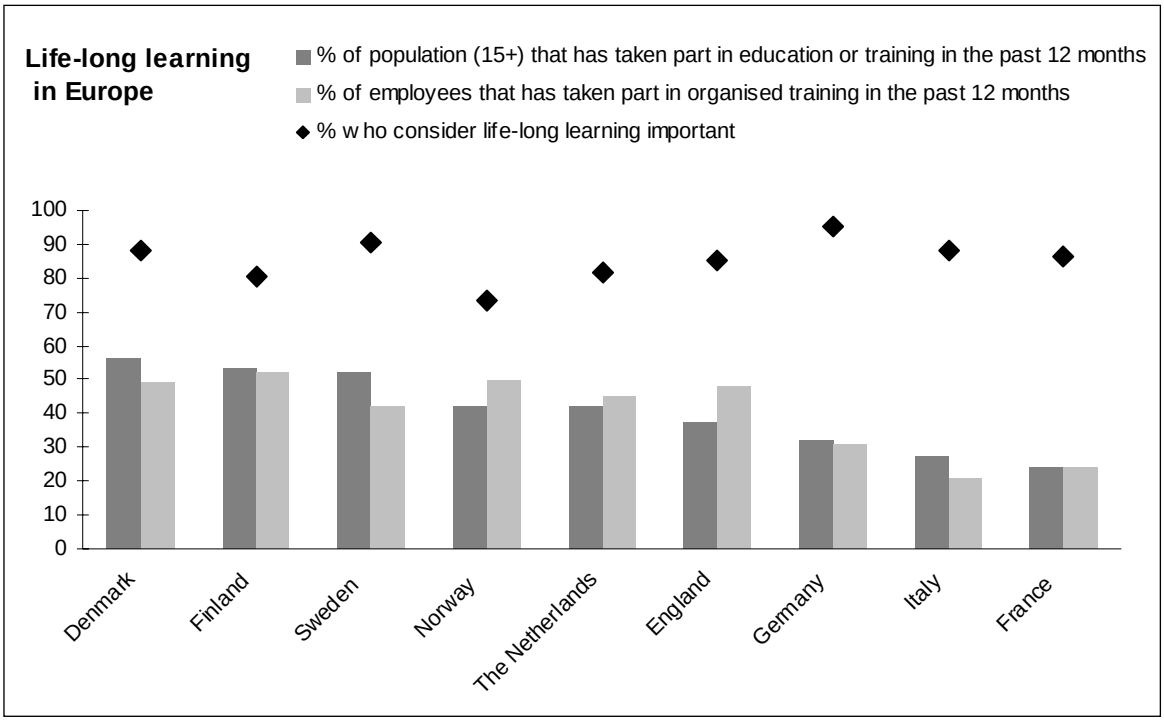
*Figure 6.1 Percentage of population aged 25–64 participation in education and training in 4 weeks prior to the survey, 2002.*




Source: Eurostat, LFS

In addition, a recent survey (Eurobarometer, 2003) conducted in 17 European countries may indicate that Norwegian citizens have a rather lukewarm attitude to lifelong learning. Apparently, Norwegians show less enthusiasm than the citizens of any EU member state. While 95% of the citizens of Germany and Iceland feel lifelong learning is important, only 73% of those in Norway are of the same opinion. The comparable figures are 90% in Sweden, and 88% in Denmark. The Finns are closer to the Norwegians, with 80% (Figure 6.2)

*Figure 6.2 Lifelong learning in Europe, 2003*




Meanwhile, Norwegians still make fairly diligent efforts, as measured by both time and money. We attend school and university (formal education), participate in courses and seminars (non-formal training) and learn through our everyday working lives (informal learning). According to the 2003 Learning Conditions Monitor, no less than two-thirds of those who have completed compulsory schooling are engaged in such learning activities. It is true that the Eurobarometer survey indicates higher levels of activity in the other Nordic countries, but Norway does reasonably well by international standards when it comes to spending time and resources on education and training: 42% of those over the age of 14 have participated in formal education or non-formal training over the past year, compared with 31% in the EU as a whole. Denmark, Finland and Sweden rank highest with well over 50%. The proportion of people who are demotivated about learning is among the lowest in Europe: only 17% of the Norwegian population do not participate in learning, nor do they intend to do so, compared with 35% in the EU. Only Denmark ranks higher than Norway (15%). The figures from Norway's Learning Conditions Monitor indicate a slightly lower level of motivation, with 25% motivated, 20% very highly motivated and 55% lukewarm, among the general population aged 15 and above.

## 3. Norwegian policy in the area

Norway started to develop a comprehensive national LLL-reform at a relatively early stage under the label 'The Competence Reform'. The reform work has been ongoing since the late nineties, and implementation from 2000 onwards. The Ministry of Education has the overall responsibility for implementation. The most important measures of the reform are:

- Statutory rights to education for adults at primary and secondary school level
- A national system for validation of informal and non-formal learning
- Right to leave of absence for educational purposes
- Funding subsistence and providing tax incentives for individuals investing in learning

- A Competence Building Programme to develop the market for further and continuing education
- Reorganisation of the public education system to meet the learning requirements in working life
- Motivation and information.

In addition, a range of measures has been directed towards improving qualification and integration of immigrants and refugees.

The basis for the reform was the need for competence in the workplace, in society and by the individual. The Competence Reform embraces all adults in and outside the labour market and has a broad, long-term perspective. The reform is part of a tripartite effort where the social partners have taken important initiatives in developing a national policy in this field.

Documentation and validation of skills and knowledge is a central element in The Competence Reform in Norway. The term "*realkompetanse*" covers all skills, knowledge, abilities, attitudes and insights people have – formal, informal and non-formal. In 1999 the Ministry of Education launched a national project, "*Realkompetanseprosjektet*". As a result of the project, a national system for documentation and validation of *realkompetanse* has been established.

The main elements of the system are as follows:
- Methods for documenting and evaluating skills gained in working life and in the informal sector
- An opening up of the educational system for *realkompetanse* applicants at all levels
- The right to have *realkompetanse* recognized when applying for upper secondary education, so courses may be shortened where appropriate.
- The right to have *realkompetanse* recognized in relation to the national curricula, for persons wanting to apply for jobs.

The overall principles of the system are as follows:
- The programme gives the individual a chance to get his/her *realkompetanse* recognized and valued
- The documentation is the property of the individual
- The methods for recognizing and valuing *realkompetanse* must meet the needs of the individual
- The social partners must share the responsibility for, and ownership of, the arrangements, and must act as integrated parts of the management of the system and of the further development of arrangements at all levels
- A balance must exist between ensuring that arrangements are accessible to all individuals and that the system is flexible. The system has to be dynamic so that the employers regard it as profitable, and not as a burden
- The projects carried out locally through the project of *realkompetanse* constitute the foundation of the system.

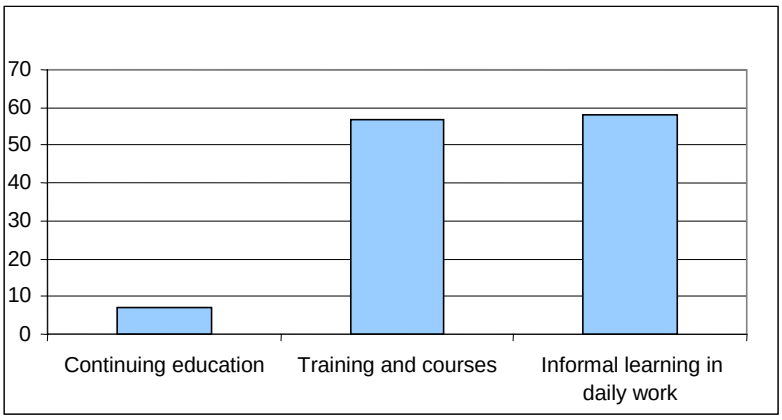
In addition, Norway has an ongoing project - The Norwegian Competence Report (NCR) (2003-05) that maps *the ability to utilize and increase knowledge resources*, emphasizing how

organisations activate human and social capital and facilitate everyday learning among employees, clients and partners.

Preliminary findings from the project have provided new insights that affect the tracking of progress towards the EU strategic goal as well as the need to rethink available policy instruments.

In order to create policies for lifelong learning we need to recognise and monitor *the informal learning* of employees in daily work. In NCR we find that participation in short courses and informal learning is the dominating forms of learning in working life. In fact, 58% of Norwegian employees report having jobs which largely require that they are continually top-dated in their field, while their daily work also provides good opportunities to acquire the knowledge and skills one needs (Figure 6.3).

*Figure 6.3 Different forms of learning in employment in Norway*




Source: NCR 2003

Increased investment in continuing education and training is a goal across the EU. To progress in this area we need to improve our knowledge of the *effects* of education and training both for the individual and the enterprise.

The Norwegian survey shows that many employees report personal benefits and increased work satisfaction. Achieving positive effects on productivity, job performance and ability to take on new tasks is more challenging. The findings suggest that the effect of training will depend on the existence of structures and cultures in the organisations that encourage the employees to use, share and further develop what they have learned.

In a life long learning perspective it is also important to stimulate learning at an early age which is the basis for learning later in life. Research indicates that kindergartens can help reduce differences in learning achievements resulting in better school results, especially in the case of children from minority language backgrounds, disabled children and children in danger of developing reading and writing difficulties. The Ministry of Education and Research proposes to strengthen its cooperation with the Ministry of Children and Family Affairs to ensure improved continuity in lifelong learning. In connection with the revision of the Kindergarten Act and its framework, and the development of new syllabi for primary, lower secondary and upper secondary education and training, attention will be given to ensuring coherence between the syllabi.

