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COVER NOTE

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COMMISSION OF THE EUROPEAN COMMUNITIES

Brussels, 20.01.2003
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COMMISSION STAFF WORKING PAPER

Benchmarking

European youth into the digital age

Based on the Eurobarometer surveys
Flash 118 "Head teachers" and Flash 119 "Teachers" of January-February 2002

EXECUTIVE SUMMARY

The main aim of Eurobarometer Flash 118 was to determine the level and quality of computer equipment and Internet connections in EU schools. It followed on from the Eurobarometer Flash 101 survey carried out a year before, and so enables the changes in schools to be seen over a period of one year. The two surveys focused exclusively on computers actually used for education.

Level and quality of computer equipment:

- The level of computer equipment in EU schools is relatively high and rising. On average, there are only ten pupils per off-line computer compared with 12 pupils per computer last year. Although they are diminishing, the differences between Member States are still significant, with numbers ranging from 3 to 20 (3 to 25 last year).

- Much greater progress has been made as regards the number of pupils per computer connected to the Internet, with the EU average having fallen from 25 to 17. There too, the differences between Member States are still significant and more marked than for off-line computers, with variations from 4 to 40 per computer connected (4 to 50 last year).

- The main factor influencing the standard of computer equipment is still the level and type of education. At EU level, the number of pupils per computer more than doubles between professional/technical and secondary education (from 3 to 7), and almost doubles again between secondary and primary education (from 7 to 12). The figures for last year were 4.9 and 15 respectively.

- The trend is the same for computers connected to the Internet, but the gaps are greater: while there are 4 pupils per computer connected to the Internet in professional/technical education, the figure rises to 10 in secondary education and 25 in primary education. The figures were 8, 15 and 37 respectively last year. The progress made in one year is therefore considerable.

- Computers used in EU schools tend to be fairly recent, with more than half of them being less than three years old (as in 2001). Most EU countries are around the average. Computers tend to be more recent in the countries which are in the process of buying in equipment.

- On average, 13.5% of the computers used in EU schools have been donated by private sources, down slightly compared with 2001 (15%). Private sponsorship is most extensive in Germany and Austria (about 25%), and to a lesser extent in Ireland, the Netherlands and Greece (15 to 20%). The main beneficiaries are primary schools where nearly one in five computers has been donated by private sources.

Internet connectivity and Web resources:

- The EU has almost achieved its objective of having all schools connected to the Internet: 93% of schools now have Internet access, a slight increase on last year (89%). However, pupils do not always have access to the Internet in all schools which are connected: they only have access to the Internet in 85% of EU schools, also a slight increase on last year (80%).

- Regarding connection types, there are fewer low-speed technologies in the EU, but these are still predominant: 64% of school connections are ISDN and 28% are through a regular phone line (72% and 33% respectively last year).

- High-speed technologies have increased considerably, however. This is linked to the development of ADSL, which has increased fourfold from 5% to 19% of schools, while cable modems have remained stable at 6%. High-speed technology is still more extensive in urban areas, where it is easily available. It is still also more widespread in professional/technical and secondary education than in primary schools.

- With regard to Internet tools, the situation has changed only little in one year. Electronic mail is still the most popular Internet tool: 95% of EU schools connected to the Internet have an e-mail address, with no significant differences between Member States. More than half of on-line schools also have a Web page, half of them an Intranet and one third a helpdesk, but in these areas national discrepancies are more significant.

The main aim of Eurobarometer Flash 119 was essentially to determine the main uses teachers make of computers and the Internet, and their degree of familiarity with them. It follows on from Eurobarometer Flash 101, carried out a year before, and makes it possible to see the changes over one year.

Use of computers and the Internet:

- The vast majority of teachers in the EU who do not have computing as their main subject use computers in class: 71%, a slight increase on 2001 (65%). Computers are used by 76% of primary teachers, 66% of secondary teachers and 77% of professional/technical teachers.

- Usage of the Internet in class is still limited, but has risen substantially: 46% of teachers who do not have computing as their main subject now use it, though it was only 39% a year ago. The Internet is used by 40% of primary teachers, 51% of secondary teachers and 62% of professional/technical teachers.

- Apart from teachers of computing , teachers specialised in professional and technical subject make the most use of computer off-line (8 hours a week) and the Internet (three and a half hours a week), much more than other secondary or primary teachers (3 to 4 hours of use a week of computers and less than 2 hours a week of use of the Internet).

- Regardless of the type and level of education, the survey confirms that one of the key factors in determining the take up and frequency of usage of the Internet is gender. Computers are used considerably less by women than by men: the difference is 66%

against 77% for computers and 38% against 56% for the Internet. The length of use also reflect these differences.

Opinions regarding the Internet:

- The main reason given by teachers who do not use the Internet in class is now the lack of access to it in class and not the lack of a connection in the school as last year. Only one out of five teachers who do not use the Internet believes the Internet is not relevant to their teaching, and one in ten mentions their lack of familiarity or that of their pupils.

- Limited teacher concern regarding lack of familiarity with the Internet can in part be explained by the fact that over half of EU teachers have been officially trained in the use of computers and four in ten in how to use the Internet. In addition, more than nine out of ten teachers use a computer at home, and almost eight out of ten have an Internet connection at home.

- Overall, EU teachers who use the Internet in class are extremely positive about it. Furthermore, almost nine out of ten teachers are convinced that the Internet has already changed or will sooner or later change the way they teach. This tends to confirm that EU teachers are extremely open to new technologies and the changes they will induce.

CONTENTS

1. INTRODUCTION

The main objective of the *e*Europe action plan is to accelerate the development of the information society in Europe and to ensure that the potential of the Internet is available to all citizens and all businesses in all the regions of the Member States. To reach this goal, key measures have been identified in the eleven priority areas of the action plan, one of which is "European youth into the digital age".

The follow-up of the implementation of the *e*Europe targets is based on the benchmarking of each Member State's progress according to a set of indicators agreed by the Council of Ministers on 30 November 2000. Indicators related to "Youth in the digital age" focus on the level of penetration and use of computers and the Internet in schools:

1. Number of computers per 100 pupils in primary, secondary and professional/technical education
   - Supplementary indicator : hours of computer use per pupil per week.

2. Number of computers connected to the Internet per 100 pupils in primary, secondary and professional/technical education.
   - Supplementary indicator : hours of Internet use per pupil per week.

3. Number of computers with high-speed connections to the Internet per 100 pupils in primary, secondary and professional/technical education.

4. Percentage of teachers using the Internet for non-computing teaching on a regular basis.

The data collection method approved by the Council is annual Eurobarometer sample surveys in the fifteen Member States. Two Eurobarometers were carried out in this context between January and February 2002 covering head teachers and teachers. These follow on from two previous Eurobarometer surveys carried out between February and May 2001. In 2002, these surveys were also carried out in Norway and Iceland. From 2003 onwards, measurements will also be carried out in the candidate countries.

The surveys go beyond the strict scope of the agreed indicators to provide a more thorough investigation of the level of uptake of new technologies and usage patterns in EU schools. Indeed, the take-up of digital technologies and the Internet in the school environment goes beyond mere equipment levels. The number of off-line and on-line computers is important but so are other factors, such as the quality of the equipment and Internet connections, the level of teacher training, the attitude of teachers towards the new technological tools and the way they use them. . As another important issue, the use of the Internet in support of school twinning has emerged. Upcoming surveys will try to also cover this aspect.

Improving information and communication technology (ICT) equipment in schools and the ICT literacy of teachers is also addressed by the European Employment Guidelines. The implementation of objectives in this area is assessed on an annual basis within the European Employment Strategy. **The Eurobarometer surveys presented in this paper further contribute to a comprehensive overview of the state of development**

of new technologies in schools in all EU Member States, on the basis of a consistent data collection methodology over a single period. Amongst their main added value are detailed findings on the use of digital technologies in schools and the perception of teachers. The implementation of a single Eurobarometer Flash methodology across all Member States over a given period of time avoids differences in data collection methods and time frame. There are, however, some limits to these surveys:

- Firstly, sample surveys do not provide absolute figures like administrative data from the Member States, but estimates subject to variations within certain margins.

- Secondly, the accuracy of the data depends on the size of the sample.[1] The two surveys in question used samples of about 500 respondents,[2] which allows for small statistical margins of error. However, in practice the size of the sample varies from one country to another for each question, according to the profile of respondents. For instance, the proportion of teachers who use the Internet with pupils is smaller in countries where equipment levels are lowest. Also, findings related to technical and professional education are based on small samples in most countries, depending on the degree of development of this specific type of education. However, while smaller samples lead to larger margin of statistical error, this does not mean that the results should be dismissed. Findings based on small samples are valid in spite of larger margins of error as they can still highlight general trends.

- Thirdly, sample surveys only provide quantitative data, which may in some instances be difficult to interpret. It could therefore be useful, for some findings, to complement this purely quantitative research with qualitative research.

The full data are available in the benchmarking section of the eEurope Web site at http://europa.eu.int/eeurope.

1 See detail of methodology and sample size in Annex 2.

2 Except in Luxembourg where, due to the limited number of schools and teachers, only 45 interviews were carried out with head teachers and 400 with teachers and in Iceland where, for the same reasons, only 228 interviews were carried out with head teachers. This gives a higher statistical margin of error (see Annex 2), in particular in the case of Luxembourg, and therefore apparent inconsistencies between the figures for 2001 and those for 2002.

2. SCHOOLS

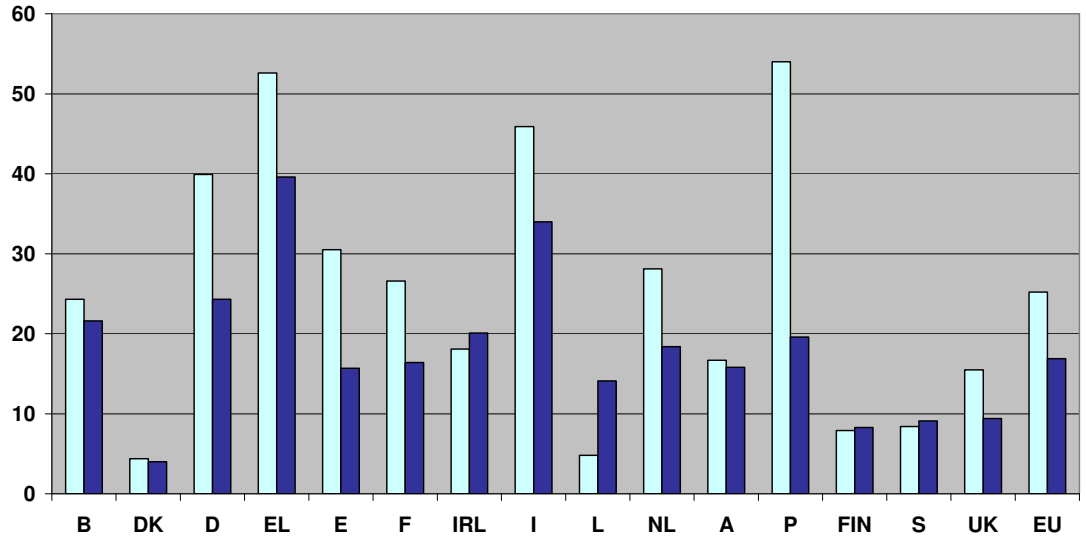
The main aim of the Eurobarometer Flash 118 survey carried out in January and February 2002 was to determine the level and quality of computer equipment and Internet connections in EU schools. It is based on interviews with 500 head teachers in each EU country[3] and follows on from the Eurobarometer Flash 101 survey carried out a year before between February and May 2001. Comparison of the findings of these two studies reveals the changes in EU schools over the period of one year. The two surveys focused exclusively on computers actually used for educational purposes.

