



Key Data on Learning and Innovation through ICT at School in Europe 2011 Edition

Information and Communication Technologies (ICT) have evolved extremely rapidly over the last ten years and the use of ICT in education is producing changes in teaching practices, methods, contents and evaluation processes.

Building on the previous Eurydice publications on information and communication technologies in schools in Europe, this report focuses on the evolution of ICT use in education and the changes it has brought about in national policies and practices concerning teaching methods, contents and evaluation processes. It examines the EU key competences as well as the promotion of transversal skills and the role of ICT in this process. It also sheds light on the strategies used in countries to train and support teachers in the use of ICT.

If ICT tools are to become effective and integral tools in education, then monitoring and evaluation are essential. The report provides an important set of indicators and insights to assess and enhance the impact of the use of ICT to promote innovation in educational processes and to foster the creative development of students and their digital competences. The latter is one of the priority areas of the EU's Education and Training 2020 strategy.

What is Eurydice?

The **Eurydice Network** provides information on and analyses of European education systems and policies. As of 2011, it consists of 37 national units based in all 33 countries participating in the EU's Lifelong Learning programme (EU Member States, EFTA countries, Croatia and Turkey) and is coordinated and managed by the EU Education, Audiovisual and Culture Executive Agency in Brussels, which drafts its publications and databases.

All Eurydice publications are available free of charge at
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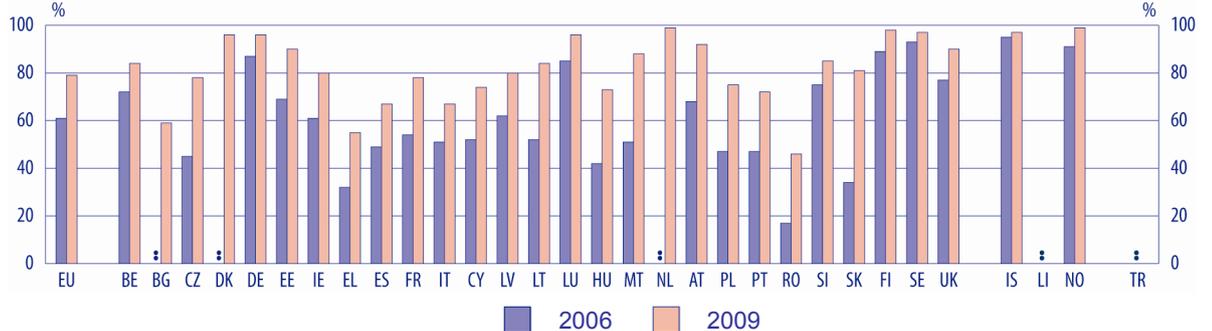
COMPUTERS AND THE INTERNET ARE INCREASINGLY AVAILABLE, HOWEVER COMPUTER USE AT HOME FOR SCHOOL RELATED WORK IS STILL RELATIVELY LOW

By 2009, the percentage of households with children with access to computers and the Internet had increased in all countries. Even countries with a rather low GDP per capita have seen a significant increase.

Recent data from PISA 2009 reveal that students use computers at home mostly for entertainment and quite rarely for school-related activities. In the European

Union almost twice as many students browse the Internet for fun than for schoolwork at least once a week (83 % and 46 % respectively). With slightly lower overall numbers, the same pattern can be seen for the use of email, where 67 % use it in general at least once per week, but only 37 % for school-related work.

Households with dependent children that have home Internet access, 2006 and 2009



Source: Eurostat, Information society and national accounts statistics (data extracted December 2010).