# *VII. MAKING LEARNING MORE ATTRACTIVE*

(Objective 2.2)

## 1. Introduction

To make learning more attractive and relevant for all throughout life is a major issue in all European countries. Education and training systems as well as families, local communities and employers, have a major role to play if learning is to become part of everyone's activity. This is required in order to take part in today's knowledge-based society. Those without qualifications are consequently less likely to participate effectively in lifelong learning and are in danger of being left by the wayside in today's increasingly competitive society. Hence, diminishing the percentage of early school leavers is essential to ensure full employment and greater social cohesion.

## 2. Indicators for monitoring performance and progress

Decreasing the number of early school leavers was among the five areas chosen by the Council when setting European Benchmarks, and was formulated as follows:

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

The key issues that should be addressed within this area were identified as follows in the detailed work programme:

1. Encouraging young people to remain in education or training after the end of compulsory education; and motivating and enabling adults to participate in learning through later life
2. Developing ways for the official validation of non-formal learning experiences
3. Finding ways of making learning more attractive, both within the formal education and training systems and outside them,
4. Fostering a culture of learning for all and raising the awareness of potential learners of the social and economic benefits of learning
5. Promoting close co-operation between education and training systems and society at large
6. Establishing partnerships between all types of education and training institutions, firms and research facilities for their mutual benefit
7. Promoting the role of relevant stakeholders in developing training, including initial training, and learning at the work place.

Four indicators are developed by the European Commission for measuring progress in this area:

- *Proportion of the population aged 18–24 with only lower secondary education and not in education or training*
- *Hours in continuing vocational training (CVT)[13] courses per 1000 working hours (all enterprises), by NACE*

[13] CVTS 2 is the second survey on continuing vocational training conducted in 2000/2001 in all Member States, Norway and nine acceding countries. The first survey was conducted in 1994 in the then twelve Member States of the European Union. A total of some 50 000 enterprises in EU countries and Norway and 26 000 enterprises in acceding countries took part in the survey. They provided comparable statistical data on continuing training at work, the supply of and demand for vocational know-how and skills, the need for continuing training on the one hand and the forms, contents and scope of continuing training on the other, own training resources and the use of external training providers and the costs of continuing training.

- *Hours in continuing vocational training courses per 1000 working hours (only enterprises with CVT courses), by NACE.*
- *Participation rates in education by age and by level of education.*

The current Norwegian rate of early school leavers is 14. This is defined by the indicator 'Share of the population aged 18–24 with only lower secondary education and not in education or training'. The mean figure for all EU countries is just under 19. All the Nordic countries have a better performance than the mean for the EU, and among those countries with the lowest rate of early school leavers. Denmark is the only country were the proportion of 18–24-year olds with only lower secondary education is higher among female students (Table 7.1).

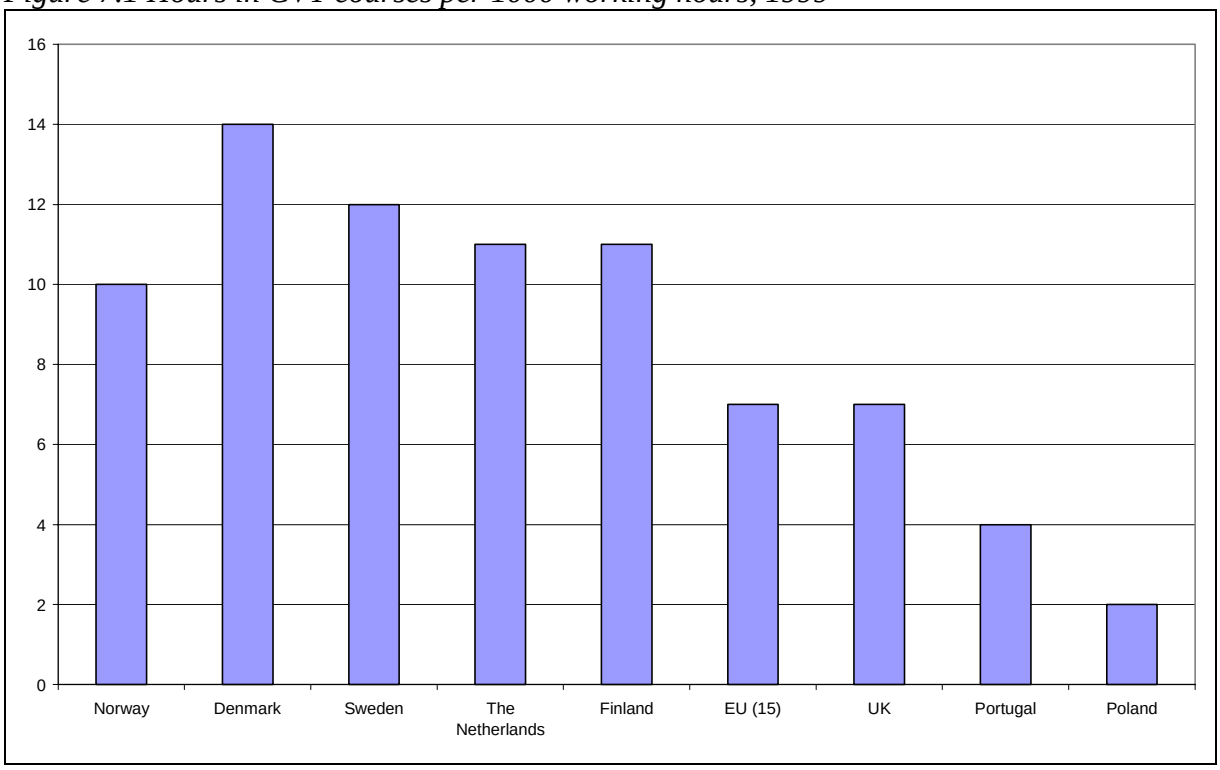
*Table 7.1 Proportion of the population aged 18–24 with only lower secondary education and not in education or training, 2002*

| | EU | Denmark | Germany | Poland | Norway | The Netherlands | Portugal | Finland | Sweden |
|---|---|---|---|---|---|---|---|---|---|
| Total | 19 | 15 | 13 | 8 | **14** | 15 | 46 | 10 | 10 |
| Female | 16 | 17 | 13 | 6 | **13** | 14 | 38 | 7 | 9 |
| Male | 21 | 14 | 13 | 10 | **15** | 16 | 53 | 13 | 11 |

Data source: Eurostat, Lfs, 2002.

There are wide variations in the number of hours spent in continuing training courses in different countries. In the Scandinavian countries and in the Netherlands, 10 or more hours per 1000 working hours are spent on continuing training courses. At the other end of the scale enterprises in Portugal and Poland spend 4 or less course hours per 1000 working hours. ( Figure 7.1)

*Figure 7.1 Hours in CVT courses per 1000 working hours, 1999*




Source: Eurostat CVTS, 1999

However, this conclusion is somewhat modified when only enterprises providing training courses are considered (Table 7.2). Here, countries like Portugal perform more or less at the same level as the best performing countries, i.e. indicating that when enterprises are actually providing CVT courses the situation is acceptable.

*Table 7.2 Hours in CVT courses per 1000 working hours (only enterprises with CVT courses), all NACE, 1999*

| EU | Norway | Denmark | Germany | The Netherlands | Portugal | Finland | Sweden | UK |
|---|---|---|---|---|---|---|---|---|
| 9 | 11 | 14 | 6 | 11 | 10 | 12 | 12 | 8 |

*Data source:* EUROSTAT CVTS, 1999.

## 3. Norwegian policy in the area

Development over the last few years shows an increasing drop-out rate and poor progress in continuity of study in upper secondary education and training. The Norwegian government wishes to remove structural factors that prevent young persons from finishing their education. The education structure must, as far as possible, allow for the desired training irrespective of economic situation, age and where one lives.

The main proposal in a recent White Paper is a simpler structure in upper secondary education which allows more flexibility when organising education and training for the individual pupil, school, apprentice and training establishment. This entails fewer and broader study programmes, eleven in all. At the same time it will become possible to specialise already during the first year. The subjects will be organised to make it easier to identify common elements such that it will be possible to use resources more efficiently while safeguarding the distinctive content of the various subjects.

The Ministry proposes to renew the lower secondary stage and improve the pupils' transition to the upper secondary school by means of a number of measures, including increasing the opportunities for specialization and practical activities. This will also help reduce behavioural problems. The Ministry proposes linking the lower secondary education and upper secondary education more closely by making it possible to choose subjects and themes from upper secondary education and work with these while still in the lower secondary school. The Ministry will evaluate experiences with a view to introducing this as a permanent arrangement.

School owners will be allowed flexibility in organizing and adapting their education as up to 25 per cent of the number of lessons can be used freely to meet requirements of the individual pupil and to take into account local conditions.

# *VIII. SUPPORTING ACTIVE CITIZENSHIP, EQUAL OPPORTUNITIES AND SOCIAL COHESION*

(Objective 2.3)

## 1. Introduction

Social inclusion and active citizenship are important policy objectives and both are central in contributing to the achievement of the Lisbon Goal of becoming:

*"the most competitive and dynamic knowledge-based economy in the world capable of sustaining economic growth with more and better jobs and greater social cohesion".*

The term 'social cohesion' is, however, often overlooked in the endeavour to acheive economic growth; it is therefore notable with the particular focus within this statement on increasing social cohesion. This means that the benefits of increased economic growth should not be confined to a small section of society. In this context education plays an important role with regards to ensuring equal access to education, in transmitting cultural values and traditions and in building shared understandings within a society. But unfortunately schools themselves do not always provide a shared experience. They may be segregated by gender, religion, ethnicity, social class or other characteristics that map differences in life chances. An important question is therefore how education policies may increase cohesion rather than reproducing or even exacerbating differences found elsewhere in society. In the Norwegian context education, social cohesion and economics are mutually reinforcing.