2.1 Pupils' access to computers

The level of equipment is increasing considerably in EU schools: on average, there are ten pupils per computer, compared with 12 pupils in 2001. Over a period of one year, the differences between EU countries have been on a downward trend, but they are still nevertheless substantial: 3 to 20 pupils per computer, compared with 3 to 25 in 2001. The number of pupils per computer is particularly low in Denmark, Finland and the United Kingdom (between 3 and 7), and high in Greece, Italy, Portugal and Germany (13 to 20).

The increase in the level of equipment is greater as regards computers connected to the Internet, although discrepancies are even greater. The EU average stands at 17 pupils per on-line computer (against 25 in 2001), with figures varying from 4 to 40 depending on the country concerned (compared with 4 to 50 last year). The number of pupils per on-line computer is low in Denmark, Finland, Sweden and the United Kingdom (less than 10), and high in Greece and Italy (more than 30).

Change in number of pupils per computer connected to the Internet between 2001 and 2002 (all schools)



The geographical location of schools still has some influence, though less than before, on the level of equipment and connectivity, with schools in rural areas being still slightly at an advantage compared with schools in towns.

[3] Except in Luxembourg. See footnote 2.

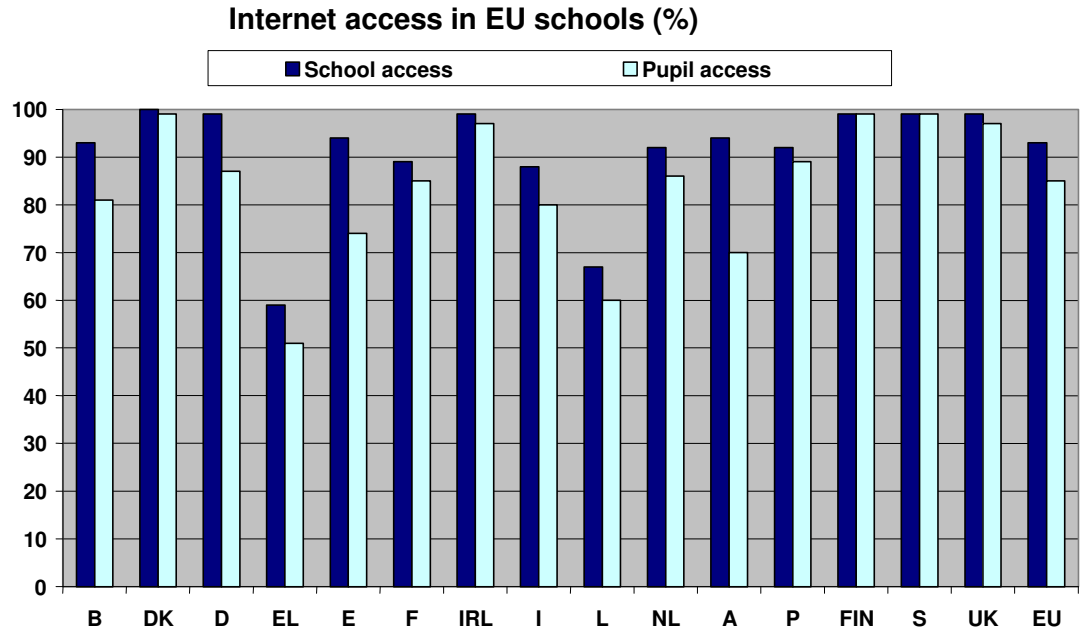
The main factor determining the level of equipment is still the type of education. At EU level, the number of pupils per computer more than triples between professional/technical and secondary education (from 2 to 7), and increases by a further two-thirds between secondary and primary education (from 7 to 12). The figures last year were 4.9 and 15 respectively. The situation is even more marked for the number of pupils per computer connected to the Internet, which rises from 4 pupils per computer connected to the Internet in professional/technical education to 10 in secondary education and 25 in primary education. However, there is a substantial improvement compared with 2001 (when the figures were 8, 15 and 37 respectively), especially in primary education.

Pupils' access to computers connected to the Internet:

- *The discrepancies between EU countries are diminishing but are still substantial.*
- *The discrepancies between levels and types of education are still significant but are also diminishing.*

2.2. Internet connectivity

The EU has practically reached the *e*Europe target of having all schools connected to the Internet by the end of 2001. On average, 93% of EU schools now have access to the Internet, compared with 89% in 2001. All EU countries are close to or above the average, except Greece (59%). The differences according to the type and level of education and the location of the schools are insignificant. Only the size of schools plays any part, with 84% of schools with up to 150 pupils having an Internet connection, as compared with 99% of schools with 600 or more pupils.



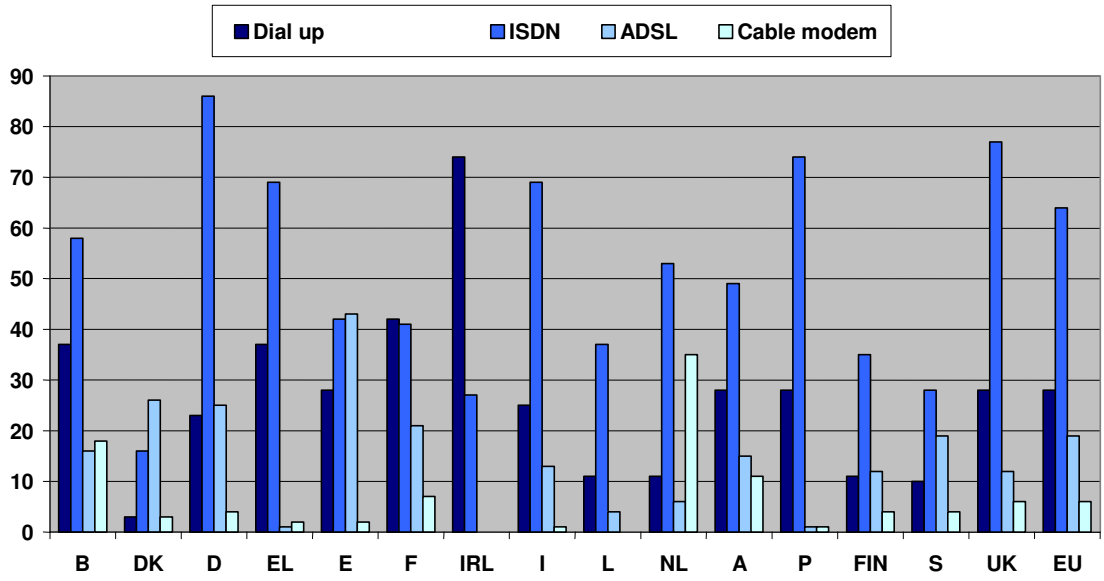
However, pupils are not able to use the Internet connection in all schools which are on line. In fact, pupils have access to the Internet only in 85% of EU schools (compared with 80% in 2001). Figures are high in all Member States, except Spain (74%), Austria (70%) and especially Greece (51%). Figures have changed little over the one-year period, except in Portugal which the percentage of schools on line has increased substantially, from 52 to 89%.

Regarding types of Internet connections, the European landscape continues to be dominated by low-speed technologies, starting with ISDN, which still accounts for two-thirds (64%) of school connection (72% in 2001). Next comes dial-up access through regular phone lines, which still accounts for more than one quarter of connections (28% compared with 33% in 2001).

Internet connectivity:
- *93% of schools are connected;*
- *64% via ISDN;*
- *high-speed is advancing substantially, in particular ADSL, and is already quite widespread in some Member States.*

The drop in the number of low-speed connections in favour of high-speed technologies is however considerable. It benefits in particular ADSL, which is making a genuine breakthrough from 5 to 19% of Internet connections in schools. The increase is particularly substantial in Spain (from 7% to 43%), Germany (from 1% to 25%) and France (from 5% to 21%). Cable modem remains especially widespread in countries which have highly developed cable television networks: the Netherlands (35%), Belgium (18%) and Austria (11%) - in the latter two countries, ADSL is however catching up with cable. It may be that other high-speed technologies, in particular optical fibre, are under development in Sweden, and perhaps Denmark and Finland, but the wording of the questionnaire did not enable this to be identified accurately.[4]

Type of Internet connection in EU schools which are connected (%)



Geographical factors have some influence on school connectivity, notably as regards high-speed technologies. Therefore, ADSL is more widespread in metropolitan areas (26%) than in urban areas (19%) and rural areas (15%). Similarly, cable modem is more widespread in metropolitan areas (9%) than in urban areas (5%) and rural areas (4%). These findings are not surprising: dial-up and ISDN are available everywhere, but ADSL is recent and is made available first in cities. Furthermore, there are technical limitations

4 Technologies other than classical access, ISDN, ADSL and cable modem fall under the heading of "other". In Sweden, Denmark, Finland and Luxembourg, 42% to 56% of replies are in that category. The questionnaire should be modified in future to take account of this. Furthermore, a single school may have several Internet connections using different technologies.

to the provision of ADSL in less populated areas. As for cable modem, it depends on the existence of cable TV networks which are more developed in densely populated areas for commercial reasons - not to mention the fact that the development of cable TV networks varies considerably from one Member State to another.[5]

The level and type of education also have an influence on the connection type. Therefore, ADSL is considerably more developed in professional/technical education (34%) and secondary education (30%) than in primary education (11%). This suggests that the need for high-speed is higher in professional/technical and secondary education, unless priority is given to these levels and types of education as regards high-speed access. Lastly, this trend may also be linked to the fact that a large proportion of primary schools, and to a lesser extent secondary schools, are located in rural areas.[6]

2.3. Web resources

The most popular Internet tool is electronic mail, which is used by almost all schools that are connected to the Internet. On average, 95% of schools connected to the Internet have an e-mail address (91% in 2001). The figures are around 90% in all Member States, except Greece, (81%), Portugal (79%) and Luxembourg (76%).

More than half of on-line schools have a Web page: 55%, a slight increase on last year (49%). There are significant variations between Member States, Finland, Denmark and Sweden exceeding 75%, while Ireland, Greece and Portugal are under 40%.

More than half of on-line schools also have an internal PC network (Intranet): the EU average is 55%, a figure which is stable compared with 2001. Italy, Sweden, the United Kingdom and Denmark are over 70% while Portugal, Finland and Ireland are under 35%.

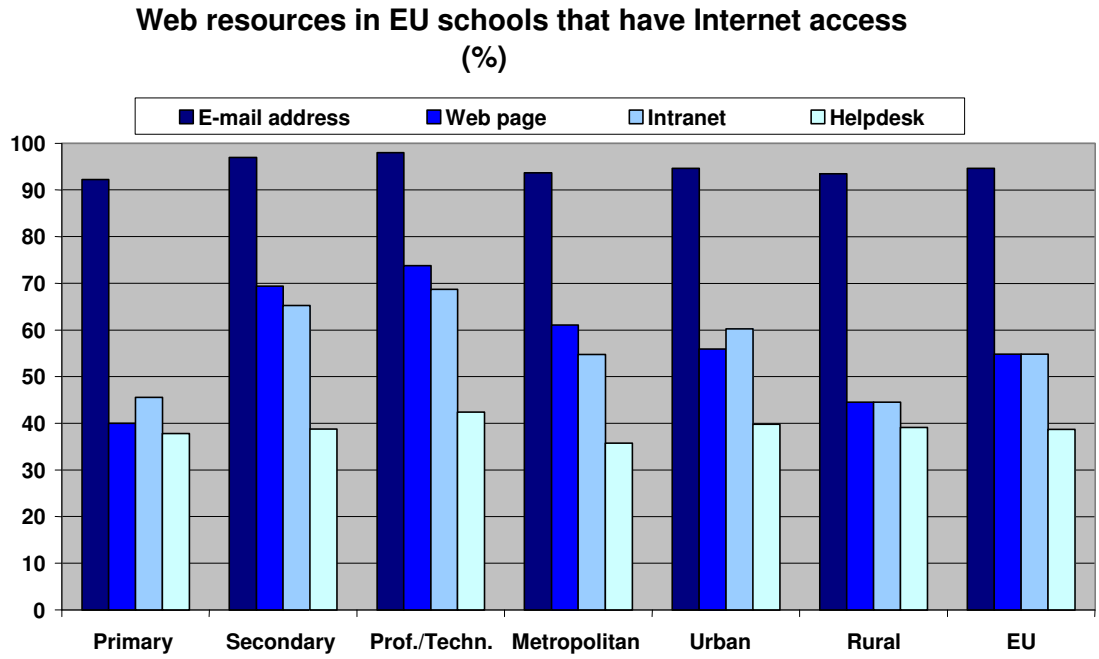
Lastly, **more than one third of on-line schools have access to a helpdesk**. The proportion is much higher in the UK, the Netherlands and Sweden (above 80%), but much lower in Greece, Germany and Italy (below 25%).

