

Benchmarking Access and Use of ICT in European Schools 2006: Results from Head Teacher and A Classroom Teacher Surveys in 27 European Countries

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The presentation will present results from Europe-wide surveys of head teachers and classroom teachers in 27 countries in 2006. The surveys find that computers and the Internet have arrived in European schools and are widely used in class in most countries. A strong increase in ICT use took place over the past 5 years and schools have moved over to broadband. The first measurement available for the New Member States also shows encouraging signs.

The study is a continuation of the earlier benchmarking exercise for eEurope 2002. It involved two surveys: a head teacher survey of more than 10,000 head teachers to obtain information on the schools and a survey of more than 20,000 classroom teachers to focus on their use of ICT for educational purposes. Both were carried out in spring 2006 in all 25 EU Member States, Norway, and Iceland. Concise Country Briefs for each of the 27 countries include information on the ICT equipment and internet in schools, their use in class, comparisons of the situation in 2001 and 2006, attitudes on ICT use by teachers, results on access, competence and motivation for using ICT in school and the ICT readiness of teachers.

Keywords: ICT and internet use in European schools; barriers to ICT use in schools; benchmarking, EU25 surveys of head teachers and classroom teachers

1. Study background

There is a lack of information on the actual use of ICT for learning in schools. Through the study that this presentation is based on, the European Commission wants to obtain information on the spread of e-learning in European schools, and relate it to other indicators of educational use of ICT in compulsory education (e-learning in schools). The study also looks in greater detail at how Information and Communication Technologies (ICT) are used in schools, and seeks to gain insight in matters such as educational vision of heads of schools, the current impact of ICTs on teachers practice, support and training and on other factors for success in e-learning. It is part of the Information Society monitoring and benchmarking process for which the Commission in cooperation with the Council defined benchmarking indicators and will support political action in potential future programmes.

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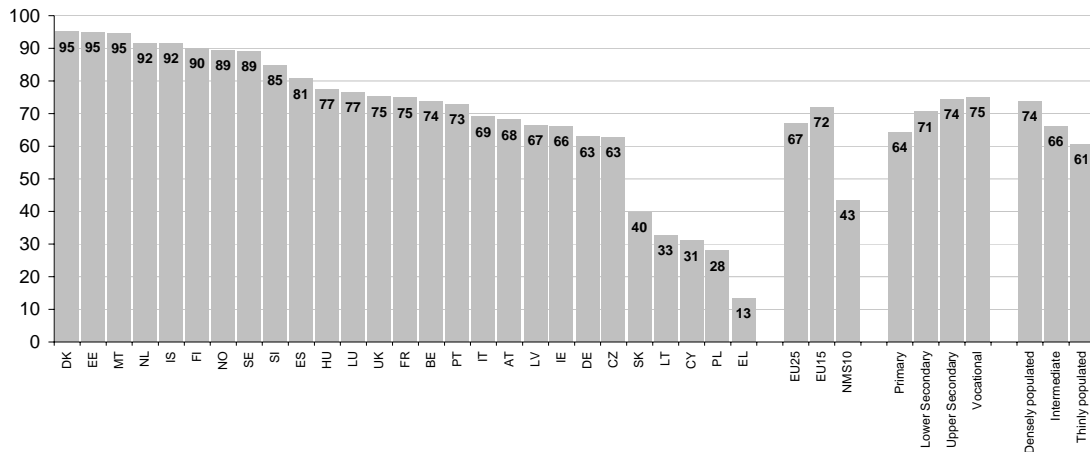
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2. Access to ICT and the internet in European Schools

Computers and the internet have arrived in European schools and are widely used in class in most countries these days. A strong increase in ICT use has taken place over the past 5 years and schools have moved over to broadband. Europe, including several of the new Member States, is on a good way. The European-wide survey of head teachers and classroom teachers finds that with 96% almost all European schools have internet access. In no country the figure goes below 90%.