The promotion of active citizenship is part of the learning process. In active citizenship the focus is on whether and how people participate in all spheres of social and economic life, the opportunities and risks they face in trying to do so, and the extent to which they therefore feel that they belong to and have a fair say in the society in which they live.

But how can we measure values as active citizenship, equity and social cohesion in society? At the present time there is no existing data on this in the European indicator and benchmark report. There are, however, some existing international data sources in the field that can be used, for example the IEA Civic Education study (2001) and the European study on "Equity of the European Educational Systems, a Set of indicators" (2004).

## 2. Indicators for monitoring performance and progress

The IEA study on "Citizenship and Education in Twenty-eight Countries: Civic Knowledge and Engagement at Age Fourteen" (2001) tries to identify and examine within a comparative framework the ways in which young persons are prepared to undertake their role as citizens in democracies. Besides formal curricular aspects the focus is on participation outside the school, especially in the community. The IEA study addresses both knowledge and attitudes, and reports on a wide range of issues.

The scores in Table 8.1 reflect performances on the two scales "civic content knowledge" and "interpretative skills" and the combined score for the two aspects. High scores correspond to a good level of knowledge or good interpretative skills.

*Table 8.1: Civic knowledge and interpretative skills*

| | Content Knowledge | Interpretative Skills | Total Civic Knowledge |
|---|---|---|---|
| Poland | 112 | 106 | 111 |
| Finland | 108 | 110 | 109 |
| Cyprus | 108 | 108 | 108 |
| Greece | 109 | 105 | 108 |
| Italy | 105 | 105 | 105 |
| Slovak Republic | 107 | 103 | 105 |
| **Norway** | **103** | **103** | **103** |
| Czech Republic | 103 | 102 | 103 |
| Hungary | 102 | 101 | 102 |
| Slovenia | 102 | 99 | 101 |
| Denmark | 100 | 100 | 100 |
| Germany | 99 | 101 | 100 |
| England | 96 | 105 | 99 |
| Sweden | 97 | 102 | 99 |
| Switzerland | 96 | 102 | 98 |
| Bulgaria | 99 | 95 | 98 |
| Portugal | 97 | 95 | 96 |
| Belgium | 94 | 96 | 95 |
| Estonia | 94 | 95 | 94 |
| Lithuania | 94 | 93 | 94 |
| Romania | 93 | 90 | 92 |
| Latvia | 92 | 92 | 92 |

Source: IEA, 2001

The Norwegian pupils scores quite well when it comes to understanding the democratic processes, the democratic institutions, and that they have learned important democratic attitudes at school. On the other hand, the same pupils are more sceptical towards more direct action-related political participation reflected in the higher than average score for the rest of the countries in the survey.

Of the participating countries, Norwegian and Danish pupils express the strongest confidence in their government. The Norwegian pupils' confidence in the media is less and even lower towards political parties. Almost 70% express confidence in the government, while only 40 % express confidence in the political parties. Even though these figures are low for Norway, they are nevertheless higher than the average score of the rest of the participating countries (see also Mikkelsen et al. 2001).

A second source on equity in education is the European study on Equity of the European Educational Systems (2004). The study is in three parts. The first part provides a discussion on the concepts of equity and equality and develops the principles for building a framework of indicators. The theoretical framework or model of indicators in the report consists of a vertical and a horizontal axis. The vertical axis represents the following four dimensions:

- context of inequalities in education
- inequalities in the education process
- inequalities in education (internal results)
- social and political effects of inequalities in education (external results).

The horizontal axis of the framework consists of the following dimensions:

- inequalities between individuals
- inequalities between categories (according to gender, socio-economic origin, nationality)
- individuals beneath a threshold of equity.

The second part presents a set of 29 indicators, which are used in the third part to undertake an analysis of equity in European countries.

This architecture of 29 indicators highlights the complexity of the concept of equity. A first main observation is the reasonably clear picture of the extremes – with high levels of equity in Scandinavian countries (Norway, Sweden, Denmark and Finland) and lower levels in southern European Countries. For the majority of the countries in the middle the data shows more heterogeneous results (Table 8.2).

*Table 8.2. An approach to the fairness of European education systems*

| Country | Benefits associated with education | Importance of the inequalities | | | | | Role of education system in creating inequalities | | The most educated practices are they turned to the benefit of disadvantaged? |
|---|---|---|---|---|---|---|---|---|---|
| | | Between individuals | Social Skills | Social Careers | % below threshold | Aggregated | Social | In general | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Belgium | | | | | | | | | |
| Denmark | | | | | | | | | |
| Germany | | | | | | | | | |
| Greece | | | | | | | | | |
| Spain | | | | | | | | | |
| France | | | | | | | | | |
| Ireland | | | | | | | | | |
| Italy | | | | | | | | | |
| Lux. | | | | | | | | | |
| Netherlands | | | | | | | | | |
| Austria | | | | | | | | | |
| Portugal | | | | | | | | | |
| Finland | | | | | | | | | |
| Sweden | | | | | | | | | |
| UK | | | | | | | | | |
| Norway | | | | | | | | | |

Source: Equity of the European Educational Systems. A set of indicators, 2004, p. 138.

In Table 8.2, red colour indicate that the country has among the highest values of the indicator, or the average values of the indicators in the column. The yellow boxes indicates that the country is one those which has the lowest values, and therefore, the inequalities are smaller. The orange indicates that the country occupies an intermediate position, and the blank boxes refer to missing data.

An interesting finding is that the effects of schooling on status are relatively weak in Norway (as in the UK and Sweden), while it is quite strong in Finland as well as the Latin countries

(Spain, Portugal, and Greece). Other effects of education have an impact on private life. Another interesting finding is that the skills gap in written comprehension between people drawn from the two extremes of the school career is particularly pronounced in Norway, Ireland and Portugal, and low in the United Kingdom, Sweden and Switzerland.

Furthermore, in countries like Norway, Denmark and Switzerland, substantial inequalities between individuals are accompanied by practices on the part of the most educated people which are relatively favourable to the disadvantaged (9) (they have more contact with them, they finance social transfers which are favourable to them, and take part in associations working in their favour). In Spain and Italy, the pattern is reversed: educational inequalities between individuals are relatively small, but the practices of the most educated people are less favourable to the disadvantaged than elsewhere.

## 3. Norwegian Policy in the area

Education and training are among the most important tools in order to understand and to participate in modern society. Equal opportunities for all students independent of social background and physical and mental capacity are required in order to enable as many as possible to participate in a modern society and to counteract social segmentation.

Research has illustrated that the student's social and linguistic background and family circumstances have a considerable effect on the student's achievement at school. However, research also shows that schools and teachers are of great importance to the students learning, and that the schools are able to reduce the differences that already exist in society. Schools can influence the students' attitudes and motivations for learning, which in turn can clearly be reflected in the achievement of the students.

Compulsory schooling in Norway is ten years and children start school at the age of six. Primary and lower secondary education in Norway is founded on the principle of a unified school system which should provide equal opportunities and individually adapted education for all on the basis of a single national curriculum. All young persons share a common framework of knowledge, culture and values. Pupils with special needs have a statutory right to special education, and the Ministry has also signalled an increase funding for research, method development and the dissemination of experiences connected with adapted education.

The collective objectives and principles for teaching in primary and lower secondary schools are laid down in the national curriculum

The subject curricula lay down a common learning content for all pupils which increases in scope throughout the school and is greatest at the lower secondary stage. This common learning content is enlarged upon and supplemented, adapting it to local conditions and to the needs of individual pupils.

Teaching shall be adapted to the abilities and aptitudes of individual pupils and apprentices. Those who either do not or are unable to benefit satisfactorily from ordinary tuition have the right to special education. As far as possible, the special education that is provided shall be planned in cooperation with the pupil and his/her parents , and considerable emphasis shall be placed on their views.

Upper secondary education embraces all courses leading to educational qualifications above the lower secondary level and below the level of higher education. Since the autumn of 1994, all between the ages of 16 and 19 have had a statutory right to three years' upper secondary education leading either to higher education or to vocational qualifications or partial qualifications. Applicants are entitled to a place on one of the three foundation courses they apply for. It has been made easier for those who have opted for vocational training to acquire the necessary additional qualifications for entrance to higher education. County authorities are obliged by law to provide a follow-up service for young people between 16 and 19 who are currently neither attending a course of education nor are employed. Upper secondary education is provided throughout the country and is designed to make equivalent educational courses available to everyone.

Apprenticeship schemes are part of the upper secondary school system. The first two years of training are provided at school, whereas the final specialised part (up to two years) is given at a workplace in the form of on-the-job training. If there is an insufficient number of apprenticeships, the county authority must offer training at school in the form of a third year course (advanced course II). The final examination (trade or journeyman's examination) is the same regardless of whether training has taken place at school or at a workplace.

Lifelong learning and educational opportunities for adults are important principles of Norwegian educational policy. The aim is to provide suitable conditions in order to strengthen the competence of the adult population. Updated and new competence is necessary to improve competitiveness and increase flexibility in a changing working life. New competence can give individuals greater freedom of choice and possibilities to realise their aims and needs. In light of this issue, the Norwegian Parliament determined that adults shall have a statutory right to primary, lower secondary and upper secondary education. The right to upper secondary education has been put in force from autumn 2000, while the right to primary and lower secondary education was implemented in August 2002.

Considerable efforts have been made in recent years to improve educational opportunities for disadvantaged groups through adult education. This particularly applies to adults with especially weak schooling, various groups of physically disabled persons, adults with reading and writing difficulties, and adult immigrants.

An important principle in Norway is that all education – from primary to higher – shall be free of charge for all. Regarding higher education (and to some extent upper secondary education), the State Education Loan Fund provides financial support to students in the form of loans and grants. This fund enables people to study regardless of their social and economic background. Such support is also available for studies abroad.