The geographical location of schools seems to have some influence on Web resources, except e-mail and the existence of a helpdesk: 61% of metropolitan schools and 56% of urban schools have a Web page, against only 45% of rural schools. As far as PC networks or Intranets are concerned, 60% of urban schools and 55% of metropolitan schools have one compared to only 45% of rural schools. **One factor that could largely explain these trends is the size of schools** The average size of metropolitan and urban schools is almost twice that of rural schools.[7] In addition, a larger proportion of rural schools are primary schools. Therefore, it could be that metropolitan and urban schools have a greater need for an Intranet and that they have greater resources to design and operate a Web site.

5 They are particularly low in Portugal, Spain, France, Greece and Italy.

6 The exact figures from the Flash 118 survey are as follows: 32% of primary schools, 23% of secondary schools and 16% of professional/technical schools are located in rural areas.

7 The exact figures from the Flash 118 survey are as follows: on average, rural schools have 293 pupils, urban schools 538 pupils and metropolitan schools 577 pupils.



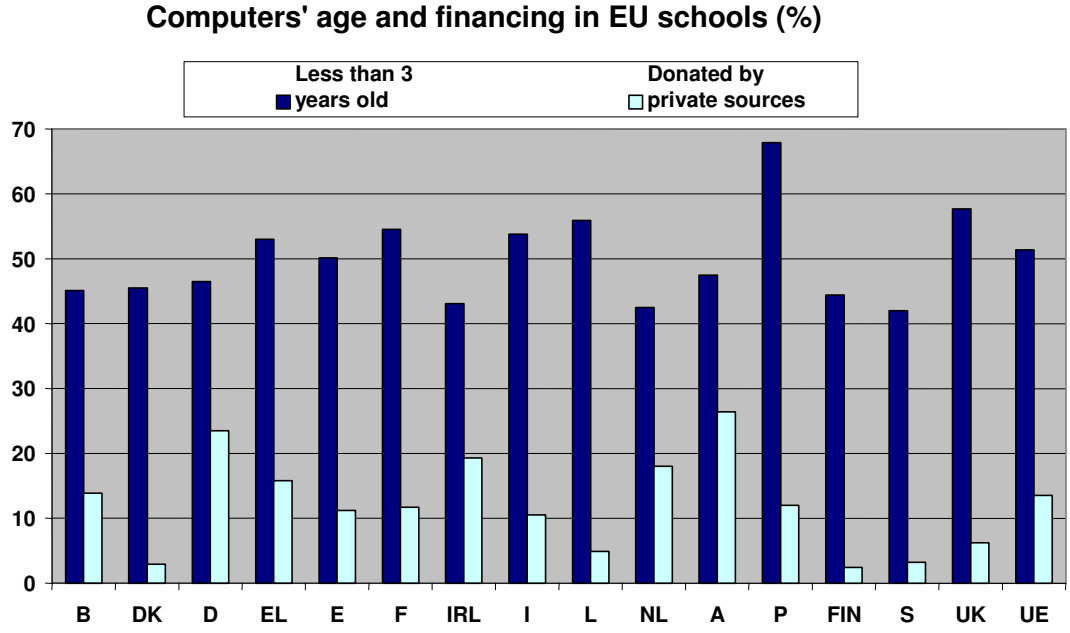
There are also significant differences regarding Web resources between, on the hand, primary schools and, on the other, secondary and professional/technical schools, though the latter are at an advantage. On average, 74% of professional/technical and 69% of secondary schools that are connected to the Internet have a Website, compared to only 40% of primary schools. Similarly, more than 65% of secondary and professional/technical schools have an Intranet, compared to only 46% of primary schools. Again, this may be linked to the size of schools, primary schools being on average almost half the size of secondary and professional/technical schools[8].

2.4. Main characteristics of the equipment

Computers used by pupils in EU schools are fairly recent, with half of them being less than three years old. This is a positive factor as most of these computers should have the speed and multimedia capabilities needed to exploit fully the potential of the Internet and educational software. This figure has not changed since 2001, which suggests that computers installed in the EU are being continually renewed. However, this conclusion must be seen in the light of the analysis of the situation in each Member State.

Most EU countries are around the average. However, Portugal does significantly better at 68%. It is in Sweden, the Netherlands, Ireland, Belgium, Denmark and Germany that the percentage of computers less than three years old is lowest (42 to 46%). Denmark, Sweden and the Netherlands are among the EU countries with the lowest number of pupils per computer, probably because they started to equip their schools earlier than other countries, which would suggest that they are now confronted with the ageing of their equipment. Conversely, the very favourable situation in Portugal seems to be the result of a recent effort to catch up. The changes in the situation need to be followed since, although the computers available to pupils are in overall terms now more modern in eight Member States, the trend in seven other countries is the opposite.

8 The exact figures from the Flash 118 survey are as follows: on average, primary schools have 257 pupils, secondary schools 590 pupils and professional/technical schools 463 pupils.



The figures for 2002 confirm that the age of computers is not related to the geographical location of schools. The differences according to the level and type of education are very limited, with equipment tending to be very slightly older in primary schools (50% of computers less than three years old) than in secondary schools (53%) and professional/technical schools (56%). The gap between schools of different sizes is tending to close.

On average, 13.5% of school computers have been donated by private sources (15% in 2001). The situation varies considerably from one country to another: private sponsorship is particularly important in Germany and Austria, where around a quarter of computers come from private sources and, to a lesser extent, in Ireland, the Netherlands and Greece (between 15 and 20%). Private sponsorship is particularly low in Finland, Denmark, Sweden and Luxembourg (maximum 5%). Compared with 2001, there is a general downward trend. Only France and Italy have seen a slight increase in private sponsorship.

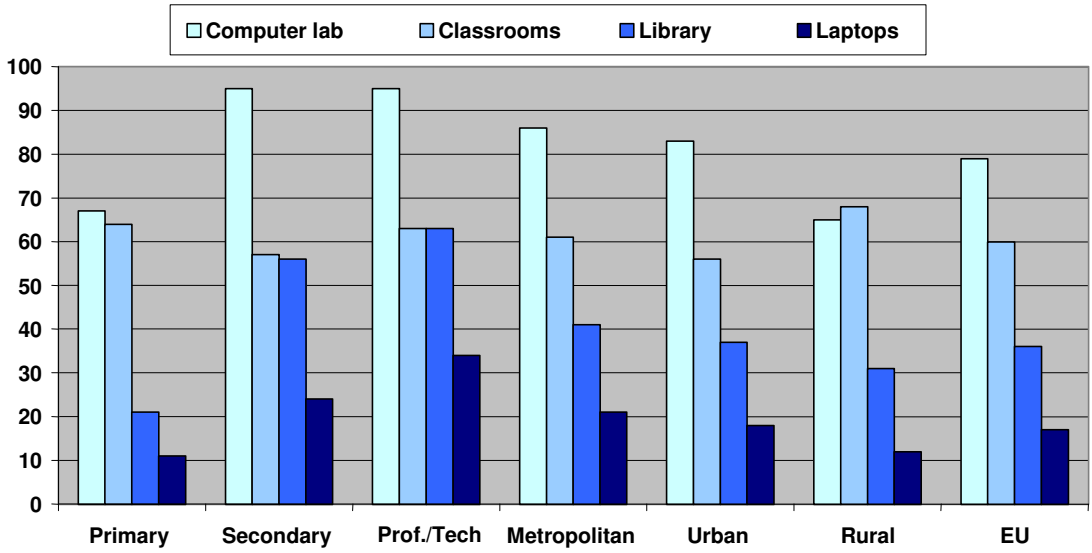
The main beneficiaries of private donations are metropolitan schools (16%) and rural schools (14%), compared with 12% for urban schools. More striking are the differences by level and type of education: **in primary schools, nearly one in five computers has been donated by private sources.** The figures are less than one in ten in secondary education and one in twenty in professional/technical education. Generally, the reduction in private donations affects schools in all levels and types of education, but in particular primary schools (fall from 20% to 17.5% between 2001 and 2002), in all geographical areas, except urban areas, and all sizes, except the largest (more than 600 pupils).

The average computer used for education in the EU:
- *Is fairly recent;*
- *Has been paid for with public money;*
- *is installed in a special room.*

The main location where pupils have access to computers on school premises is the computer lab: **8 schools out of 10 equipped with computers have a computer lab.** The second main location

is the classroom: 6 schools out of 10 with computers have classrooms fitted with computers. In 36% of schools, the school library has computers for pupil use. In addition, 17% of schools are equipped with laptops.[9] All these figures have increased since 2001.

Main locations for access to computers in EU schools that have computers (%)



Geographical factors seem to have an influence on the place where computers are situated. Computer labs are more widespread in schools in metropolitan/urban areas (more than 80%) than in rural schools (65%). Conversely, the proportion of schools that have equipped classrooms is higher in rural areas (68%) than in metropolitan areas (61%) or urban areas (56%).

Again, there are important differences between, on the one hand, primary schools, and, on the other, secondary and professional/technical schools. These findings could be related to the size of schools combined with geographical location: on average, primary schools are smaller and a larger percentage of them are located in rural areas. It may be more appropriate to put computers directly into classrooms in smaller schools where a computer lab may not be a cost-efficient solution, or even possible, and where libraries may be too small. Another major factor may be usage. It is likely that the pedagogical context may require different practices in primary than in secondary and professional/technical education. However, purely quantitative research does not allow any conclusions to be drawn on the matter.

With regard to schools' discretion as regards the purchase of equipment and software, the choice of type of Internet connection and teacher training, it is generally high: 86% of schools make their own decisions as regards the choice of software, 73% as regards teacher training in computing and the Internet, 70% as regards the choice of equipment and 64% as regards the type of Internet connection. However, there are still substantial variations between Member States: in Greece, Luxembourg, Portugal and, to a lesser extent, Spain, the degree of autonomy is below the EU average. Analysing the situation by level and type of education, there is slightly greater autonomy in

9 A given school may combine two or more of these options at the same time.

professional/technical schools than in primary and secondary schools. The degree of autonomy tends to increase with the size of the school.

3. TEACHERS

The main aim of the Eurobarometer Flash 119 survey carried out in January and February 2002 was to get an overview of the usage made by EU teachers of computers and the Internet both in class and at home, of whether or not they had been trained to use these tools, and to find out their opinion about them. It is based on interviews with 500 head teachers in each EU country[10] and follows on from the Eurobarometer Flash 101 survey carried out a year before between February and May 2001. Comparison of the findings of these two surveys makes it possible to identify the changes taking place among European teachers.