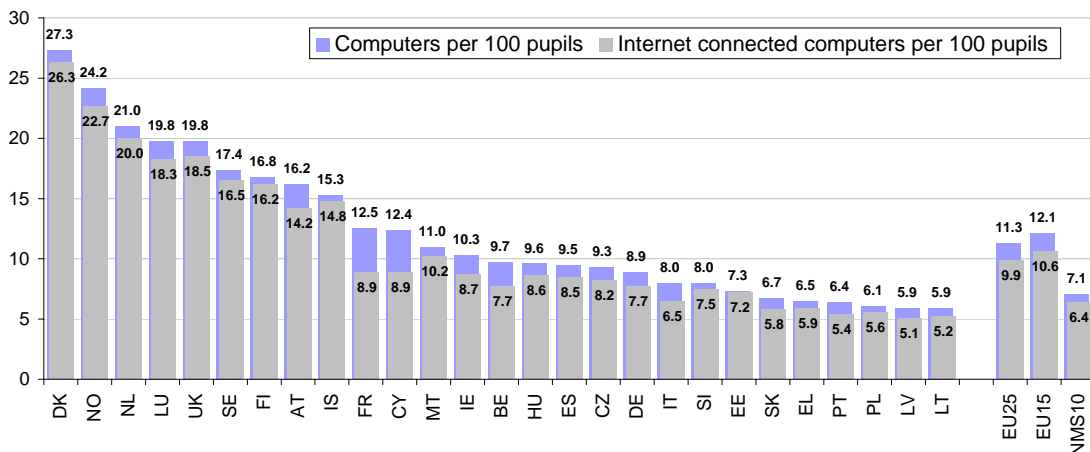
Highest shares of broadband connection in schools can be found in the Nordic countries, the Netherlands, Estonia and Malta where about 90% of the schools have a broadband Internet connection. Whereas Greece, Poland, Cyprus, and Lithuania, have the lowest broadband penetration rates at schools in the EU25, (less than half of the EU25 average of 70%).

Figure 1: Percent of schools having broadband internet access 2006.



Source: empirica LearnInd Head Teacher Surveys 2006

Figure 2: Number of Computers per 100 pupils in European schools 2006.



Source: empirica LearnInd Head Teacher Surveys 2006

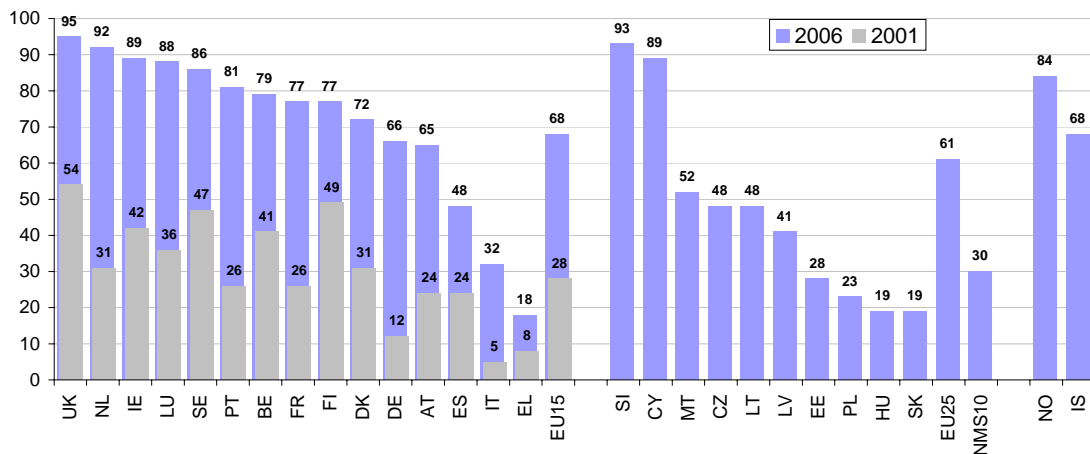
On average, today 9 pupils share a computer in schools in the EU – or in other words, 100 pupils share 11.3 computers. There has been an increase in computer availability since the last measurement in 2001,

which has been for the then-EU15. Currently at "EU15" level there are 8 pupils per computer (while in 2001 substantially more pupils - 12.5 – had to share a computer). The situation looks less positive for the 10 new EU member states. Here the first measurement in 2006 shows that there is still progress to be made since here 14 pupils have to share a computer which is almost twice as many pupils compared to the situation in the old EU member states. These differences are even more pronounced when looking at the individual country level. While in the frontrunner countries such as Denmark, the Netherlands, the United Kingdom, and Luxembourg there are only between 4 and 5 pupils per computer, computer availability is half the EU average in countries such as in Latvia, Lithuania, Poland, Portugal, and Greece, where 17 pupils share a computer.

Between 2001 and 2006, European schools have seen a location shift from having computers in dedicated computer labs towards computer assisted teaching in classrooms. This is not to say that the existing labs are not still used – they are to about the same extent today as in 2001 – but at the same time use in classrooms has radically increased from 28% of schools in 2001 to 68% of schools today. Some countries have seen a radical shift in this regard. In Germany and Italy, today's share of schools providing class room computers is more than five times the figure in 2001. Also Portugal and the Netherlands have seen tremendous increases.