Regarding active citizenship, the new Directorate for Primary and Secondary Education is using special "equity" indicators that measure the degree of the pupil's participation at school and on the degree of pupil/student democracy. Through a special website called the 'School Portal', they receive information on the pupils/students learning environment. The data is based on a national Internet bases system for self review – called "Pupil Inspectors". The pupils from $7^{th}$ to $10^{th}$ grade and 1st year of upper secondary education may evaluate their own school with regards to motivation, student participation, physical and social learning environment (mandatory from 2004).

In addition it should be mentioned that the Ministry of Education is currently working with a new national strategy on active citizenship, something which has recently commenced.

# Strategic goal 3: Opening up education system to the wider world

## *IX. THE LINKS BETWEEN EDUCATION AND TRAINING, WORK AND SOCIETY AT LARGE*

(Objectives 3.1 and 3.2)

### 1. Introduction

Competence gives an important impetus to developments in different areas of social life, and lifelong learning represents a new dimension in professional careers. The OECD and the EU have long been concerned with competence and education as a platform for value creation and development. These issues are on the international agenda under headings such as the 'knowledge-economy' and 'lifelong learning'.

### 2. Indicators for monitoring performance and progress

At the present time there are no European indicators in this field.

International assessments of Norwegian educational policy indicate that relations between companies and educational institutions are insufficiently developed and that workplace learning should be promoted. The OECD emphasises the need for strategies to support small and medium-sized enterprises (SMEs) to develop appropriate training programmes and to increase their capacity to procure such programmes in the market place. Improved co-operation between the demand and supply sides in the training market, motivation and development of appropriate programs for low skill and underprivileged groups, elaboration of new training methods, and integration of workplace and training are important objectives as well as screening criteria for applications to the Competence Building Programme (CBP). Judged by its goals and priorities, the CBP is a programme that addresses core challenges for lifelong learning in Norway. The CBP is the initiative within the Norwegian Competence Reform that is most strongly linked to the demand side as well as to the supply side.

An important element of the Norwegian Competence Reform is the development of educational opportunities that exploit the potential of the workplace as an arena for learning. In connection with the wage settlement in 1999, the Government agreed to co-finance a competence-building programme with a total of NOK 400 million over two to three years. The objective is to create new options and develop the market for continuing education and training by means of development contracts and new educational opportunities. Individual enterprises, municipalities, consortia of enterprises, industrial associations, trade unions, and other entities can seek project funding. Work on the Competence Building Programme takes place in close co-operation with the social partners.

NOK 50 million was allocated to the CBP in 2000. This amount was increased to NOK 100 million in 2001 and 2002. In the latter years, a total of 1200 applications have been received for the CBP. After three rounds of applications, 405 projects received support. In the 2002 round 665 applications were received of which 195 were given support.

Operational responsibility for the CBP lies with VOX – the Norwegian Institute for Adult Education. A research based evaluation of the CBP is being conducted by the Institute for Research in Economics and Business Administration (SNF) in co-operation with Institute for Applied Social Science (Fafo). Findings and conclusions from the intermediary report are summarised below.

This program evaluation is based mainly on case studies of 13 projects funded by the CBP, and quantitative data extracted from the records of all applications. These preliminary data indicate that the program in most respects conforms to its intentions. The programme's extensive project portfolio contributes to the adaptation of training programs to company needs as well as to the development of networks and improved co-operation and dialogue between training providers and a broad array of users. These data do however indicate that the programme is less effective in stimulating development on the demand side. One should accordingly consider how the problems on the demand side could be addressed so that all occupations and industries may take part in the competence reform. According to the evaluation – the program management should in particular consider the following challenges:

- The trade-off between quality of projects and elicitation of applicants from underrepresented target groups, including applications initiated by the demand side
- Maintenance of program results by preserving, transferring and institutionalising of experiences from successful projects
- The notion of 'workplace learning' and the possibility of giving priority to applications that include the workplace context as a basic component of the learning process
- The priority between applications based on integration between information technology and other means of learning and applications that do not integrate information technology with other means of training
- Development of a conceptual framework that incorporates the notion of competence brokers.

## 3. Norwegian Policy in the area

At the present time the Ministry of Education has several ongoing projects involving the links between education and training, industry and society. The first is the Competence Reform, and maybe the most important in a lifelong learning context. The Reform is an essential element of fulfilling the aims of granting lifelong learning for all – and the content of the reform has already been mentioned several times in this report (see under Strategic Goal 2).

This comprehensive initiative aims to increase competence development and lifelong learning in the adult population as a whole. The overall goal is to provide Norway with a highly skilled and flexible workforce capable of meeting future societal needs. The Competence Reform is based on a broad understanding of knowledge, where theoretical and practical skills, the promotion of creativity and initiative, and the development of self-esteem and social skills are all part of a whole.

A second project is the Norwegian Competence Report (NCR), which aims at providing a more comprehensive account of competence as a driver of innovation, value creation, quality of life, wealth and welfare in Norway. The intention is that NCR shall present an improved basis for policy-making in areas where competence and learning are key factors. It will contribute to strengthening public debate and to identify areas in which there is need for new initiatives. Moreover, the Ministry wishes to establish a work method and an approach that will allow the monitoring of developments in Norway over time.

NCR 2003 is the first step towards filling in some of the blanks in our knowledge about our ability to apply and develop competence at the national level. The NCR attempts to:

- raise new issues that would engender debate
- introduce a system of concepts to address new aspects of competence and learning
- start the work towards better statistics on knowledge and learning as a road to innovation, welfare and wealth.

In the NCR competence is defined as the collective or individual ability to meet complex challenges. The focus is on the way in which knowledge resources are applied in specific situations, not the level of knowledge and skills of individuals.

Secondly, learning is not limited to formal education and continuing training. Generally speaking, we have a tendency to acknowledge and measure formal, individual training, while practice-oriented collective learning remains unrecognised. Learning among colleagues working on projects is an example of this. The Competence Report highlights the importance and aspirations to measure informal and collective learning.

## *X. IMPROVING FOREIGN LANGUAGE LEARNING*

(Objective 3.3)

### 1. Introduction

Knowledge of languages is now recognised as part of the key competencies in most European countries. Everyone should, as a general rule, be able to speak two foreign languages.

The key issues within this area were identified as follows in the Detailed Work Programme:

1. Encouraging everyone to learn two, or where appropriate, more languages in addition to their mother tongue, and increasing awareness of the importance of foreign language learning at all ages
2. Encouraging schools and training institutions in using efficient teaching and training methods and motivating continuation of language learning at a later stage of life

### 2. Indicators for monitoring performance and progress

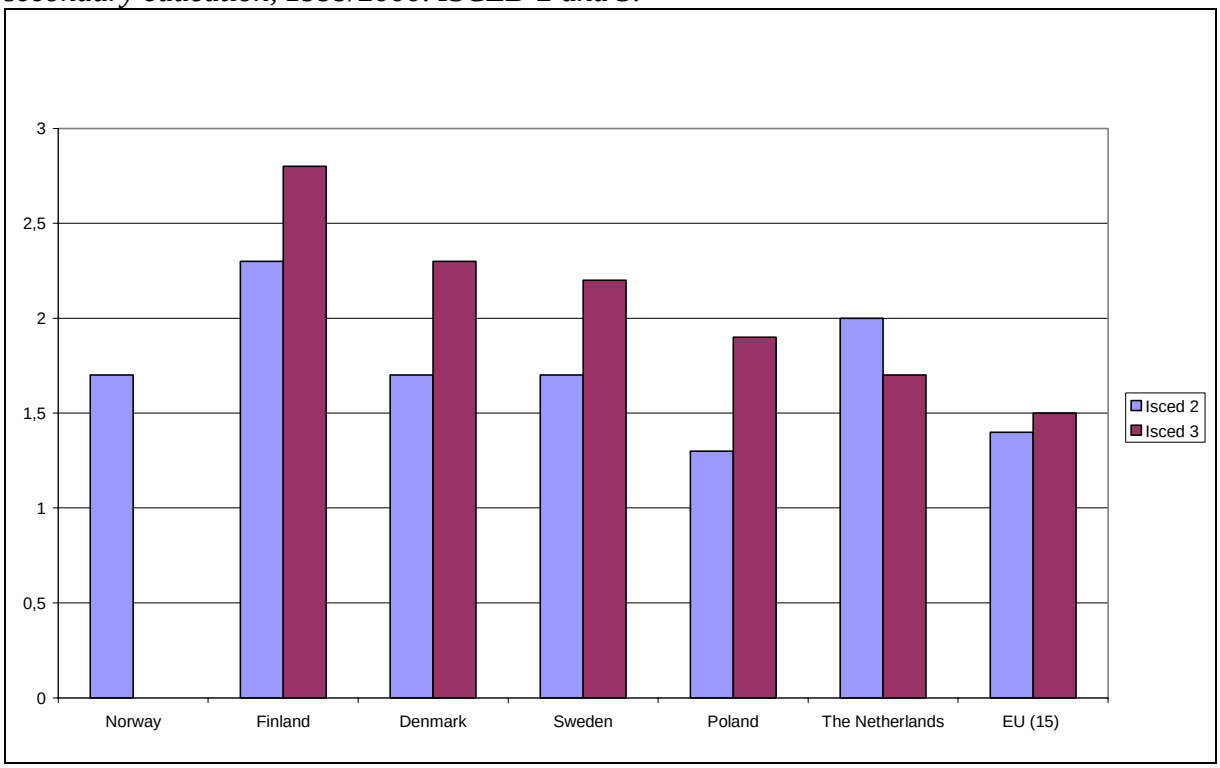
In this area two indicators will presently be applied for monitoring progress:

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

The indicators used in this area gives the average number of foreign languages studied per pupil in general secondary education. The SGIB report stresses that the data presented according to these indicators relate to "languages taught" and do not directly inform us on foreign language competency.