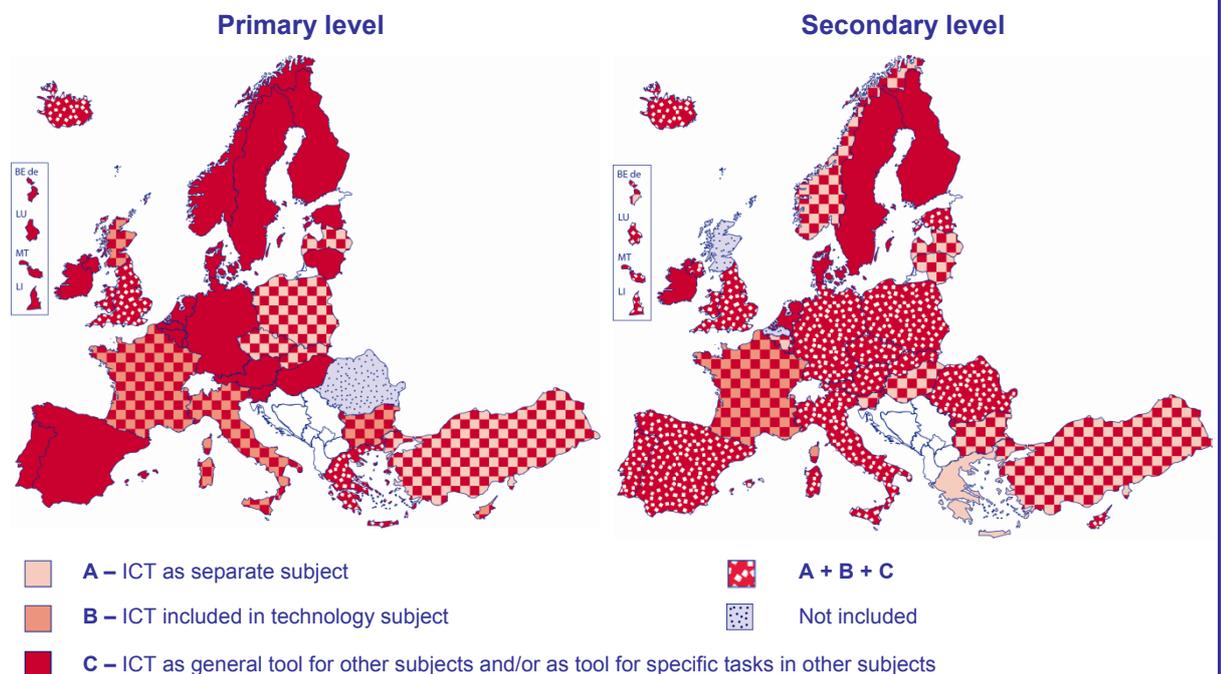
ICT IS WIDELY PROMOTED AT CENTRAL LEVEL AS A TOOL FOR TEACHING AND LEARNING, BUT A LARGE IMPLEMENTATION GAP REMAINS

Although ICT as a subject or as a tool for learning within other subjects is recommended in almost all countries, international survey data reveal a different picture of classroom practice.

According to TIMSS 2007 results, in science classes, around 60 % of students on EU average had teachers

who never required them to use a computer for studying natural phenomena through simulations and 51 % had teachers who never required them to use a computer for carrying out scientific procedures or experiments. At eighth grade, approximately 50 % of students on average had teachers who never required them to use a computer for either of both activities.

Delivery of ICT learning objectives as recommended by central steering documents in primary and general secondary education, 2009/10



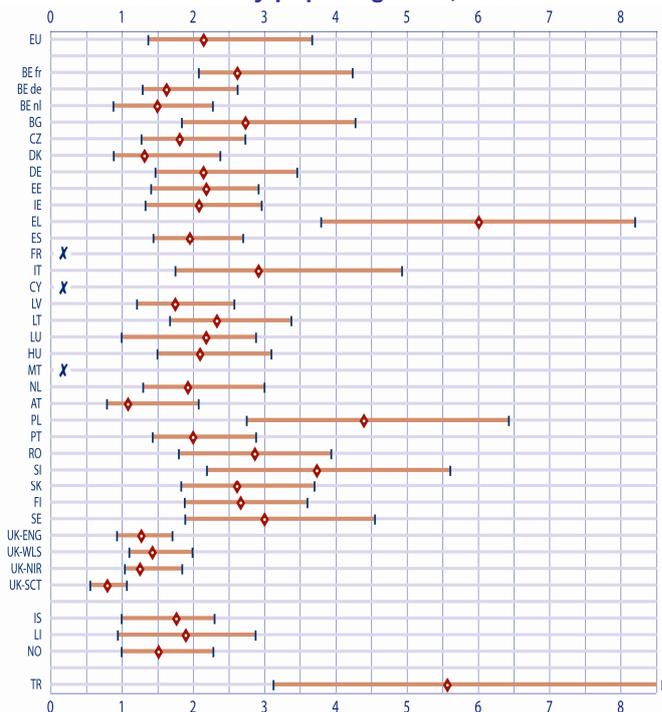
Source: Eurydice.