3.1. Use of computers and the Internet

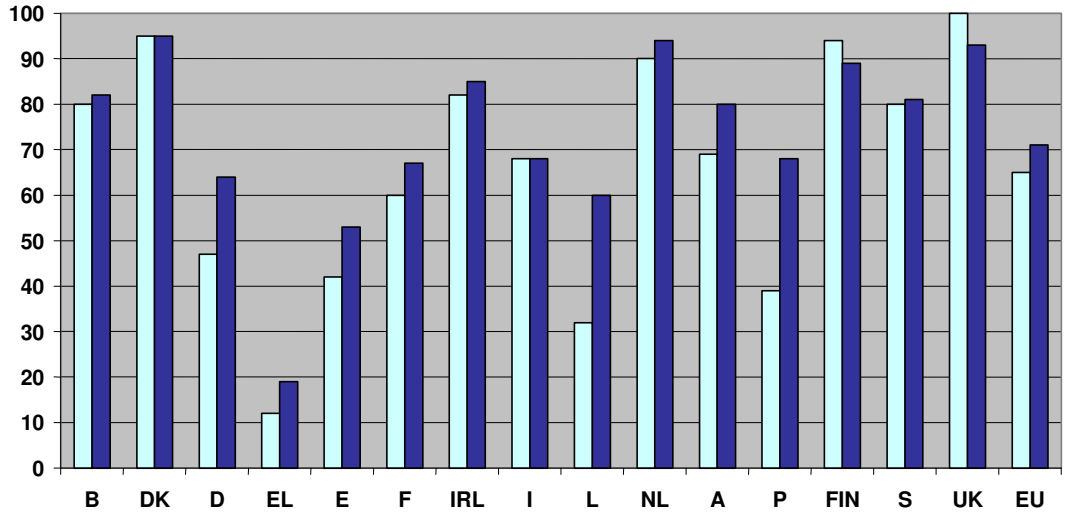
A growing number of EU teachers who do not have computing as their main subject use computers off-line: 71% as compared with 65% in 2001. Taking all levels and types of education together, the proportion of teachers using a computer in class has increased most in the countries with the lowest percentage of users, in particular in Portugal and Germany. However, there has been a fall in some countries which have the highest number of teachers using computers (Finland, UK). Eight Member States now have an average of more than 80%, and only two are below 60%.

Comparing the situation between different levels and types of education shows that professional/technical education has caught up with primary education as regards the proportion of teachers who use a computer, which has risen from 61 to 77%. Secondary education has also seen a sharp rise, from 56% to 66%. In primary education, where the use of computer off-line was already very widespread, the increase is smaller (from 71 to 76%).

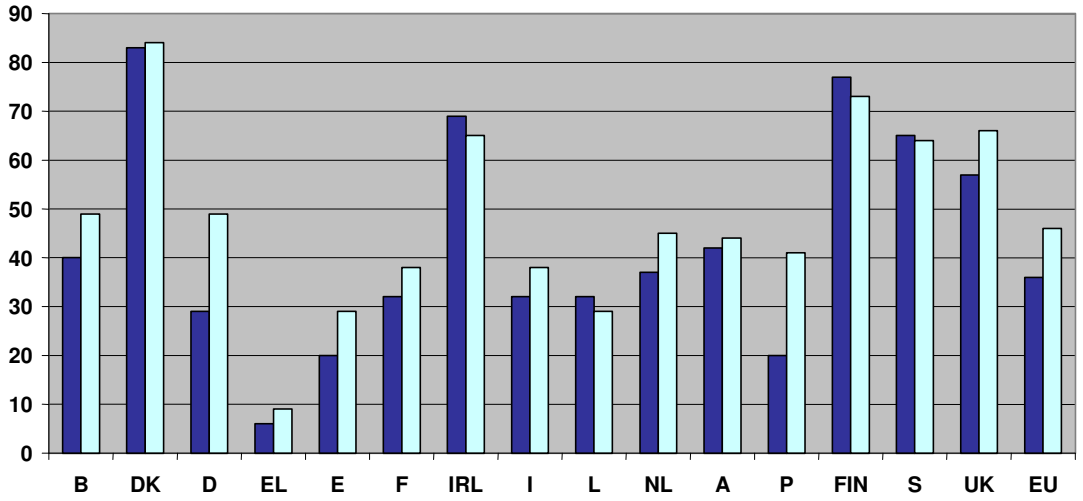
There has been a further sharp rise in use of the Internet by EU teachers who do not have computing as their main subject: 46% compared with 36% in 2001. There is still a large gap between the proportion of teachers who use an off-line computer and those who use the Internet with their pupils, but this gap is closing.

[10] See footnote 2.

Change in the proportion of teachers who use computers with their pupils between 2001 and 2002 (%)
(doesn't include teachers of computing)



Change in the proportion of teachers who use the Internet with their pupils between 2001 and 2002 (%)
(doesn't include teachers of computing)



On the whole, the gaps between countries are shrinking considerably. The most spectacular progress can be seen in the countries where the proportion of teachers who use the Internet in class with their pupils was lowest, in particular Portugal (a doubling from 20% to 41%) and Germany (an increase from 29% to 49%). Conversely, in some countries where use of the Internet in class is already very widespread, there has been a slight drop (Sweden, Ireland, Finland). It could be that, after the initial curiosity and enthusiasm, some teachers have decided not to use the Internet in class. However, only a qualitative study could identify this, if it is confirmed in future surveys.

Primary education is still the level at which the Internet is least used by teachers in class, with usage having risen only from 34% in 2001 to 39% in 2002. In secondary education, the average has risen from 37 to 50%, and in professional/technical education from 42 to 58%.

Apart from the level and type of education, one of the major factors in determining use of computers and the Internet is gender. The difference was already significant for the use of computer off-line (77% of male teachers compared with 66% of female teachers), but is now considerable as regards use of the Internet (56% of male teachers compared with 38% of female teachers), and is increasing (figure for 2001: 44% for men and 31% for women).

Use of a computer and the Internet by teachers:

- *a growing majority use a computer off-line;*
- *Internet use is growing, but is still less than one in two teachers;*
- *the differences between Member States are diminishing, but are still substantial;*
- *the type of education and gender remain the decisive factors.*

Another major factor for the use of a computer and the Internet is age, but its importance is falling. The percentage of teachers using computers falls with age, from 80% for the 20-29 year age group to 71-74% for the 30-49 year age group, and 66% for teachers aged over 50 (the proportion varied between 75% and 60% in 2001). Similarly, the level of Internet use in class varies from 53 to 43% depending on age (compared with 44% to 33% in 2001).

3.2. Frequency of computer and Internet use

Data concerning the frequency of off-line computer and Internet usage confirm the previous findings and allow for some fine-tuning.

The average weekly non-Internet use of computers has been stable during the year at four and a half hours. The average weekly use of the Internet has been increasing slightly and is two and a half hours (2h 12 min. in 2001).[11]

This level of stability nevertheless hides the changes according to the type and level of education and the subject taught. The general trend is towards a slight fall in the average duration of computer use and stagnation in the average length of use of the Internet. This must probably been seen in terms of the increase in the number of teachers who use the Internet. The main exception is as regards teachers of computing, for whom there is almost a doubling in the period of use of computers (from 9 to 16 hours) and the Internet (from 4 to 7 hours).

In addition to teachers of computing, teachers in secondary education specialised in professional and technical subjects also make intensive use of computers off-line (about eight hours a week) and the Internet (three and a half hours a week). Secondary school teachers in other subjects (science, social sciences, humanities, languages) trail far behind at less than three hours of off-line computer use and more or less two hours of Internet use a week. The profile of primary school teachers is very much the same, although their use of computers off-line is higher (about four hours). **This confirms the strong correlation between usage level and subjects taught.**

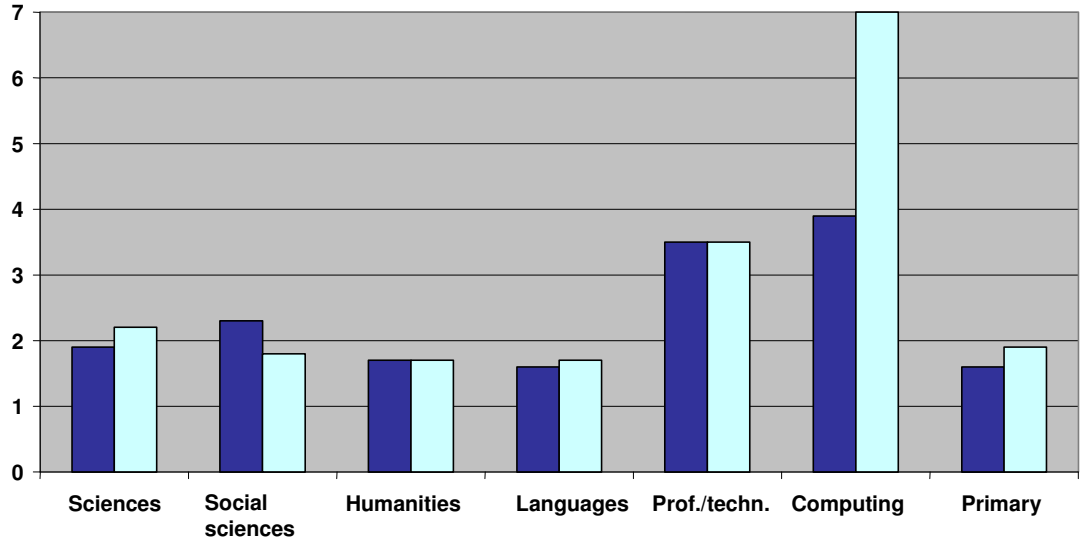
As far as the Member States are concerned, the trend is one of stability and even a drop in the average use of computers and the Internet in most EU schools. Austria and, to a

[11] These averages are calculated on the basis of teachers actually using computers and the Internet, not the total number of teachers.

lesser extent, the UK are exceptions, with a sharp rise in the average length of use of computers, and a sharper rise as regards the Internet.

Change in average weekly hours of computer use

(teachers using the Internet in class)

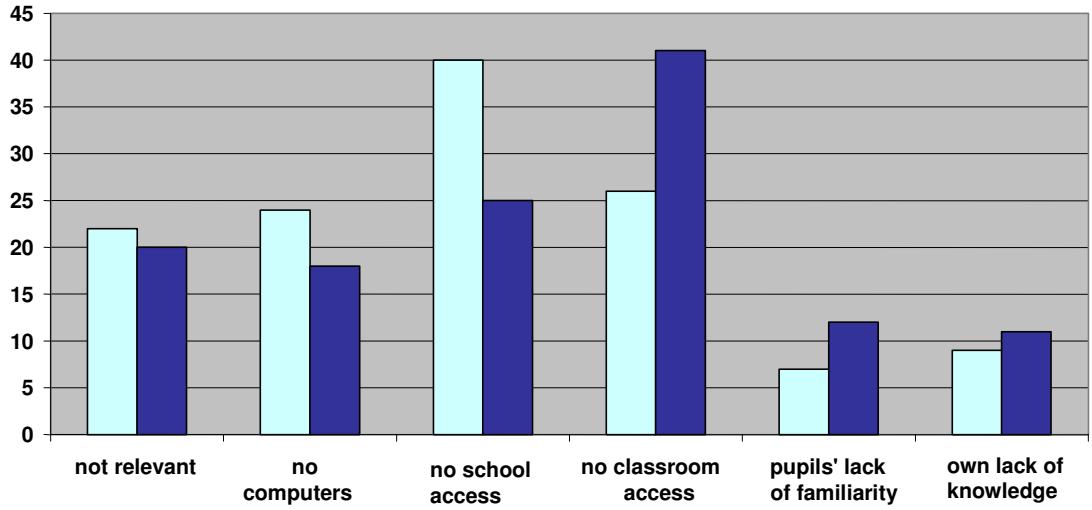


Besides type and level of subjects taught, the survey confirms that gender continues to have a major influence in determining usage patterns, **with female teachers tending to use computers and the Internet less than their male colleagues**. Hence, the average weekly use of computers is five hours for men and less than four hours for women. Internet use is close to three hours for male teachers and only two hours for female teachers. In addition, this gap is tending to increase slightly. These findings are consistent with previous findings on computer and Internet take-up. The importance of gender must also be seen in relation to findings in primary education, where women account for more than two-thirds of all teachers, while genders are more balanced in secondary and professional/technical education.