Figure 10.1 shows that Norwegian, Danish, Swedish pupils in lower secondary education on average learn 1.7 foreign languages, while the average figure for EU (15) is 1.4. Finland is the best 'performer' in upper secondary education, where on average the pupils learn 2.8 different foreign languages. The EU average figure is here 1.5. (For more details, see Table A10.1 in the Appendix).

*Figure 10.1 Average number of foreign languages learned per pupil in general lower/upper secondary education, 1999/2000. ISCED 2 and 3.*

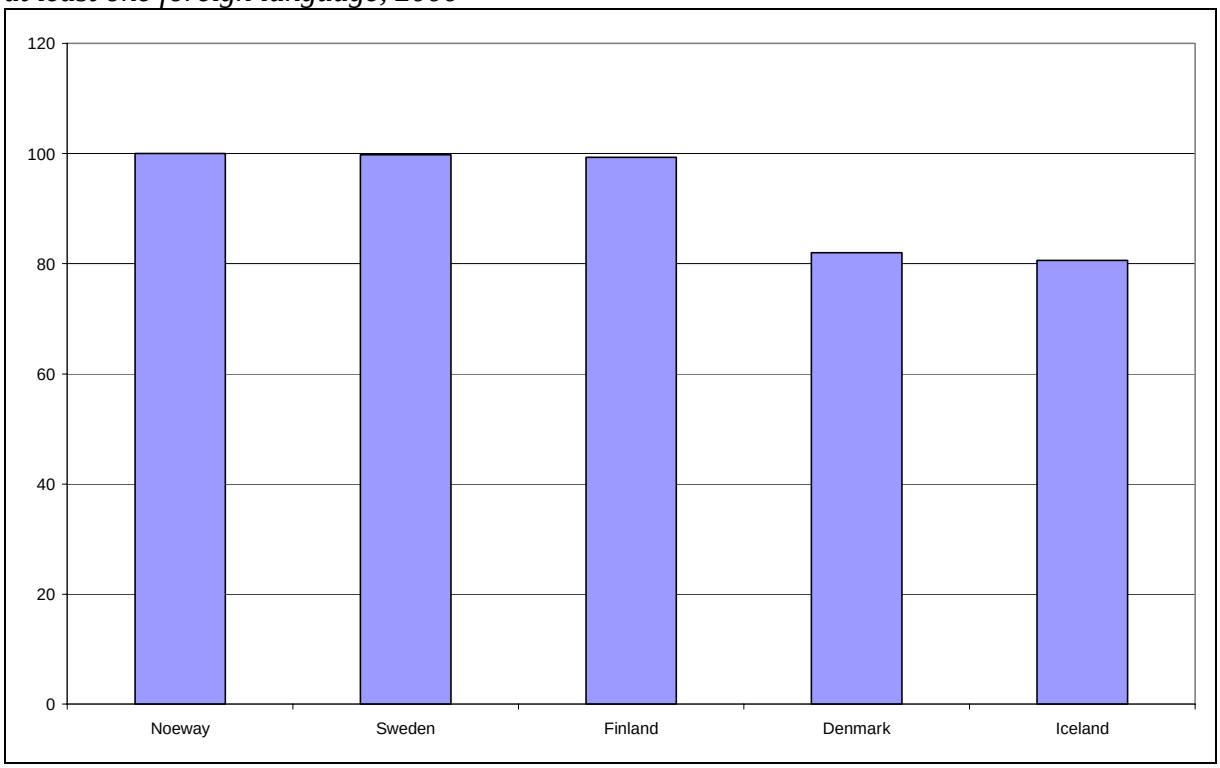



Source: Eurostat, UOE

On average, almost every young person enrolled in general secondary education learns at least one foreign language (Figure 10.2 and Table A10.2 in the Appendix).

Furthermore, it is also important to ensure a differentiation of the foreign languages. Among foreign languages taught, English is the dominant language. According to the SGIB-report, 42% of pupils in primary education and 90% of pupils in general secondary education learn English in the EU. In 13 EU countries, the central education authorities stipulate that the teaching English is compulsory.

*Figure 10.2 Distribution of lower/upper secondary pupils (general and vocational) learning at least one foreign language, 2000*




Source: Eurostat, UOE 2000.

Foreign language learning is an important policy issue in most European countries and in the EU. The development of an indicator on language competency in Europe is one of the first priorities within the EU. According to the EU Working group on languages the indicator should assess all four competencies (reading, listening, speaking and writing) in two or more languages other than the mother tongue or principal language of instruction.

## 3. Norwegian policy in the area.

A second foreign language has been optional in Norway from the 8th grade and is also optional for pupils if they wish to take an examination and receive a grade. Until now, around 70 per cent of all the pupils have chosen a foreign language. On average about 30 per cent of pupils do not follow the entire course and drop out. The position of the second foreign language in Norway has a weaker position than in the other Nordic countries, and also compared to other European countries. Norway cooperates more with foreign countries, in particular those in the European Union. This cooperation demands more competence in languages in order to be able to orient oneself in the information society. Considering this, the Ministry has proposed to make a second foreign language compulsory in the lower secondary school. Teaching in the second foreign language will concentrate on the practical side of learning and communication skills at different levels.

# *XI. INCREASING MOBILITY AND EXCHANGE*

(Objectives 3.4 and 3.5)

## 1. Introduction

One of the main objectives of the open market in the EU is to increase the free circulation of goods, services and capital. Goods, services and capital are circulating more easily than the circulation of people. Individuals are still more connected to their home country due to the difference in language and culture. Different criteria concerning the labour market also form a major obstacle to the free movement of people in the Union.

According to the SGIB report, the internationalisation of the education system plays a major role for realising the internal market. The increased mobility of pupils, students, trainees and teachers will enable these to reap the benefits of an increasingly international labour market.

The Detailed Work Programme addresses the following key issues within this area:

1. Providing the widest access to mobility to individuals and to education and training organisations, including those serving a less privileged public and reducing the remaining obstacles to mobility.
2. Monitoring the volume, directions, participation rates as well as qualitative aspects of mobility flows across Europe.
3. Facilitating validation and recognition of competencies acquired during mobility
4. Promoting the presence and recognition of European education and training in the world as well as their attractiveness to students, academics and researchers from other world regions.

## 2. Indicators for monitoring performance and progress

In this area the following four indicators have been selected in the SGIB report:

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

We observe that there are more Norwegian students studying abroad than there are foreign citizens studying in Norway. There are however considerable differences in which countries Norwegian students choose to study, and also those countries from which foreign students come to Norway. The UK, Australia and the US in particular receive more incoming Norwegian students than they send to Norway. On the other hand, there are more Asian students in Norway than there are Norwegian students in Asia. Table 11.1 illustrates the incoming and outgoing students to and from Norway.

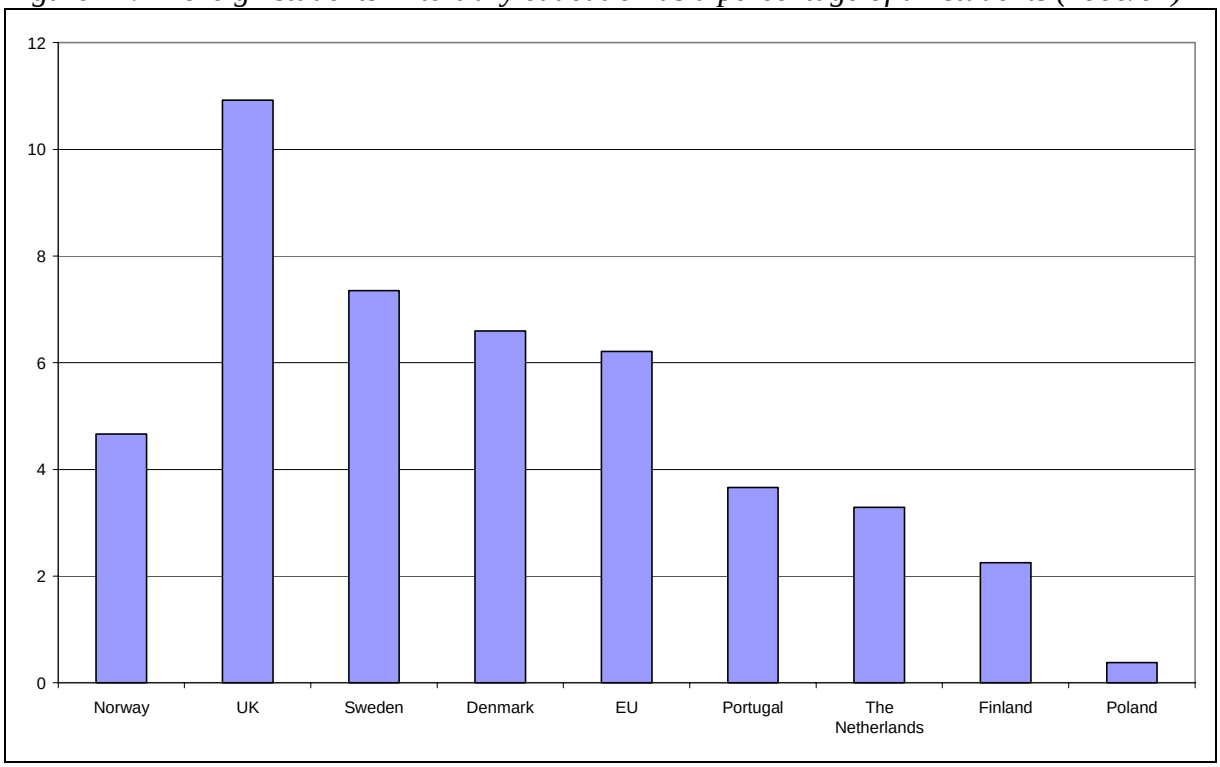
*Table 11.1 Norwegian students in tertiary education abroad and foreign citizens in tertiary education in Norway, by country or group of countries 2002.*

| Country of education | Students in tertiary education Norwegian students abroad | Foreign citizens in tertiary education in Norway |
|---|---|---|
| **Total** | **14 513** | **11 248** |
| Denmark | 1 697 | 885 |
| Sweden | 710 | 1 124 |
| France | 349 | 120 |
| Ireland | 177 | 32 |
| Italy | 128 | 62 |
| Netherlands | 504 | 168 |
| Poland | 369 | 98 |
| Spain | 178 | 61 |
| UK | 3335 | 351 |
| Switzerland | 156 | 37 |
| Germany | 543 | 452 |
| Hungary | 653 | 33 |
| Rest of Europe | 304 | 2119 |
| Africa | 41 | 846 |
| Asia | 59 | 1 300 |
| Canada | 192 | 47 |
| USA | 1229 | 302 |
| Rest of North and Central America | 23 | 64 |
| South America | 39 | 187 |
| Australia | 3673 | 21 |
| Rest of Oceania | 154 | 8 |
| Not known or unspecified | | 2 931 |