A further positive sign is that there are no major differences in Internet penetration rates between schools located in rural and those in urban areas. However, schools located in densely populated areas still more likely to have broadband internet access than those with a smaller population density.

Figure 3: Percentage of schools providing computers in classrooms 2001 and 2006.



Source: empirica LearnInd Head Teacher Surveys 2006 and Eurobarometer Flash 94/95 2001. No 2001 data available for New Member States, Iceland and Norway.

3. Teachers' use of ICT and internet in class

A positive development can also be observed in teachers' use of computers in class: 74% of teachers report that they have used ICT in class in the last year. Huge variations between countries exist, however, with for example 35% of teachers in Latvia and 36% in Greece, compared to 96% in the UK and 95% in Denmark belonging to the group of recent computer users in class.

Depending on the country and type of school, there are different levels of competence and skills among teachers for using computers in class. Two third are very confident in using text processors, while one third have the necessary skills to develop electronic presentations. ICT skill levels are significantly lower in primary schools, where the necessary skills are available among 30% of the teachers as opposed to

46% and 47% in upper secondary and vocational schools. Two thirds state themselves to be confident and competent in the use of e-mail and slightly more than one third in installing software. Variations across the countries are high with Latvia, Lithuania, France and Portugal being the countries where self-reported ICT skills among teachers are lowest.

Only very few teachers report to have no, or next to no, ICT user experience: this group amounts to only less than 7% of all teachers. It reaches a substantial 31% in Greece followed by Hungary (15%), Latvia (14%) and Slovakia (13%) whereas it is next to zero in Sweden, Denmark, Norway, Finland, the UK, Austria and the Netherlands.

Computers are used in class by teachers of all kinds of subjects. Not surprisingly, the highest share of computer deploying teachers is found among teachers of the subject group "mathematics, science and computer science" (80%). They are, however, closely followed by teachers of "General primary education" (78%), "Vocational education" (77%), and "Humanities and social sciences" (75%). A somewhat smaller share of teachers is found in "Literature and languages" (70%) "Physical and artistic/crafts education" (68%).

4. Barriers to ICT and internet in European schools

In Europe only very few teachers can be regarded as fundamentally opposing the use of ICT in class. 16% of those teachers who do not use computers in class express the opinion that the use of ICT yields "no or unclear benefits". This amounts to only 4% of all European teachers and is particularly true for teachers who have more years teaching experience. Younger teachers not using computers in class seem to be less sceptical about the positive benefits of ICT in learning. However, in some countries – such as Germany - "motivation" to use computers in class among those teachers with longer teaching experience and not yet using ICT in class, remains to be an issue. This can best be illustrated by the fact that in Germany for instance the average teaching experience is at a very high 23 years and the share of teachers not using computers in class arguing that the use of computers in class does not reveal clear benefits is at a very high 48% which is three times higher than the European average.

The vast majority of European teachers see the advantages of ICT use in school and especially of using ICT for letting pupils do exercises and practise (80%). A very high 86% state that pupils are more motivated and attentive when computers and the internet are used in class. There are only small variations on this across countries, with agreement ranging from 73% in Iceland to 95% in Portugal and Cyprus.

However, in some countries there are substantial minorities among teachers who deny that there is much of a pedagogical advantage of computer use in class. A fifth of European teachers believe that using computers in class does not have significant learning benefits for pupils. This holds true especially for Spain (52%), Sweden (48%) and Iceland (47%) followed by Hungary (33%), France (32%), Austria (28%) and Finland (27%). Scepticism about benefits is found to have little relation to the sophistication in use of ICT in schools: it is expressed by teachers in leading countries with regard to ICT use as well as in those countries lagging behind.

There remain to be some infrastructure and equipment related barriers: broadband access is not yet ubiquitous. Still one third of European schools do not have broadband internet access. As described above, in Greece, just 13% of the schools have broadband internet access and also Poland, Cyprus, Lithuania and Slovakia have some way to go. There is a general tendency that the higher the school level the better the internet access in terms of bandwidth.

School-provided e-mail addresses for teachers and pupils as well as a school network can ease collaboration, the forwarding of homework or group work results and the flow of information. However, while today, two thirds of European teachers have an e-mail address provided by the school, only a quarter of

schools offer this to their pupils. More than 40% of European schools have a LAN today, with frontrunners such as Denmark and Iceland reaching figures beyond 60% and 70%. Other countries such as Portugal (9%), Greece (10%), Estonia and Cyprus (17%) and Ireland (18%) have not yet seen as much activity in this regard. Also, differences across school types are substantial.