3.3. Main reasons for not using the Internet

Despite the major progress in Internet usage, more than half of EU teachers still do not use the Internet in class. **The main reasons put forward by teachers who do not use the Internet in class are the equipment and connectivity**. Unlike last year, **it is the lack of Internet access in class which is put forward as the main reason** (41% against 26% in 2001) **and the lack of a connection in schools as the secondary reason** (25% against 40% in 2001). This is followed, at levels on the whole close to those for 2001, by the lack of relevance of the Internet to the subject taught (20%), the lack of access to computers (18%), the lack of technical back-up (13%), the lack of pupil familiarity (12%), the lack of familiarity by teachers themselves (11%), and the fact that schools to not always appreciate the use of the Internet (5%).

Changes in main reasons given for not using the Internet between 2001 and 2002 (%)
(teachers who do not use the Internet)



The situation varies considerably from one country to another. On the whole, reasons related to the equipment and connectivity are more frequently put forward in the countries with the lowest levels of equipment and use. However, this correlation is not systematic.

With regard to the suitability of the Internet for the subject taught, this reason tends to be put forward more frequently in the countries (Denmark, Sweden) or for the levels and types of education (36% in professional/technical education, 26% in secondary education and only 14% in primary education) where the level of equipment and use is high. Unfortunately, the raw data available do not make it possible to determine to what extent this opinion is that of a small number of teachers who are reluctant to use the Internet or whether it is based on actual experience. It is likely that, for some subjects taught, the Internet does not as yet provide sufficient resources to justify its use or is simply not suitable.

3.4. Opinions regarding the Internet

Teachers in the EU who use the Internet in class on the whole seem very convinced of its usefulness. 57% find it useful (compared with 52% in 2001), and 41% occasionally useful (compared with 46% in 2001). Only 1% of EU teachers do not find it useful. The level and type of education, gender and age have little influence on these findings.

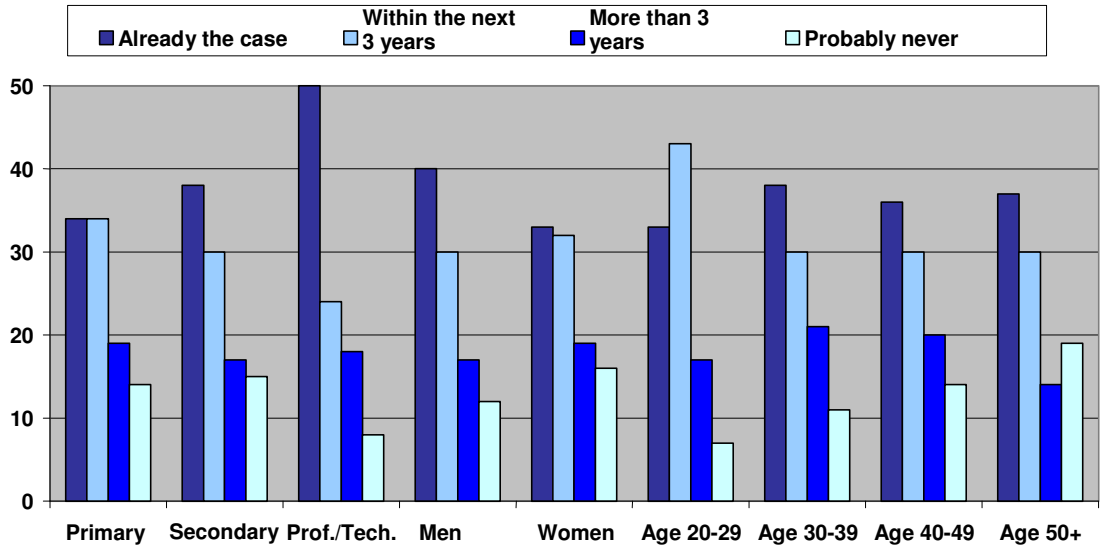
Opinions are mainly favourable in all Member States. However, there are significant differences between teachers who find the Internet useful and those who find it only occasionally useful. **The highest proportion of teachers who are enthusiastic about the Internet is generally to be found in countries in which the level of equipment and usage is lowest,** in particular Portugal (91%), Spain (75%) and Greece (71%). As in 2001, enthusiasm is most moderate in Sweden: only 36% of teachers find the Internet useful. As regards negative opinions, these are marginal in all EU countries.

The Internet is changing the way in which the vast majority of teachers who use it teach: 37% confirm that the Internet has already changed the way they teach (35% in 2001), 31% believe this will be the case within the next three years (35% in 2001) and 18% think this will probably take more than three years (19% in 2001). Only 14% think the way they teach will probably never change (11% in 2001). **Nearly nine out of ten teachers are therefore convinced that the Internet has already changed or will sooner or later change the way they teach.**

Most teachers find the Internet useful and likely to change the way they teach.

Teachers' opinion on the capability of the Internet to change the way they teach (%)

(teachers who use the Internet)



The figures have been relatively stable over the one-year period, despite the very slight fall. More obvious trends can be seen in the Member States. The percentage of teachers claiming the Internet has already changed the way they teach has increased significantly in Spain (from 39% to 52%) and in France (from 22% to 33%). Likewise, the proportion of teachers who do not foresee any changes in the way they teach is clearly increasing in Italy (from 13% to 25%), Germany (from 10% to 19%) and the Netherlands (from 7% to 16%) and, to a lesser extent, in Finland and Sweden. Conversely, the figure is falling markedly in Austria (from 15% to 7%) and Belgium (from 11% to 6%).

Teachers in professional/technical education are the fastest to change the way they teach. Gender and age are the main obstcles to educational changes as a result of the Internet.

There are also further significant variations according to gender, age and level and type of education. The number of male teachers who have already changed the way they teach has increased from 28% in 2001 to 40% in 2002, while the figure for female teachers is somewhat stagnant at just over 30%. In addition, the youngest teachers (20-29 years old) have caught up with their elders: the proportion of teachers who have already changed the way they teach has increased from 23% to 33%, though it is still stable at over 35% for the other age groups. At the same time, there is further resistance to any change as a result of the Internet depending on age. This is particularly marked in male teachers over 50 (up from 12% to 19%). These changes are very closely linked to the very sharp increase in the number of teachers of computing, the percentage of whom who have changed the way they teach has risen from 41% to 55%, while the figure is stable for other subjects. Nearly one out of two teachers in professional/technical education claim they have already changed the way they teach (48% compared with 41% in 2001), while the figures for secondary and primary education remain stable at 37% and 33%.

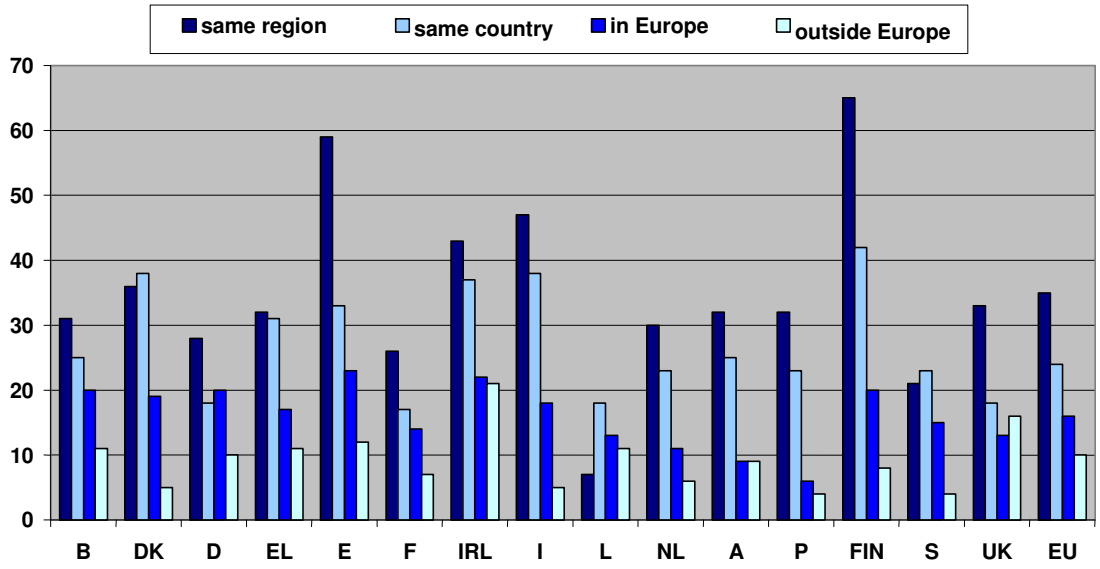
3.5. Main uses of computers and the Internet

Teachers make a wide range of uses of computers and the Internet: 77% use it as a teaching support in addition to or instead of a school book, 76% to search for information, 72% for practical exercises, 63% for the exploitation of information and data, and for the presentation of assignments or projects, and 55% to get in touch with other schools.

Of particular importance from a European point of view is the use of the Internet to get in touch with other schools. Indeed, this could help young Europeans to find out about young people in other EU countries and contribute to a better knowledge of their language and culture. Finding out about each other could contribute to European construction. However, figures are still disappointing: **while one out of two teachers uses the Internet to network with other schools, only 16% use it to get in touch with a school in another EU country**. Teachers mostly get in touch with schools in the same region (34%) and the same country (24%), and exceptionally with a country outside Europe (10%). These figures are very much the same as last year.

Differences according to gender, age and the level and type of education broadly follow the same patterns as in 2001. The main trends are, firstly, that male teachers are more enthusiastic networkers than their female colleagues (58% against 47%) and, secondly, that the youngest female teachers (20-29 years old) are very much less inclined to use the Internet to communicate with other schools than their elders (34% against 58% for the over 30 age group).

Teachers who use the Internet to get in touch with other schools (%) (Only teachers who use the Internet)



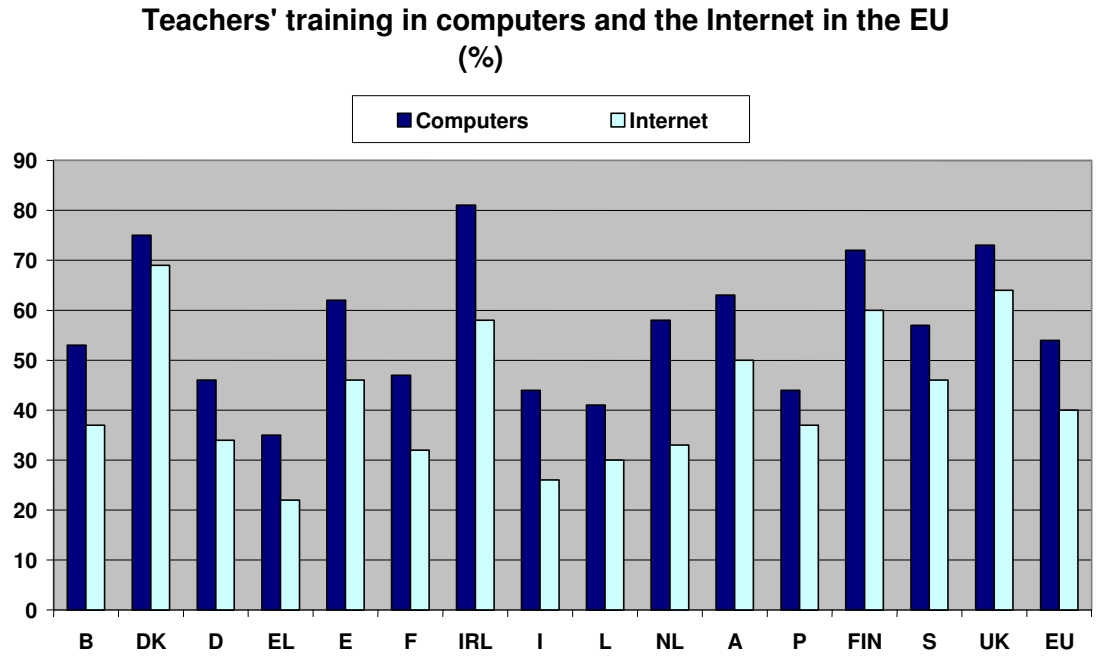
3.6. User training for computers and the Internet

It has been shown above that a small proportion of 10% of teachers say that their lack of knowledge about the Internet is their reason for not using it. This may be because a large proportion of teachers are familiar with computing: **more than half of them have been on an official training course in how to use a computer and 40% in the use of the Internet**.[12] Further progress is nevertheless still necessary since 44% of EU teachers have not received any official training. However, it should be noted that, as stated below, nearly eight teachers out of ten have an Internet connection at home, which, though not training, contributes to their familiarity with the Internet.