Source: Statistics Norway

It is interesting to note that Norway does not attract as many foreign students as Denmark and Sweden. Some 4.7 per cent of all students in Norway are foreign citizens. UK has among the highest proportion of foreign students in Europe with almost 11 per cent. The average level for the EU (the EU 15) is just over 6 per cent. Figure 11.1 illustrates the share of foreign students in Norway and some selected countries in 2001.

*Figure 11.1 Foreign students in tertiary education as a percentage of all students (2000/01)*




Source: Eurostat

**Mobility within EU programmes**

Part of the overall mobility is supported through Community programmes like Socrates: Erasmus (higher education), Comenius (school education), Grundtvig (adult education), Lingua (teaching and learning languages), Minerva (open and distant learning and ICT) etc. as well as Leonardo da Vinci (vocational training policy).

The number of students who studied abroad through the Erasmus programme increased from 3 200 in 1987/88 to 115 429 in 2001/2002. Erasmus mobility affects 0.8% of the student population in the EU and EEA countries per year. However, to reach the target of a 10% participation rate,[14] Erasmus mobility would have to more than double, i.e. affect 2% per year (implying that during a formal study period of 5 years, 10% of the student population would be affected).

With respect to Norway, an interesting observation is that in the academic year 2001–2002 for the first time Norway received more students (1100) than the numbers choosing to study abroad (970). The Norwegian figures are small however compared to Sweden (5473 in; 2633 out), Denmark (3035 in; 1752 out) and Finland (4565 in; 3291 out).

The share of Erasmus teachers increased from 7 800 in 1997/92 to 16 000 in 2001/2002. The most popular countries are UK, France, Germany and Italy.

The more vocationally oriented Leonardo da Vinci programme also ensures substantial mobility within the EU (approximately 35 000 persons per year). The SGIB report shows that

[14] Specified in the Socrates decision No. 253/200/EC of the European Parliament and of the Council of 24 January 2000.

"People undergoing initial vocational training account for approximately 50% of the total mobility within the programme while the mobility of students amounts to approximately 20%. It is, moreover, interesting to note that 80% of the mobile people undergoing initial vocational training are less than 21 years old".

This is also the trend in Norway. In 2000 the programme 556 persons participated in vocational courses of which upper secondary education level (264), tertiary education (61), young workers and recent graduates (141), and so-called 'exchanges' (90).

The Norwegian Ministry of Education and Research has recently evaluated the Norwegian participation in Socrates and Leonardo da Vinci programmes. A general conclusion was that the Socrates programme has had a significant impact on international educational collaboration in Norway. There has, for example, been a rapid increase in the number of teachers, students and pupils participating in collaboration and exchange. The implementation of Grundtvig has been particularly successful. In a short period of time it has reached out to target groups not traditionally involved in international collaboration and exchange in adult education. Comenius has had profound effects on the primary school level. Nevertheless, school owners and leadership as well as teachers could be more conscious of the benefit of participation, and supportive structures and incentives could be developed in that respect (Vabø and Smeby, 2003).

The Leonardo da Vinci programme appears to be functioning well in respect of the international focus on increased placement in education and training. However, the selection of proposals shows that the mobility projects are most successful in terms of the number of proposals related to vocational training/secondary school level. This clearly suggests that renewed efforts are required to increase the attractiveness of the programme for other target groups as well.

## 3. Norwegian Policy in the area

Norway is a country that is very committed to mobility both for students and teachers. This is obvious as far as the policy documents are concerned and with regard to the large number of programmes and projects under which school teachers can be mobile. These range from the mobility programmes of the EU, the Nordic programmes and the programmes aiming at collaboration with the neighbouring countries to the more global mobility programmes such as the Fulbright Foundation, the UNESCO school network and the mobility towards Africa. This has resulted in an estimated 3% mobility of school teachers. The respective agencies have also devoted a lot of attention to the study of the impact of mobility.

Norway is also actively participating in teacher mobility under the Council of Europe and within the framework of the Nordic programmes, especially Nordplus with Nordplus Junior (for upper secondary education) and Nordplus Mini (for primary and lower secondary schools), Nordplus Språk (for language learning) and Nordplus Nabo for exchanges with the neighbouring regions (the Baltic countries and northwestern Russia).

Norwegian teachers have participated in mobility under the Socrates and Leonardo programmes. As far as Socrates is concerned future teachers were mobile under Erasmus whereas teachers were mainly mobile under Comenius. Teachers representing the schools participated in Arion study visits.

Data show that the participation of Norwegian universities in the ERASMUS programme has increased over the last years. It is however important to mention that it is difficult to know how many students in initial teacher training participate in Erasmus as there are no detailed figures for teacher training,. It was however, mentioned that especially Intensive Programmes are very popular in teacher training institutions.

Lately, there has been considerable growth in participation in mobility in school partnerships in Norway. This is probably due to the fact that the amount granted per school has increased to a maximum of 9 800 EUROs with an average of 5 600 EUROs per school (2003).

Norway also participates in bilateral agreements with a number of countries. The most important are GJØR DET - Tun Sie es (Do it), a bilateral agreement between Germany and Norway, and TROLL involving France and Norway. There is also the Barentsplus Junior bilateral student exchange programme between Norway and Russia for upper secondary school students.

The aims of the Quality Reform of Norwegian higher education and the aims of the Bologna Declaration and the Lisbon Process when it comes to mobility of students and teachers, are identical and therefore reinforce each other. As a result, Norwegian higher education institutions are working on their international strategies as well as reviewing and renewing their co-operation agreements with partner institutions abroad. Norwegian higher education institutions are strongly encouraged to participate in European and other international education and research programmes.

The Norwegian government has determined that each student is entitled to a period of study abroad as an integrated part of his/her Norwegian degree programme. It is the responsibility of the Norwegian higher education institutions to arrange for these sojourns abroad.

Norwegian higher education institutions are encouraged to increase the number of academic courses offered in English at their institutions in order to attract more foreign students to Norway.

One of the most important steps taken, however, is that student mobility has become one of the criteria for state financing of higher education institutions through the new financial system. The new founding formula for higher education institutions incorporates measures designed to promote internationalization in Norwegian higher education. The institutions receive NOK 5000 (approx. 700 EUROs) per incoming and outgoing exchange student. The aim is increased and more balanced student mobility and exchange.

For Norwegian students and teachers going abroad, language is sometimes considered an obstacle, especially in relation to non-English speaking countries. In order to encourage stays in non-English speaking countries, The National Educational Loan Foundation awards grants for language courses.

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## *Appendix*

**Table A1.1: Change in the numbers of young people in the 0–14 and 15–19 age groups in the Nordic and selected countries, from 1998 to 2001**

| | | 1980 | 1985 | 1990 | 1995 | 1999 | 2001 |
|---|---|---|---|---|---|---|---|
| **Norway** | **0-14 age group** | **905 687** | **830 732** | **803 313** | **849 262** | **888 563** | **904 367** |
| | **15-19 age group** | **313 895** | **334 589** | **315 230** | **269 197** | **265 305** | **267 082** |
| Sweden | 0-14 age group | 1628 350 | 1516 566 | 1535 024 | 1664 014 | 1644 082 | 1625 537 |
| | 15-19 age group | 569 010 | 585 463 | 564 884 | 509 490 | 504 354 | 513 821 |
| Finland | 0-14 age group | 970 609 | 951 519 | 963 236 | 972 007 | 947 073* | 933 961 |
| | 15-19 age group | 381 771 | 350 851 | 302 334 | 327 510 | 331 240* | 330 499 |
| Denmark | 0-14 age group | 1068 151 | 942 923 | 877 094 | 910 299 | 974 396 | 999 779 |
| | 15-19 age group | 395 539 | 391 805 | 367 475 | 322 261 | 284 452 | 280 761 |
| Island | 0-14 age group | 62 763 | 63 246 | 63 578 | 65 319 | 64 893 | 66 054 |
| | 15-19 age group | 22 551 | 21 029 | 21 201 | 21 019 | 21 874 | 20 940 |
| UK | 0-14 age group | 11 831 350 | 10 899 433 | 10 935 390 | 11 360 090 | 11 369 091 | **(:)** |
| | 15-19 age group | 4 679 550 | 4 560 655 | 3 918 455 | 3 467 001 | 3 699 491 | **(:)** |
| The Netherlands | 0-14 age group | 3 159 172 | 2 819 220 | 2 726 601 | 2 843 095 | 2 930 727 | 2 987 894 |
| | 15-19 age group | 1 254 620 | 1 232 349 | 1 077 584 | 922 789 | 925 698 | 936 452 |
| Portugal | 0-14 age group | 2 519 570 | 2 366 555 | 2 002 284 | 1 779 280 | 1 651 766 | 1 645 821 |
| | 15-19 age group | 853 830 | 842 360 | 846 688 | 804 111 | 716 096 | 673 654 |
| Poland | 0-14 age group | **(:)** | **(:)** | 9 567 827 | 8 800 334 | 7 709 332 | 7 146 164 |
| | 15-19 age group | **(:)** | **(:)** | 2 848 513 | 3 215 812 | 3 354 423 | 3 339 571 |

* Estimate

Data source: Eurostat, population statistics.