ICT support or maintenance contracts in schools support teachers to make use of ICT in teaching and not losing time fixing configurations or software and hardware problems. School policies with regard to maintenance contracts with professional ICT service providers appear to vary considerably across Europe. Availability ranges from 12% in Portugal to 82% in the UK with a European average of 47%. In some countries (like the United Kingdom, the Netherlands, Latvia, Malta and the Czech Republic), schools have recognised the importance of maintenance support to motivate teachers to further use ICT in class. In other countries (like Portugal, France and Norway – the latter otherwise being a frontrunner country) hardly any ICT-related support is provided. It is in these countries and schools that the survey has also revealed the highest levels of demand for ICT support or maintenance contract, which for instance in Norway is stated to be lacking and strongly demanded by almost 75% of the teachers.

5. Conclusions and recommendations

Policy recommendations to the EU and Member States include the need for a

- ICT catch-up process necessary in schools in several European countries. This relates to three aspects: firstly, the necessary increase in the number of computers shared between 100 pupils; secondly, the improvement of the type of internet access with the move to a broadband connection; thirdly, the use of ICT for education in classrooms.
- strategy to focus more on primary schools when it comes to the familiarisation of pupils with ICT. Only in three European countries – Germany, Luxembourg and Malta – are primary schools better equipped with ICT in terms of number of computers per 100 pupils. ICT investments in primary schools are probably not (yet) seen as the top political objective at which to aim, with few exceptions.

6. Further information

Concise Country Briefs² for each of the 27 countries include information on the ICT equipment and internet in schools, their use in class, comparisons of the situation in 2001 and 2006, attitudes on ICT use by teachers, results on access, competence and motivation for using ICT in school and the ICT readiness of teachers. In each of them a clear picture of the situation in the different countries is drawn also providing conclusions and specific recommendations for policy makers. For additional information on the key findings of the study please visit:

http://ec.europa.eu/information_society/newsroom/cf/itemlongdetail.cfm?item_id=2888

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² http://ec.europa.eu/information_society/eeurope/i2010/benchmarking/index_en.htm. More information can also be obtained from: www.empirica.com

Author profiles

Werner B. KORTE (49) shares the directorship of empirica with Simon Robinson and is responsible for managing many of the largest Empirical research and development projects in relation to the new forms of work, information society, statistical indicators for benchmarking and regional development. He has been and still is project manager of large-scale international Empirical projects in these areas, providing policy evaluation and assessment to public and private customers, including different DGs of the European Commission, national ministries, federal and regional governments and ministries, and local governments since the early 1980s. He has been responsible for several market research monitoring and benchmarking studies. Some recent projects he has managed include "SIBIS – Statistical Indicators Benchmarking the Information Society" and "EUFORIA – European Foresight Project". He has finished the eUser project where he was deployed as project coordinator to develop a knowledge base and evidence-based support for the design and delivery of user-centric online public services in Europe including the domain of eLearning. Currently he coordinates the BenchPol (Benchmarking in a Policy Perspective) and the LearnInd study (eLearning Policy Indicators 2006: Monitoring and Benchmarking the use of ICT and eLearning in European Schools 2006) for the European Commission, DG INFSO and Media and is responsible for the Silver Economy Network of European Regions (SEN@ER).

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Tobias HÜSING (33) is senior researcher at empirica. His educational background is in economics and sociology. Tobias has been working in quantitative empirical research for many years and has been responsible for survey methodology and statistical analysis in a variety of large-scale pan-European projects. He has been involved in the European research projects SeniorWatch, BISER, SIBIS, e-business W@tch and eUser. Tobias has also been working in projects for IPTS – DG JRC, analysing the digital divide in Central and Eastern Europe, and researching in the field of Independent Living Services. He has written the methodological reports of the 2002 and 2003 European ICT household surveys in a project for Eurostat, which included following up on the worldwide advancement in IS measurement, assessments of the national survey methodology and design paths followed by the involved National Statistical Institutes and recommendations relating to future methodological harmonisation. He is currently working in the project "Benchmarking in a Policy Perspective" analysing Eurostat's ICT household and enterprise survey data, and in a project called "eLearning Policy Indicators 2006" for the DGs INFSO and EAC which includes a pan-European survey of 20,000 teachers and 10,000 head-teachers. His research interests include sociological dimensions of ICT, eInclusion and the digital divide, as well as methods of empirical ICT research and statistical analysis.

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