Teacher training seems to be largely unaffected by gender, age, the level and type of education or the subject taught, except as regards teachers of computing, a large number of whom have received training (68%). It is nevertheless surprising to note that a third of them have not been given any official training in the use of computers or the Internet. By contrast, the proportion of trained teachers varies from one Member States to another, in part reflecting the differences in terms of equipment and connectivity.

For the majority of teachers who have been given official training, the last training given is recent: during the last 12 months for 58% of them. This percentage is highest in the UK (82%) and lowest in Greece (21%). In all Member States, except Greece, the last training given was less than three years ago in the case of more than 80% of trained teachers. As regards the level of education, there is a slightly higher percentage of recently trained teachers in primary schools.

[12] These figures are on the whole close to those for 2001. However, there is a problem in comparing with 2001 in that the title of the question "Have you received official training in the use of a computer/the Internet in your school?" was extended, in 2002, to include the following definition: "'Official training' means 'training organised or recognised by the educational authorities'". This detail may have led to variations in replies.



In most EU schools, the average length of training is around 40 hours. Training which is shorter on average is given in Austria and the Netherlands (about 30 hours), and in France and the UK (about 20 hours). Conversely, the average length of training is highest in Portugal (about 60 hours) and higher still in Greece (about 110 hours).

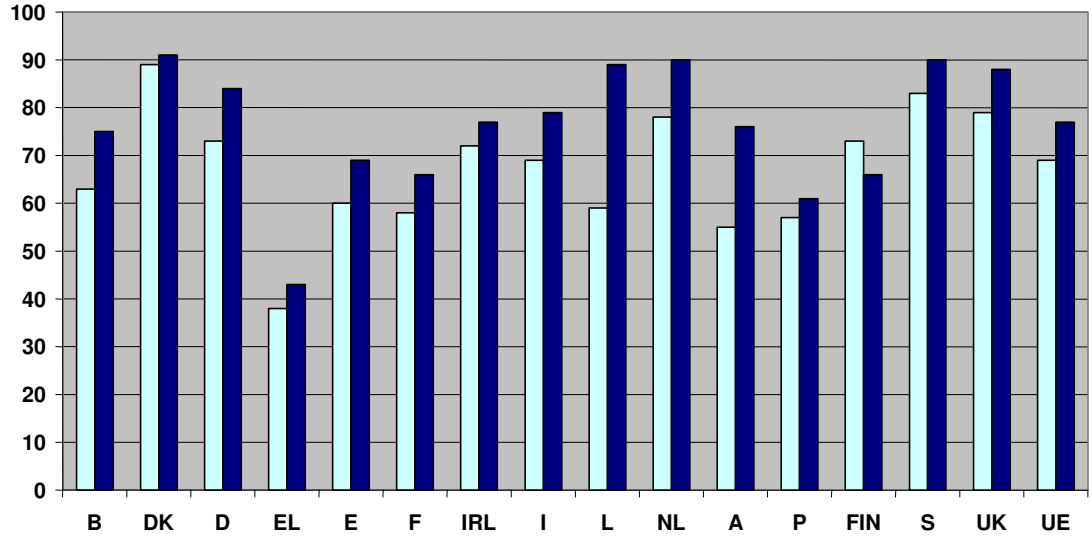
Two-thirds of teachers confirm that no account is taken of their computer and Internet skills for career assessment. These figures are particularly low in Germany and France (less than 1%). On the other hand, they are exceptionally high in Denmark and the UK (above 50%). However, there does not seem to be any automatic link between the level of equipment and use and the consideration of technological skills. More account seems to be taken of skills for the youngest teachers (40% of the 20-29 age group, 30% for the 30-49 age group, and 24% for the over 50 age group), in primary and professional/technical education (more than 30% compared with 24% in secondary education), and obviously among teachers of computing (50%). Of the 29% of teachers who state that account is taken of their technological skills, a minority of 6% feel they are not sufficiently taken into account.

3.7. Computer and Internet use at home

The level of teachers' equipment at home is extremely high: nine out of ten teachers have a computer at home (91% against 88% in 2001) and nearly eight out of ten have an Internet connection (77% against 69% in 2001).

There are no significant differences between Member States regarding computers: the level of teachers' equipment at home is around the average for all of them, except Greece (62%). **Discrepancies are greater regarding Internet connections, but the progress made in this respect since 2001 is considerable and to be found almost everywhere.**

Change in the proportion of teachers with an Internet connection at home between 2001 and 2002 (%)



In all the countries, more than 60% of teachers have an Internet connection at home, except in Greece (43% against 38% in 2001). The leading countries, with more than 80%, are Denmark, the Netherlands, Sweden, Luxembourg, the UK and, more surprisingly considering the level of school equipment and connectivity, Germany. There are no significant differences according to gender and age, the level and type of education, or the subject taught, either for teachers' computer equipment or for access to the Internet at home. **Overall, the picture is much less contrasted than at school level.**

The range of uses which teachers make of computers and the Internet at home is vast: 92% use it for private purposes, 89% to prepare teaching material, 78% to look for information for lessons, 72% for school administrative tasks and, far fewer, 17% to communicate with pupils and parents. This figure is only high in Denmark and Sweden where it applies to one-third of teachers.

The extensive availability of Internet connections at home should be a factor in getting the Internet to be used in class everywhere. The wide range of uses which teachers make of the Internet at home and the high percentage of teachers who use the Internet at home compared with the more limited proportion of teachers who use it with their pupils, especially in countries where school equipment and connectivity levels are still lower, suggest there is a substantial reserve of teachers who could use the Internet in class.

4. CONCLUSION

The above findings confirm the broad variety of situations and approaches observed in 2001 as regards the development and usage patterns of computers and the Internet from one Member State to another. Variations are also related to the level and type of education, the geographical location of schools, and the teachers' gender, age and main subject taught.

i. As far as each Member State is concerned, one group of countries is still ahead in terms of equipment and connectivity and the use of computers and the Internet. However, the differences in relation to countries around the average are tending to diminish. Conversely, a small number of Member States are still lagging behind, although the countries furthest behind in 2001 have made the most progress.

   The figures for the EU as a whole are encouraging and illustrate the importance attached by the Member States to the development of new technology in teaching: there are no more than 10 pupils per computer and 17 pupils per computer connected to the Internet; half of the computers used for education are less than three years old; pupils have access to the Internet in 85% of schools; 95% of schools connected to the Internet use e-mail, while more than half have a Website and an Intranet.

ii. Regarding the level and type of education, i**t is in professional and technical education that the new technologies are most widespread, both in terms of the number of teachers who use them and frequency of use.**

   The use of computers off-line is now as widespread in professional/technical education as in primary education (nearly 8 teachers out of 10 who do not teach computing as their main subject, against nearly 7 out of 10 in secondary education). In addition, the greater importance attached to the Internet in professional/technical education and to a lesser extent in secondary education, has led to a sharper increase in the use of the Internet than in primary education: 6 out of 10 teachers who do not teach computing as their main subject use the Internet in class in professional/technical education, 5 out of 10 in secondary education and 4 out of 10 in primary education.

iii. Looking at teachers, the main conclusion is that **European teachers seem extremely open towards new technology and its use in teaching. The main obstacles to wider acceptance of computer and the Internet are still linked to equipment issues:** the lack of Internet access in schools, the lack of computers, inability to access the Internet in classrooms. As in 2001, only one teacher in five who does not use the Internet states that it is not relevant to their teaching. Of teachers who use the Internet in class, only 1% believe the Internet is not useful

   This openness towards technology may be partly explained by the relatively high level of teacher training Europe and the larger number of teachers who use the new technology at home: nearly 5 out of 10 teachers have received training in the use of computers and 4 out of 10 in the use of the Internet; 9 out of 10 teachers have a computer at home and nearly 8 out of 10 an Internet connection. For most teachers, the last training received was recent, testifying to the interest shown by teachers and/or the education authority.

One major concern is that the differences in the level of take up and frequency of use of new technology still depend on whether the teacher is a man or a woman and that this trend is increasing.

ANNEX 1: BENCHMARKING

The tables below provide data for the European Union as a whole as well as for all Member States for some of the key issues studied in the surveys.

1) Number of computers per 100 pupils in schools:

	2001				2002			
	Primary	Second-ary	Profess./ techn.	All schools	Primary	Second-ary	Profess./ techn.	All schools
Belgium	9,0	12,4	32,3	10,2	10,1	12,1	26,5	11,0
Denmark	23,5	66,9	42,4	30,6	23,6	65,1	42,2	31,1
Germany	4,3	7,1	3,5	4,9	5,9	9,1	11,5	7,0
Greece	1,5	6,0	18,3	4,9	1,3	7,6	13,0	5,0
Spain	6,9	7,4	27,0	7,2	8,6	11,1	34,0	10,6
France	6,4	10,5	37,8	9,5	7,4	13,3	41,5	11,7
Ireland	8,6	12,1	79,9	10,9	8,9	12,5	56,0	9,6
Italy	4,5	11,1	12,5	5,5	5,1	11,0	11,6	6,4
Luxembourg	45,8	16,0	8,9	32,2	15,0	10,1	13,1	13,9
Netherlands-Bas	11,9	11,0	30,3	12,5	12,8	11,1	13,8	12,6
Austria	9,3	11,7	17,2	11,0	8,7	13,2	20,1	11,6
Portugal	3,8	5,7	15,4	4,0	6,8	13,4	21,0	7,5
Finland	13,4	14,8	30,1	16,6	13,6	14,1	28,0	16,0
Sweden	10,1	23,1	22,3	15,3	10,8	19,6	49,3	13,6
UK	8,5	15,5	n.a.	11,1	11,0	18,4	55,4	14,5
EU	6,8	11,3	24,0	8,3	8,2	13,7	34,1	10,2
Norway	n.a.	n.a.	n.a.	n.a.	18,6	37,3	87,3	23,4
Iceland	n.a.	n.a.	n.a.	n.a.	14,9	22,7	90,7	15,5

(Base: All EU schools. Source: Flash 101, Flash 118)

2) Number of computers connected to the Internet per 100 pupils in schools:

	2001				2002			
	Primary	Second-ary	Profess./ techn.	All schools	Primary	Second-ary	Profess./ techn.	All schools
Belgium	3,0	7,0	17,9	4,1	3,7	7,5	16,7	4,6
Denmark	16,7	49,8	37,1	22,7	18,6	53,3	40,3	25,3
Germany	1,6	4,4	2,1	2,5	2,4	6,4	8,3	4,1
Greece	0,5	2,3	9,4	1,9	0,5	4,2	5,8	2,5
Spain	2,6	3,6	14,4	3,3	4,6	7,4	25,0	6,4
France	2,1	4,6	14,3	3,8	3,1	7,8	22,7	6,1
Ireland	3,3	7,6	53,5	5,5	4,3	8,6	33,1	5,0
Italy	1,7	5,2	5,3	2,2	2,1	6,7	7,0	2,9
Luxembourg	17,7	14,9	8,9	21,0	4,1	8,8	13,1	7,1
Netherlands	2,3	6,5	19,6	3,6	4,7	8,6	12,4	5,4
Austria	2,6	9,5	13,8	6,0	2,7	10,5	17,5	6,3
Portugal	1,8	2,5	9,6	1,9	4,7	8,5	14,7	5,1
Finland	8,4	13,3	25,9	12,7	8,9	13,3	24,9	12,0
Sweden	7,3	19,9	19,1	11,8	8,3	17,3	42,3	10,9
UK	4,3	11,2	n.a.	6,5	7,3	15,8	48,5	10,7
EU	2,7	6,5	12,1	4,0	4,1	9,6	23,6	5,9
Norway	n.a.	n.a.	n.a.	n.a.	11,1	28,2	49,8	15,3
Iceland	n.a.	n.a.	n.a.	n.a.	11,0	19,0	28,9	11,7