**Table A1.2: Percentage of teachers older than 49 years, ISCED 1 and ISCED 2-3, 2000/01**

| | EU | BE | DK | DE | EL | ES | FR | IE | IT | LU | NL | AT | PT | FI | SE | UK |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Isced 2 og 3 | (:) | 29,8 | (:) | 46,7 | (:) | (:) | 31,1 | 28,9 | 48,7 | 30,7 | 37,1 | (:) | 12,1 | 36,1 | 44,6 | 26,0 |
| Isced 1 | (:) | 21,4 | (:) | 44,9 | (:) | (:) | 23,6 | 22,0 | 30,6 | 24,5 | 23,1 | (:) | 19,2 | 24,6 | 41,7 | 26,0 |

| | IS | LI | NO |
|---|---|---|---|
| Isced 2 og 3 | 37,6 | (:) | 36,3 |
| Isced 1 | 25,1 | (:) | (:) |

| | BG | CY | CZ | EE | HU | LT | LV | MT | PL | RO | SL | SK |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Isced 2 og 3 | 22,0 | 26,1 | (:) | (:) | (:) | 22,9 | 27,6 | 24,7 | 21,1 | 25,1 | 19,1 | 28,3 |
| Isced 1 | 14,5 | 5,1 | (:) | (:) | (:) | 20,7 | 21,0 | 33,3 | 14,6 | (:) | 17,1 | 28,3 |

Source: Eurostat, UOE

**Abbreviations:**

EU: European Union

1) BE: Belgium; 2) DK: Denmark; 3) EL: Greece; 4) ES: Spain; 5)FR: France; 6) IE: Ireland; 7) IT: Italy; 8) LU: Luxembourg; 10) NL: Netherlands; 11) AT: Austria; 12) PT: Portugal; 13) FI: Finland; 14) SE: Sweden; 15) UK: United Kingdom

ACC: Acceding Countries

1) CY: Cyprus; 2) CZ: Czech Republic; 3) EE: Estonia; 4) HU: Hungary 5) LT: Lithuania; 6) LV: Latvia; 7) MT: Malta; 8) PL: Poland; 9)SL: Slovenia 10) SK: Slovakia

CC: Candidates Countries

1) BG: Bulgaria; 2) RO: Romania

EEA: European Economic Area

1) IS: Iceland; 2) LI: Liechtenstein; 3) NO: Norway

**Table A4.1:**

**4.1.B: Graduates in mathematics, science and technology (ISCED 5A, 5B and 6) as a percentage of graduates (ISCED 5A, 5B and 6), from 1998 to 2001.**

**4.1.C: Total number of tertiary (ISCED 5A, 5B and 6) graduates from mathematics, science and technology fields, in thousands, from 1998 to 2001.**

**4.1.D: Number of tertiary (ISCED 5A, 5B and 6) graduates from mathematics, science and technology per 1 000 inhabitants aged 20–29, from 1998 to 2001.**

| | 2001 | | | 2000 | | | 1999 | | | 1998 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **1.4.B** | **1.4.C** | **1.4.D** | **1.4.B** | **1.4.C** | **1.4.D** | **1.4.B** | **1.4.C** | **1.4.D** | **1.4.B** | **1.4.C** | **1.4.D** |
| **EU** | (:) | (:) | (:) | 26.1 | (:) | 9.3 | (:) | (:) | (:) | (:) | (:) | (:) |
| | | | | | | | | | | | | |
| BE | 18.9 | 13.2 | 10.1 | 18.9 | 12.9 | 9.7 | (:) | (:) | (:) | (:) | (:) | (:) |
| DK | (:) | (:) | (:) | 21.7 | 8.5 | 11.7 | 18.1 | 6.0 | 8.2 | 19.5 | 6.0 | 8.1 |
| DE | 25.9 | 76.6 | 8.0 | 26.6 | 80.1 | 8.2 | 27.4 | 86.2 | 8.6 | 28.6 | 91.8 | 8.8 |
| EL | (:) | 0.0 | (:) | (:) | 0.0 | 0.0 | (:) | (:) | (:) | (:) | 0.0 | 0.0 |
| ES | 26.8 | 74.3 | 11.3 | 25.0 | 65.1 | 9.9 | 23.5 | 62.7 | 9.5 | 21.9 | 52.8 | 8.0 |
| FR | (:) | (:) | (:) | 30.5 | 154.8 | 19.6 | 30.4 | 151.4 | 19.0 | 30.7 | 149.1 | 18.5 |
| IE | 31.9 | 14.0 | 21.7 | 34.5 | 14.5 | 23.2 | (:) | (:) | (:) | 32.1 | 13.0 | 22.4 |
| IT | (:) | (:) | (:) | 23.1 | 46.6 | 5.7 | 23.9 | 45.5 | 5.4 | 24.2 | 43.5 | 5.1 |
| LU | (:) | 0.0 | 0.0 | 14.6 | 0.1 | 1.8 | (:) | (:) | (:) | 21.0 | 0.1 | 1.4 |
| NL | 15.5 | 12.7 | 6.1 | 15.7 | 12.5 | 5.8 | 16.5 | 12.8 | 5.8 | 17.0 | 13.6 | 6.0 |
| AT | 27.5 | 7.4 | 7.2 | 30.1 | 7.5 | 7.1 | 29.9 | 7.4 | 6.8 | 33.5 | 8.8 | 7.7 |
| PT | 16.8 | 10.3 | 6.4 | 17.7 | 10.3 | 6.3 | (:) | (:) | (:) | (:) | (:) | (:) |
| FI | (:) | (:) | (:) | 28.0 | 10.1 | 16.0 | 29.6 | 11.3 | 17.8 | 26.1 | 10.2 | 15.9 |
| SE | 32.1 | 13.7 | 12.4 | 30.6 | 13.0 | 11.6 | 28.0 | 10.9 | 9.7 | 26.0 | 9.1 | 7.9 |
| UK | (:) | (:) | (:) | 27.9 | 125.6 | 16.2 | 25.8 | 122.8 | 15.6 | 26.2 | 121.9 | 15.2 |
| | | | | | | | | | | | | |
| IS | 19.0 | 0.4 | 9.1 | 19.7 | 0.4 | 8.4 | 15.8 | 0.3 | 6.3 | 19.1 | 0.3 | 7.0 |
| LI | (:) | (:) | (:) | (:) | (:) | (:) | (:) | (:) | (:) | (:) | (:) | (:) |
| **NO** | **16.8** | **5.2** | **8.6** | **16.8** | **4.8** | **7.9** | **16.4** | **4.5** | **7.2** | **12.9** | **4.7** | **7.5** |
| | | | | | | | | | | | | |
| BG | 19.2 | 9.1 | 7.9 | 17.3 | 9.0 | 6.6 | 17.8 | 8.0 | 6.5 | 16.0 | 6.7 | 5.5 |
| CY | (:) | (:) | (:) | 11.9 | 0.3 | 3.7 | 14.0 | 0.4 | (:) | (:) | (:) | (:) |
| CZ | 23.2 | 9.6 | 5.6 | 24.4 | 9.4 | 5.5 | 24.0 | 8.3 | 5.0 | 24.6 | 7.5 | 4.6 |
| EE | 18.1 | 1.4 | 7.3 | 18.9 | 1.3 | 7.0 | 18.5 | 1.2 | 5.7 | 10.8 | 0.6 | 2.9 |
| HU | 10.1 | 5.9 | 3.7 | 12.0 | 7.2 | 4.5 | 16.9 | 8.1 | 5.1 | 18.1 | 7.9 | 5.0 |
| LT | 25.6 | 7.0 | 14.8 | 26.0 | 6.6 | 12.1 | 26.8 | 5.9 | 10.8 | 24.6 | 4.7 | 8.6 |
| LV | 12.2 | 2.5 | 7.6 | 15.9 | 2.4 | 7.5 | 17.0 | 2.1 | 6.3 | 19.3 | 2.0 | 5.9 |
| MT | 9.3 | 0.2 | 3.3 | 10.3 | 0.2 | 3.8 | 4.9 | 0.1 | 1.3 | (:) | (:) | (:) |
| PL | 14.3 | 44.8 | 7.4 | 14.7 | 39.2 | 6.6 | 14.7 | 33.1 | 5.7 | 15.1 | 27.7 | 4.9 |
| RO | 24.7 | 18.4 | 4.9 | 26.3 | 17.1 | 4.5 | 25.2 | 15.6 | 4.1 | 24.7 | 16.3 | 4.2 |
| SL | 20.3 | 2.4 | 8.2 | 22.8 | 2.6 | 8.9 | 23.2 | 2.5 | 8.4 | 23.8 | 2.3 | 8.0 |
| SK | 25.6 | 6.7 | 7.4 | 20.8 | 4.7 | 5.3 | 21.1 | 4.5 | 5.1 | 21.1 | 3.7 | 4.3 |
| | | | | | | | | | | | | |
| JP | 22.7 | 233.4 | 12.7 | 25.2 | 236.7 | 12.6 | 25.2 | 239.7 | 12.6 | 24.9 | 234.8 | 12.3 |
| US | (:) | (:) | (:) | 17.2 | 369.4 | 9.6 | 17.1 | 352.9 | 9.2 | 17.0 | 348.6 | 9.2 |