LESS DISPARITY BETWEEN SCHOOLS REGARDING ICT EQUIPMENT, BUT THE LACK OF ADEQUATE LEARNING SOFTWARE AND SUPPORT STAFF IS STILL AFFECTING STUDENTS' INSTRUCTION

In European countries, according to PISA 2009, at least 50 % of students were in schools where one computer is available for every two students. These data reveal a significant reduction in the disparities between schools in the last 10 years given that in PISA 2000 there were between 25 and 90 students per computer in the different countries.

On average, almost 55 % of students in the fourth grade and 45 % of students in the eighth grade have computers available during their mathematics lessons. Meanwhile school heads who took part in TIMSS 2007 international survey claimed that the shortage or inadequacy of computer software and the lack of ICT support staff considerably affected the mathematics and science instruction of 40 % of students.

Distribution of student/computer ratio in schools attended by pupils aged 15, 2009



X Countries not participating in the survey

Percentile 25 Percentile 50 Percentile 75

Source: OECD, PISA 2009 database.

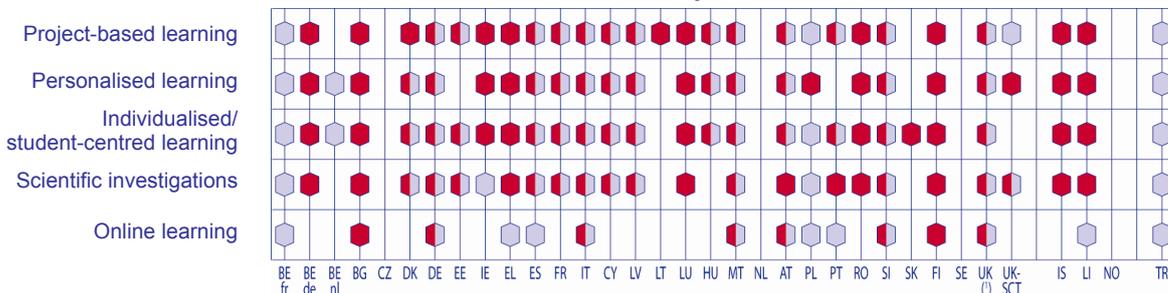
A RANGE OF INNOVATIVE TEACHING METHODS BASED ON ACTIVE AND EXPERIENTIAL LEARNING ARE WIDELY PROMOTED IN EUROPE

The great majority of countries recommends or suggests several innovative pedagogical approaches whereby students learn in ways relevant to their own background, experiences and interests. Moreover, these teaching methods may be effectively enhanced through the use of ICT with the aim to increase students' engagement and improve their results.