(Base: All EU schools. Source: Flash 101, Flash 118)

3) Schools connected to the Internet (%)

	2001				2002			
	Primary	Second-ary	Profess./ techn.	All schools	Primary	Second-ary	Profess./ techn.	All schools
Belgium	90	96	94	91	91	99	98	93
Denmark	98	99	100	98	100	100	100	100
Germany	90	98	97	94	98	99	98	99
Greece	22	58	85	45	28	85	92	59
Spain	91	95	98	94	91	97	100	94
France	63	97	98	84	75	99	99	89
Ireland	96	99	100	98	99	100	100	99
Italy	87	98	97	89	87	94	92	88
Luxembourg	86	100	100	92	50	100	100	67
Netherlands	91	100	100	93	92	95	60	92
Austria	53	95	96	72	90	99	100	94
Portugal	56	91	100	62	92	94	87	92
Finland	99	99	97	99	98	100	100	99
Sweden	100	100	100	100	99	100	100	99
UK	93	98	n.a.	95	98	100	100	99
EU	84	96	97	89	90	98	99	93
Norway	n.a.	n.a.	n.a.	n.a.	99	100	100	99
Iceland	n.a.	n.a.	n.a.	n.a.	100	100	100	100

(Base: All EU schools. Source: Flash 101, Flash 118)

4) Schools in which the Internet is used in teaching (%)

	2001				2002			
	Primary	Second-ary	Profess./ techn.	All schools	Primary	Second-ary	Profess./ techn.	All schools
Belgium	78	93	91	82	77	90	96	81
Denmark	97	97	98	97	99	100	100	99
Germany	67	93	89	80	79	93	89	87
Greece	22	56	88	44	17	80	88	51
Spain	57	78	90	71	62	82	99	74
France	56	93	95	78	69	96	98	85
Ireland	94	98	100	96	97	97	100	97
Italy	77	95	91	80	77	90	92	80
Luxembourg	50	100	100	73	39	100	100	60
Netherlands	77	92	95	80	83	100	100	86
Austria	38	94	96	64	47	98	97	70
Portugal	44	89	92	52	89	94	83	89
Finland	97	100	95	98	98	99	99	99
Sweden	97	95	90	96	98	100	100	99
UK	90	97		93	96	99	100	97
EU	71	91	92	80	79	93	96	85
Norway	n.a.	n.a.	n.a.	n.a.	96	99	98	96
Iceland	n.a.	n.a.	n.a.	n.a.	100	97	100	100

(Base: All EU schools. Source: Flash 101, Flash 118)

5) Type of Internet connection in schools (%)

	Standard dial-up	ISDN line	ADSL line	Cable modem	Other
Belgium	37	58	16	18	4
Denmark	3	16	26	3	53
Germany	23	86	25	4	8
Greece	37	69	1	2	3
Spain	28	42	43	2	1
France	42	41	21	7	5
Ireland	74	27	0	0	1
Italy	25	69	13	1	1
Luxembourg	11	37	4	0	56
Netherlands	11	53	6	35	6
Austria	28	49	15	11	0
Portugal	28	74	1	1	0
Finland	11	35	12	4	43
Sweden	10	28	19	4	42
UK	28	77	12	6	8
EU	28	64	19	6	7
Norway	5	73	11	2	11
Iceland	12	42	22	18	9

(Base: EU schools that are connected to the Internet - Multiple answers possible. Source: Flash 118)

6) Web resources in schools connected to the Internet (%)

	Schools that have an e-mail address	Schools that have a Web page	Schools that have an Intranet	Schools that have a helpdesk
Belgium	89	48	41	43
Denmark	98	80	76	67
Germany	94	62	48	16
Greece	81	32	42	22
Spain	95	45	43	33
France	96	43	44	28
Ireland	96	29	24	35
Italy	93	51	72	14
Luxembourg	76	63	64	66
Netherlands	98	54	54	84
Austria	97	55	55	26
Portugal	79	37	33	26
Finland	89	76	25	41
Sweden	91	82	70	80
UK	96	61	72	89
EU	95	55	55	39
Norway	98	58	46	59
Iceland	99	87	79	76

(Base: EU schools that are connected to the Internet. Source: Flash 118)

7) Teachers who use computers off-line when teaching (%)

	2001				2002			
	Primary	Second-ary	Profess./ techn.	All schools	Primary	Second-ary	Profess./ techn.	All schools
Belgium	86	63	57	80	88	65	68	49
Denmark	88	86	100	95	90	89	92	84
Germany	37	46	67	47	45	64	69	49
Greece	12	12	19	12	18	20	12	9
Spain	45	37	58	42	54	49	67	29
France	76	51	56	60	77	61	68	38
Ireland	97	68	54	82	97	70	73	65
Italy	65	80	80	68	66	74	92	38
Luxembourg	27	35	41	32	78	40	44	29
Netherlands	96	70	88	90	97	82	100	45
Austria	59	83	69	69	74	88	90	44
Portugal	39	38	43	39	75	53	58	41
Finland	95	82	84	94	94	75	75	73
Sweden	80	78	67	80	80	78	100	64
UK	100	100	n.a.	100	96	88	95	66
EU	71	56	61	65	74	65	74	46
Norway	n.a.	n.a.	n.a.	n.a.	92	92	76	92
Iceland	n.a.	n.a.	n.a.	n.a.	69	59	43	67

(Base: teachers who do not have computing as a main subject. Source: Flash 102, Flash 119)

8) Teachers who use the Internet when teaching (%)

	2001				2002			
	Primary	Second-ary	Profess./ techn.	All schools	Primary	Second-ary	Profess./ techn.	All schools
Belgium	34	45	47	40	46	54	46	49
Denmark	69	79	96	83	70	81	92	84
Germany	12	31	41	29	19	51	51	49
Greece	4	7	8	6	7	11	6	9
Spain	18	21	33	20	24	34	67	29
France	27	33	38	32	29	42	52	38
Ireland	82	57	50	69	73	56	70	65
Italy	26	54	59	32	32	59	69	38
Luxembourg	27	35	41	32	24	30	32	29
Netherlands	34	40	69	37	40	64	100	45
Austria	23	66	42	42	21	72	83	44
Portugal	18	22	43	20	43	37	46	41
Finland	78	73	63	77	74	66	75	73
Sweden	54	67	40	65	51	68	78	64
UK	56	58	n.a.	57	65	66	79	66
EU	34	37	42	36	39	50	58	46
Norway	n.a.	n.a.	n.a.	n.a.	63	84	62	71
Iceland	n.a.	n.a.	n.a.	n.a.	40	43	33	42

(Base: teachers who do not have computing as a main subject:. Source: Flash 102, Flash 119)

9) Average weekly length of off-line computer use in class (hours)

	2001				2002			
	Primary	Second-ary	Profess./ techn.	All schools	Primary	Second-ary	Profess./ techn.	All schools
Belgium	2,8	1,6	1,5	2,6	3.1	1.2	1.8	2.7
Denmark	1,9	2	5,9	2,9	2	1.7	3.3	2.6
Germany	0,9	1,4	3	1,6	1.1	1.5	2.6	1.7
Greece	0,4	0,4	0,8	0,4	0.5	0.5	0.2	0.5
Spain	1,1	0,8	1,2	1	1	.9	6.6	1.1
France	2,3	1,6	2,5	2,3	1.9	1.8	2.5	2.4
Ireland	5,2	2,4	1,2	3,7	4.2	1.7	2.3	3.2
Italy	1,7	2,8	2,6	1,9	2	1.3	2	1.9
Luxembourg	2,1	2,3	2	0,8	1.9	0.6	0.8	1.3
Netherlands	7	2	5,6	5,8	5.8	2	2.2	5
Austria	1,1	0,9	2,1	1	2.2	2.6	3.3	2.4
Portugal	0,8	0,4	0,7	0,7	1.5	1.2	2.1	1.5
Finland	2,6	1	4,7	2,8	1.8	2	4.9	2
Sweden	3,9	2,5	9,7	3,1	3	2.6	3.1	2.9
UK	7,2	3,6	n.a.	6	5.7	2.9	3.4	5.1
EU	3,2	1,7	2,6	2,6	2.8	1.7	2.7	2.5
Norway	n.a.	n.a.	n.a.	n.a.	2.3	1.8	1.9	2.4
Iceland	n.a.	n.a.	n.a.	n.a.	2	2.9	1.1	2.3

(Base: teachers using computers off-line with their pupils. Source: Flash 102, Flash 119)

10) Average weekly length of Internet use in class (hours)

	2001				2002			
	Primary	Second-ary	Profess./ techn.	All schools	Primary	Second-ary	Profess./ techn.	All schools
Belgium	0,6	0,7	0,7	0,7	1	1	0.8	1
Denmark	1,2	1,8	3,1	2,2	0.8	1.4	2.3	1.5
Germany	0,2	0,6	0,7	0,6	0.2	1.1	1	1.1
Greece	0,1	0,2	0,3	0,2	0.2	0.2	0.1	0.2
Spain	0,3	0,4	0,4	0,4	0.4	0.5	2	0.5
France	0,3	0,5	0,7	0,6	0.2	0.7	1	0.7
Ireland	2	0,9	1,2	1,4	1	0.8	1.6	1
Italy	0,4	1	1	0,5	0.6	0.7	1.4	0.6
Luxembourg	0,5	0,7	0,4	0,6	0.5	0.5	0.4	0.5
Netherlands	0,7	1	1,2	0,8	1	0.9	2.7	1
Austria	0,2	0,6	1	0,4	0.5	1.6	2.6	1.1
Portugal	0,3	0,2	0,4	0,3	0.5	0.6	1.1	0.5
Finland	1,1	1,1	1	1,1	1	1.3	2.4	1.2
Sweden	0,9	1,3	0,7	1,2	1	1.7	2.3	1.5
UK	0,9	1,4	n.a.	1,1	1.5	1.4	2	1.7
EU	0,5	0,7	0,7	0,7	0.7	0.9	1.2	0.9
Norway	n.a.	n.a.	n.a.	n.a.	1.2	1.4	1.8	1.5
Iceland	n.a.	n.a.	n.a.	n.a.	1	1.7	0.8	1.2

(Base: teachers who do not have computing as a main subject Source: Flash 102, Flash 119)

11) Teachers' main reasons for not using the Internet (%)

	Not relevant to subject	No computer access	No Internet access in school	No Internet access in classroom	Too few children familiar	No technical back-up	Use not appreciated in school	Does not know how to use the Internet
Belgium	13	24	37	69	20	20	10	12
Denmark	61	8	8	11	3	1	0	1
Germany	23	31	23	82	20	32	6	15
Greece	15	27	28	15	3	6	2	14
Spain	20	21	16	49	11	14	3	9
France	19	11	22	24	8	7	6	19
Ireland	15	19	13	30	4	5	0	5
Italy	19	13	42	28	12	8	7	9
Luxembourg	33	18	34	38	14	12	10	7
Netherlands	11	6	34	33	5	4	0	3
Austria	21	17	27	39	3	2	1	3
Portugal	16	17	23	16	10	7	1	12
Finland	13	7	8	40	2	0	1	2
Sweden	54	26	3	20	10	6	2	7
UK	15	12	14	33	13	3	1	2
EU	20	18	25	41	12	13	5	11
Norway	40	24	12	58	17	13	17	9
Iceland	41	16	4	31	11	2	0	2