Souce: Eurostat. UOE

**Table A4. 2: Students enrolled in mathematics. science and technology as a proportion of all students in tertiary education (ISCED 5A. 5B and 6). 2001**

| | EU | BE | DK | DE | EL | ES | FR | IE | IT | LU | NL | AT | PT | FI | SE | UK |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Total** | (:) | 21.2 | 20.8 | 29.1 | (:) | 29.5 | (:) | 35.5 | 24.0 | 16.8 | 16.5 | (:) | 27.5 | 36.8 | 30.0 | (:) |
| **Females** | (:) | 9.7 | 10.9 | 15.1 | (:) | 17.3 | (:) | 22.1 | 14.5 | (:) | 5.2 | (:) | 16.2 | 17.2 | 17.9 | (:) |
| **Males** | (:) | 34.1 | 33.6 | 42.4 | (:) | 43.1 | (:) | 51.6 | 36.2 | (:) | 28.0 | (:) | 42.6 | 59.6 | 47.5 | (:) |

| | IS | LI | NO |
|---|---|---|---|
| **Total** | 18.7 | (:) | 19.8 |
| **Females** | 10.7 | (:) | 10.1 |
| **Males** | 32.2 | (:) | 33.8 |

| | BG | CY | CZ | EE | HU | LT | LV | MT | PL | RO | SL | SK | JP | US |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Total** | 26.2 | 17.7 | 31.3 | 21.3 | 20.4 | 26.6 | 16.3 | 11.0 | 19.9 | 26.9 | 22.5 | 28.3 | 21.9 | (:) |
| **Females** | 18.8 | 8.7 | 15.8 | 11.5 | 8.5 | 14.5 | 8.0 | 5.4 | 10.3 | 16.9 | 10.5 | 15.7 | 6.4 | (:) |
| **Males** | 35.9 | 30.1 | 46.6 | 36.1 | 34.7 | 44.5 | 29.7 | 17.8 | 32.6 | 38.1 | 37.9 | 41.7 | 34.3 | (:) |

*Data source:* Eurostat. UOE. 2001.

**Table A4.3 Number of tertiary graduates in mathematics. science and technology per 1000 inhabitants aged 20–29 (ISCED levels 5A. 5B and 6). 2000**

| EU | BE | DK | DE | EL | ES | FR | IE | IT | LU | NL | AT | PT | FI | SE | UK |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9.3 | 9.7 | 11.7 | 8.2 | (:) | 9.9 | 19.6 | 23.2 | 5.7 | 1.8 | 5.8 | 7.1 | 6.3 | 16.0 | 11.6 | 16.2 |

| IS | LI | NO | BG | CY | CZ | EE | HU | LT | LV | MT | PL | RO | SL | SK | JP | US |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8.4 | (:) | 7.9 | 6.6 | 3.7 | 5.5 | 7.0 | 4.5 | 12.1 | 7.5 | 3.8 | 6.6 | 4.5 | 8.9 | 5.3 | 12.6 | 9.6 |

*Data source:* Eurostat. UOE. 2000.

**Table A5.1: Public expenditure on education as a percentage of GDP. 2001**

| EU (15) | BE | DK | DE | EL | ES | FR | IE | IT | LU | NL | AT | PT | FI | SE | UK |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4.94 | 6.0 | 6.8 | 4.3 | 3.8 | 4.3 | 5.6 | 4.1 | 4.9 | 3.6 | 4.5 | 5.6 | 5.8 | 5.7 | 6.3 | 4.7 |
| **OECD mean** | **IS** | **NO** | **CZ** | **HU** | **PL** | **SK** | | | | | | | | | |
| 5.0 | 6.1 | 6.1 | 4.2 | 4.6 | 5.6 | 4.0 | | | | | | | | | |

*Data source:* OECD. EAG. 2001.

**Table A5.2: Private expenditure on educational institutions as a percentage of GDP. 2000**

| EU | BE | DK | DE | EL | ES | FR | IE | IT | LU | NL | AT | PT | FI | SE | UK |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.62 | 0.4 | 0.3 | 1.0 | 0.2 | 0.6 | 0.4 | 0.3 | 0.4 | (:) | 0.4 | 0.2 | 0.1 | 0.1 | 0.2 | 0.8 |
| **OECD mean** | **IS** | **NO** | **CZ** | **HU** | **PL** | **SK** | | | | | | | | | |
| 0.7 | 0.6 | 0.2 | 0.4 | 0.6 | (:) | 0.1 | | | | | | | | | |

*Data source: OECD. EAG. 2001*

**Table A5.3: Enterprise expenditure on continuing vocational training courses as a percentage of total labour costs. 1999**

| EU | BE | DK | DE | EL | ES | FR | IE | IT | LU | NL | AT | PT | FI | SE | UK |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2.3 | 1.6 | 3.0 | 1.5 | 0.9 | 1.5 | 2.4 | 2.4 | 1.7 | 1.9 | 2.8 | 1.3 | 1.2 | 2.4 | 2.8 | 3.6 |
| **EU+ACC** | **ACC** | **IS** | **LI** | **NO** | **BG** | **CY** | **CZ** | **EE** | **HU** | **LT** | **LV** | **MT** | **PL** | **RO** | **SL** |
| 2.3 | 1.5 | | | 2.3 | 1.0 | | 1.9 | 1.8 | 1.2 | 0.8 | 1.1 | | 0.8 | 0.5 | 1.3 |

*Data source: Eurostat. UOE.. 2000*

**Table A5.4: Total expenditure on educational institutions per pupil/student by level of education relative to GDP per capita (2000). Percentage**

| | EU | BE | DK | DE | EL | ES | FR | IE | IT | NL | AT | PT | FI | SE | UK |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Isced 5-6 | 36.1 | 40.8 | 45.3 | 41.7 | 34.7 | 33.0 | 33.3 | 38.1 | 32.2 | 42.8 | 38.3 | 29.3 | 32.6 | 57.8 | 38.0 |
| Isced 2-4 | 26.3 | 26.1 | 29.5 | 26.8 | 23.2 | 25.7 | 30.3 | 16.4 | 29.2 | 20.3 | 27.1 | 31.7 | 24.0 | 24.2 | 21.0 |
| Isced 1 | 18.0 | 16.3 | 24.2 | 16.1 | 20.9 | 19.5 | 17.8 | 12.1 | 24.2 | 14.8 | 23.1 | 21.9 | 17.1 | 24.2 | 15.2 |
| | **EU+ACC** | **ACC** | **IS** | **NO** | **CY** | **CZ** | **HU** | **LT** | **LV** | **MT** | **PL** | **RO** | **SK** | | |
| Isced 5-6 | 36.6 | 35.4 | 27.9 | **34.2** | 49.9 | 39.4 | 44.1 | 30.6 | 43.6 | 45.0 | 30.8 | 29.7 | 42.7 | | |
| Isced 2-4 | 26.1 | 20.1 | 24.3 | **24.3** | 35.5 | 23.1 | 18.5 | 20.9 | 26.2 | 26.4 | 18.1 | 16.2 | 16.6 | | |
| Isced 1 | 17.4 | 18.3 | 21.6 | **19.5** | 19.0 | 13.2 | 17.4 | 18.7 | 22.0 | 16.4 | 20.6 | 9.9 | 11.3 | | |

*Data source:* Eurostat. UOE.

**Table A10.1: Average number of foreign languages learned per pupil in general lower/upper secondary education. 1999/2000**

| | EU | Be f. | Be d | Be nl | DK | DE | EL | ES | FR | IE | IT | LU | NL | AT | PT | FI | SE | UK |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Isced2 | 1.4 | 0..9 | 1.4 | 1..5 | 1.7 | 1.2 | 1.9 | 1.5 | 1.5 | 1.0 | 1.1 | 2..5 | 2.0 | 1.1 | (:) | 2.3 | 1.7 | (:) |
| Isced3 | 1.5 | 1.8 | 2.6 | 2.6 | 2.3 | 1.4 | 1.2 | 1.1 | 1.9 | 0.9 | 1.2 | 3.0 | 1.7 | 1.7 | (:) | 2.8 | 2.2 | (:) |
| | **IS** | **LI** | **NO** | **BG** | **CY** | **CZ** | **EE** | **HU** | **LT** | **LV** | **MT** | **PL** | **RO** | **SL** | **SK** | | | |
| Isced2 | 2.1 | (:) | 1.7 | 1.1 | 2.0 | 1.1 | 2.0 | (:) | 1.7 | 1.5 | 2.2 | 1.3 | 1.9 | 1.1 | 1.1 | | | |
| Isced3 | 1.7 | (:) | (:) | 1.8 | 2.0 | 2.0 | 2.3 | 1.2 | 1.9 | 1.9 | 1.1 | 1.9 | 1.9 | 2.0 | 2.0 | | | |

Data source: Eurostat. UOE

**Table A10.2: Distribution of lower/upper secondary pupils (general and vocational) learning at least one foreign language. 2000.**

| EU | BE | DK | DE | EL | ES | FR | IE | IT | LU | NL | AT | PT | FI | SE | UK | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (:) | (:) | **82.0** | (:) | (:) | **99.9** | **99.5** | **85.7** | (:) | **91.7** | (:) | **97.3** | (:) | **99.3** | **99.8** | (:) | |
| **IS** | **LI** | **NO** | **BG** | **CY** | **CZ** | **EE** | **HU** | **LT** | **LV** | **MT** | **PL** | **RO** | **SL** | **SK** | **JP** | **US** |
| **80.6** | (:) | **100** | **85.5** | **100** | **95.3** | **100** | (:) | **95.8** | **98.7** | **95.3** | (:) | **99.4** | **95.0** | **97.9** | (:) | (:) |

*Data source:* Eurostat. UOE. 2000.

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