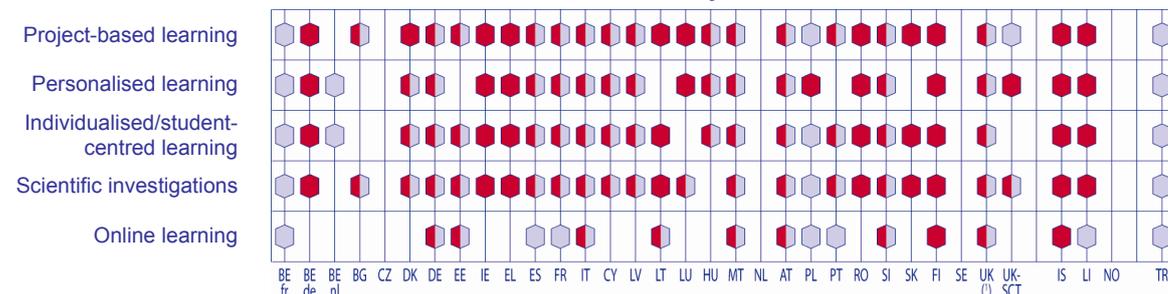
In most countries where innovative pedagogical approaches are recommended or suggested in official documents, support is also available to schools and teachers in the form of advice or help to implement these new teaching methods.

Recommendations/suggestions/support for the use of innovative pedagogical approaches in primary and general secondary education, 2009/10

Primary education



Secondary education



■ Recommendations or suggestions ■ Support UK (1) = UK-ENG/WLS/NIR

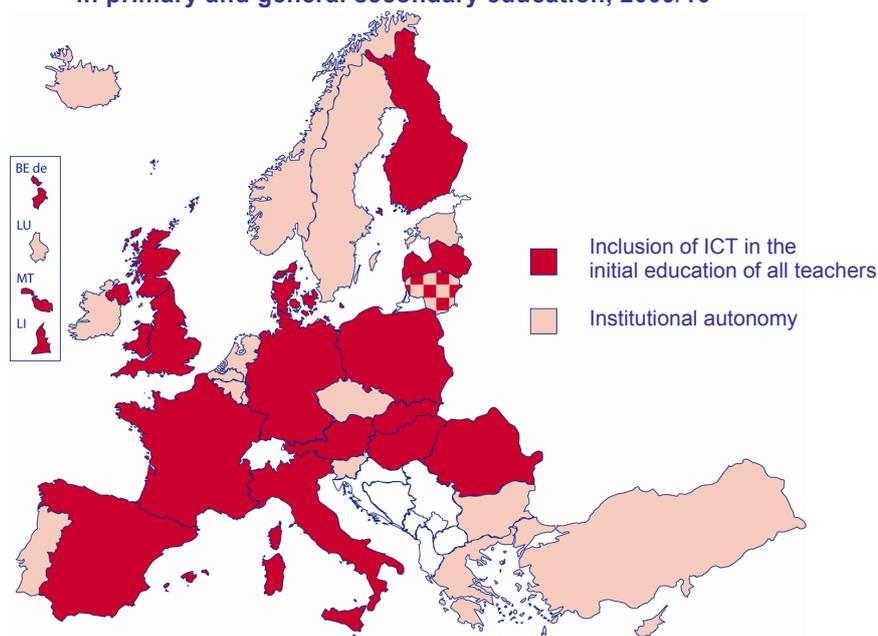
Source: Eurydice.

TEACHERS ACQUIRE ICT TEACHING SKILLS THROUGH THEIR INITIAL EDUCATION, HOWEVER FURTHER PROFESSIONAL DEVELOPMENT IS LESS FREQUENTLY TAKEN UP

Regulations in slightly more than half of European countries lay down that ICT is included among the knowledge and skills to be acquired by teachers during their initial education. All other countries give higher education institutions the autonomy to decide whether or not to include ICT. Moreover, all European countries, except Denmark and Iceland, report that the development of teachers' ICT skills is included in centrally promoted programmes for Continuous Professional Development (CPD).

The TIMSS 2007 international survey results show, however, a limited participation rate of teachers in CPD activities focusing on integrating ICT in mathematics and science at secondary level (51 % for mathematics and 41 % for science), and significantly lower rates at primary level (25 % for mathematics and 16 % for science).

Regulations on the inclusion of ICT in initial education for teachers in primary and general secondary education, 2009/10



Source: Eurydice.

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The full report

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can be found in English, French and German on the Eurydice website:

http://eacea.ec.europa.eu/education/eurydice/key_data_en.php

Printed copies of the report

are available upon request at

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