(Base: teachers not using the Internet in class – Multiple answers possible. Source: Flash 119

12) Teachers officially trained in the use of computers and/or the Internet (%)

	Computer training	Internet training	No training at all
Belgium	53	37	44
Denmark	75	69	25
Germany	46	34	52
Greece	35	22	65
Spain	62	46	35
France	47	32	50
Ireland	81	58	18
Italy	44	26	55
Luxembourg	41	30	57
Netherlands	58	33	40
Austria	63	50	37
Portugal	44	37	54
Finland	72	60	27
Sweden	57	46	42
UK	73	64	26
EU	54	40	44
Norway	77	63	22
Iceland	73	59	26

(Base: all teachers - Multiple answers possible. Source: Flash 119)

13) Teachers with a computer and Internet connection at home (%)

	2001		2002	
	Computer	Internet connection	Computer	Internet connection
Belgium	92	63	96	75
Denmark	94	89	96	91
Germany	94	73	97	84
Greece	63	38	62	43
Spain	88	60	91	69
France	84	58	85	66
Ireland	85	72	87	77
Italy	84	69	89	79
Luxembourg	90	59	94	89
Netherlands	95	78	99	90
Austria	88	55	92	76
Portugal	90	57	91	61
Finland	88	73	87	66
Sweden	91	83	97	90
UK	89	79	93	88
EU	88	69	91	77
Norway	n.a.	n.a.	89	77
Iceland	n.a.	n.a.	95	89

(Base: All teachers - multiple answers possible. Source: Flash 119)

ANNEX 2: METHODOLOGY

The surveys Eurobarometer Flash 118 "Head teachers and the information society" and Eurobarometer Flash 119 "Teachers in the information society" were carried out by telephone by EOS Gallup Europe.

The target of the survey Flash 118 "Head teachers" was defined as "all schools frequented by pupils aged up to 18 years old". The person interviewed in each school was the one responsible for the school's didactical and administrative operation, i.e. the "head teacher" or "director". The results were presented country by country, as well as according to the main characteristics of the school, i.e. the type and level of education, the size of the school and its geographical location (metropolitan, other town, rural).

The target of the survey Flash 119 "Teachers" was defined by the European Commission as "all teachers giving courses to pupils aged up to 18 years old". The results were presented country by country, as well as according to the main characteristics of teachers, i.e. the level and type of teaching, gender and age.

For both surveys, the interviews were carried out between 6 January and 28 February 2002 using samples of about 500 people per country (except Greece: 45 head teachers and 398 teachers). The statistical margin of error is therefore fairly low for the EU and for all countries, except as regards questions covering all people surveyed. Where questions concern one particular category, the analysed portion of the sample may obviously be very small, i.e. professional/technical teachers in the Netherlands: four persons.

As the total distribution of the interviews does not correspond to the actual distribution of schools and teachers across the EU, a weighting factor has been applied to the national samples to establish the total for the EU. It corresponds to the population of each Member State.

Details of the sample size are given below.

Head teachers' survey (EB 118)	Interviews (7.1.2002 to 28.2.2002)
Belgium	512
Denmark	467
Germany	478
Greece	500
Spain	500
France	519
Ireland	499
Italy	505
Luxembourg	45
Netherlands	500
Austria	500
Portugal	500
Finland	499
Sweden	500
UK	483
EU	7007
Norway	503
Iceland	228
Primary	4002
Secondary	1583
Profess./technical	325
Several levels	1097
Metropolitan	1389
Urban centres	3102
Rural area	2516
1-150 pupils	2317
151-300 pupils	1871
301-600 pupils	1724
+ 600 pupils	1095

Teachers' survey (Flash 119)	Interviews (7.1.2002 to 28.2.2002)
Belgium	502
Denmark	500
Germany	501
Greece	500
Spain	504
France	520
Ireland	500
Italy	506
Luxembourg	398
Netherlands	493
Austria	500
Portugal	501
Finland	501
Sweden	494
UK	503
EU	7423
Norway	
Finland	
Primary	3751
Secondary	2621
Profess./technical	418
Several levels	633
Men	3195
Women	4228
20-29 years	802
30-39 years	1792
40-49 years	2526
+ 50 years	2182

The results of a survey are valid only between the limits of a statistical margin of error inherent in the sampling process. This margin defines a "confidence interval" around the observations and varies according to three factors:

1. The sample size (or the analysed part of the sample): the greater the number of respondents, the smaller the statistical margin of error.

2. The result itself: the closer the result gets to 50%, the wider the margin of error.

3. The desired degree of confidence: the higher it is, the wider the margin of error.

4. The table below gives the statistical margins calculated for various observed results, and sample sizes, at the 95% degree of confidence.

Observed results are in columns and sample sizes are in rows.

	5%	10%	15%	20%	25%	30%	35%	40%	45%	50%	55%	60%	65%	70%	75%	80%	85%	90%	95%	
n= 50	6.0	8.3	9.9	11.1	12.0	12.7	13.2	13.6	13.8	13.9	13.8	13.6	13.2	12.7	12.0	11.1	9.9	8.3	6.0	n=50
n= 75	4.9	6.8	8.1	9.1	9.8	10.4	10.8	11.1	11.3	11.3	11.3	11.1	10.8	10.4	9.8	9.1	8.1	6.8	4.9	n= 75
n=100	4.3	5.9	7.0	7.8	8.5	8.9	9.3	9.6	9.8	9.8	9.8	9.6	9.3	8.9	8.5	7.8	7.0	5.9	4.3	n=100
n=150	3.5	4.8	5.7	6.4	6.9	7.3	7.6	7.8	8.0	8.0	8.0	7.8	7.6	7.3	6.9	6.4	5.7	4.8	3.5	n=150
n=200	3.0	4.2	4.9	5.5	6.0	6.4	6.6	6.8	6.9	6.9	6.9	6.8	6.6	6.4	6.0	5.5	4.9	4.2	3.0	n=200
n=250	2.7	3.7	4.4	5.0	5.4	5.7	5.9	6.1	6.2	6.2	6.2	6.1	5.9	5.7	5.4	5.0	4.4	3.7	2.7	n=250
n=300	2.5	3.4	4.0	4.5	4.9	5.2	5.4	5.5	5.6	5.7	5.6	5.5	5.4	5.2	4.9	4.5	4.0	3.4	2.5	n=300
n=400	2.1	2.9	3.5	3.9	4.2	4.5	4.7	4.8	4.9	4.9	4.9	4.8	4.7	4.5	4.2	3.9	3.5	2.9	2.1	n=400
n=500	1.9	2.6	3.1	3.5	3.8	4.0	4.2	4.3	4.4	4.4	4.4	4.3	4.2	4.0	3.8	3.5	3.1	2.6	1.9	n=500
n=600	1.7	2.4	2.9	3.2	3.5	3.7	3.8	3.9	4.0	4.0	4.0	3.9	3.8	3.7	3.5	3.2	2.9	2.4	1.7	n=600
n=700	1.6	2.2	2.7	3.0	3.2	3.4	3.5	3.6	3.7	3.7	3.7	3.6	3.5	3.4	3.2	3.0	2.7	2.2	1.6	n=700
n=800	1.5	2.1	2.5	2.8	3.0	3.2	3.3	3.4	3.5	3.5	3.5	3.4	3.3	3.2	3.0	2.8	2.5	2.1	1.5	n=800
n=900	1.4	2.0	2.3	2.6	2.8	3.0	3.1	3.2	3.3	3.3	3.3	3.2	3.1	3.0	2.8	2.6	2.3	2.0	1.4	n=900
n=1000	1.4	1.9	2.2	2.5	2.7	2.8	3.0	3.0	3.1	3.1	3.1	3.0	3.0	2.8	2.7	2.5	2.2	1.9	1.4	=1000
	5%	10%	15%	20%	25%	30%	35%	40%	45%	50%	55%	60%	65%	70%	75%	80%	85%	90%	95%	

For instance, for a question that has been answered by 500 people, if the analysed result is around 50% and the chosen degree of confidence is 95% (this is the degree of confidence most frequently used by statisticians, and the one chosen for the table above), the statistical margin of error is +/- 4.4% around the observed 50%. Consequently, there is a 95% likelihood that the result for the total population is between 45.6% and 54.4%.

ANNEX 3: QUESTIONNAIRES

Head teachers' questionnaire

1A. In your school, how many computers are used for educational purposes?

1B. For each level of education in your school, how many computers are used for educational purposes?
a) in primary education
b) in secondary education
c) in professional/technical education?

2. Of the computers used for education, approximately what percentage is connected to the Internet?

3. Of the computers used for education, approximately what percentage is less than three years old?

4. Of the computers used for education, approximately what percentage has been donated by private sources?

5. Where are the computers located that are used for educational purposes?
a) in a computer lab
b) in the classrooms
c) in the school's library
d) you have laptops
e) or elsewhere?

6. Does your school have access to the Internet by means of:
a) a standard telephone line
b) an ISDN line (Integrated Services Digital Network)
c) an ADSL line (Asymmetric Digital Subscriber Line)
d) a special modem using the television cable
e) another means of connection
f) (the school is not connected to the Internet)?

7. Does your schools have: (yes – no)
a) an e-mail address?
b) a Web page?
c) an internal PC network (Intranet)?
d) access to a helpdesk?

8. Does your school have decision-making power on: (yes - no)
a) the choice of hardware?
b) the choice of software?
c) the Internet access type?
d) teacher training in this field?

Teachers' questionnaire

1A. On average, how many hours a week do you use the Internet with your pupils in class?
a) in primary education
b) in secondary education
c) in professional/technical education?

1B. Besides their use for the Internet, on average how many hours a week do you use computers with your pupils?
a) in primary education
b) in secondary education
c) in professional/technical education?

2A. Why don't you use the Internet in your teaching?
- you don't see the relevance of the Internet to your teaching programme
- you don't have access to computers
- you don't have access to the Internet at school
- you don't have access to the Internet in your classroom
- too many children are unfamiliar with the Internet
- there is no technical assistance in your school
- use of the Internet is not appreciated in your school
- you don't know how to use the Internet
- other

2B. Apart from the Internet, why don't you use a computer in your teaching?
- you don't see the relevance of computers for your teaching programme
- you don't have access to computers
- you don't have access to the desired software
- too many children are not familiar with computers
- there is no technical assistance in your school
- in your schools, there is no encouragement to use computers
- you don't know how to use a computer
- other

3. What is your opinion on the Internet as a tool to support your teaching programme? Do you think the Internet is:
- useful
- occasionally useful
- not useful

4. In your opinion, is the Internet likely to lead to significant changes in the way you teach? Do you think that:
- this is already the case
- it will probably be the case in three years
- it will probably take longer than three years
- it will probably never be the case?

5. Do you use the Internet to connect with other schools?
- yes, with schools in your region
- yes, with schools in your country

- yes, with schools in Europe
- yes, internationally
- no

6. With your pupils, do you use computers or the Internet:
   - to support your teaching instead of in addition to a school book
   - for practical exercises
   - to find information
   - to exploit information or data
   - for the presentation of assignments or projects

7A. Have you received official training for the use in your teaching of:
   - computers
   - the Internet
   - neither of these two

7B. (If answer is yes): When were you given your last official training?
   - during the last twelve months
   - between one and three years ago
   - more than three years ago

7C. (If answer is yes): How many hours was this training?

8. Is account taken of your computer or Internet skills in your career evaluation?
   - yes
   - yes, but not enough
   - no

9. Do you have:
   - the use of a computer at home?
   - an Internet connection at home?

10. Do you use your computer or Internet at home:
   - for school administration tasks
   - to prepare material for teaching support
   - to find information to prepare classes
   - to communicate with your pupils or their parents?
   - for private use?