

ICT AND SKILLS FOR LEARNING, ADULT AND WORK LIFE



Briefing Papers, published monthly, aim to present the findings of the *Survey of Schools: ICT in Education* on a specific topic, relating them to the results of European Schoolnet's projects.

Survey of Schools: ICT in Education provides detailed, up-to-date and reliable benchmarking on ICT in school education across Europe, painting a picture of the use of technology for learning in schools: from the provision of infrastructure, to teachers' and students' use of technology, and their confidence and attitudes towards ICT.

Based on over 190,000 responses from students at grade 4, 8, and 11 in general and vocational education, from their teachers and head teachers, in schools randomly selected from approximately 30 European countries, the *Survey* questionnaires were administered online and answers analysed during the school year 2011-12.

The *Survey*, commissioned by the European Commission (Directorate General Communications Networks, Content and Technology), was conducted in a partnership between European Schoolnet and the University of Liège (the Service d'Approches Quantitatives des faits éducatifs, Department of Education).

The *Survey* and all the *Briefing Papers* are available here: www.eun.org/observatory/surveyofschools

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European Schoolnet is the network of 30 European Ministries of Education, based in Brussels. As a not-for-profit organisation, we aim to bring innovation in teaching and learning to our key stakeholders: Ministries of Education, schools, teachers, researchers, and industry partners.

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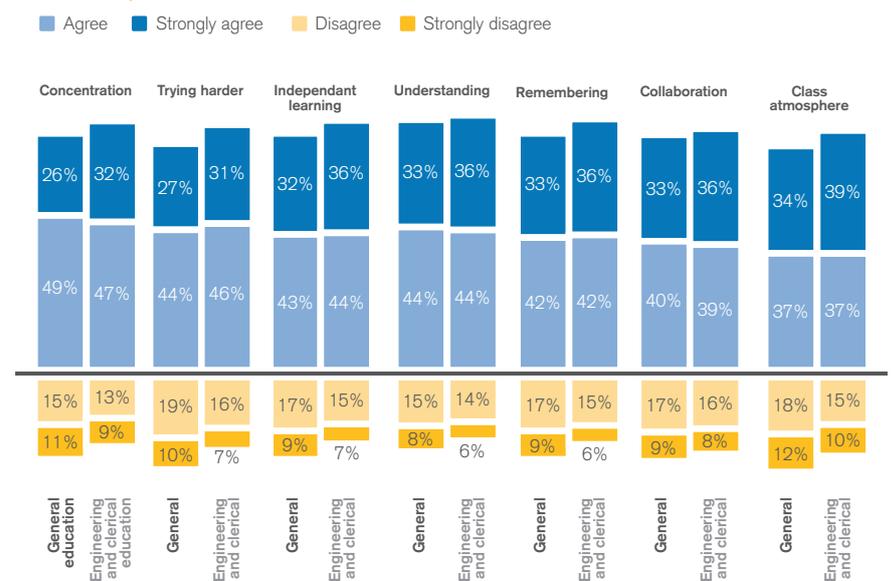
What are students' opinions on the impact of ICT on learning?

Despite stagnating economic growth and high unemployment rates, the demand for ICT jobs in Europe is continuously growing. Researchers estimate that, in 2015, about 509,000 vacancies for ICT jobs will not be filled due to lack of suitable candidates. This figure might increase to 1 million in 2020 (Empirica, 2013). But the acquisition of ICT skills is not only important for securing highly-specialised jobs: research has shown that, by 2015, about 90% of jobs in Europe will require at least basic ICT literacy (IDC, 2009). While these data cover very different types and professional uses of ICT skills and must be carefully interpreted, to what extent are Europe's young people aware of the importance of ICT skills? Is the education system equipping them to navigate the labour market of the 21st century?

Results from the *Survey of Schools: ICT in education* can help us shed some light on these issues. More than 70% of students at grade 8 and 11 agree or strongly agree on the positive impact of ICT on a number of learning aspects, including their ability to concentrate on what they are learning, to remember and understand it, to work collaboratively, to learn independently and to experience an improved class atmosphere. Interestingly, the analysis also reveals that school heads are more enthusiastic than students and teachers about the impact of ICT on students' transversal and higher order thinking skills, and particularly on their motivation and achievement.

Representing one of the rare occasions when comparison between general and vocational education is made available, figure 1 shows that students in two branches of vocational education (engineering, manufacturing, construction and clerical/office work) have relatively more positive opinions on the impact of ICT on their learning than their peers in general education. Younger students (at grade 8, figure not shown) seem to be less enthusiastic on the positive impact of ICT on learning. Finally, large gender differences are not apparent: while boys tend to be a bit more prone to "strongly agree" than girls, the cumulative percentage of students agreeing and strongly agreeing on the positive impact on ICT on learning is very close for females and males.

FIG. 1: Opinions of grade 11 students on the impact of ICT on learning aspects (EU level, 2011-12)



More precisely:

In the *Survey*, students in vocational schools could indicate their study branch. They are consequently distributed as follows: agriculture, forestry, fishery (9%); engineering, manufacturing, construction (24%); clerical or office work (19%); health and welfare, education, social work or personal care (17%); and other (31%). For the purpose of this analysis, and fully aware of the possible limitations and arbitrary nature of such a choice, we decided to take into consideration only two vocational education branches: engineering, manufacturing, construction, and clerical or office work.

To what extent are students aware of the importance of ICT skills for their adult and working lives?

The acquisition of ICT skills is not only instrumental for improving the learning process and ultimately learning achievements, but also to prepare young people to a labour market where competence in ICT is becoming as relevant as proficiency in literacy and numeracy. If almost all jobs will soon require some basic ICT skills, are students' perceptions in line with this reality?

Results from the *Survey* once again show that while the majority of students agree on the importance of acquiring ICT skills for their future lives and careers, a significant percentage (ranging from 24% to 36%) disagree or strongly disagree that ICT skills will have a strong impact on three aspects under consideration: skills for adult life, skills for work, and skills for getting a job. Students in general and vocational education reveal quite different positions.

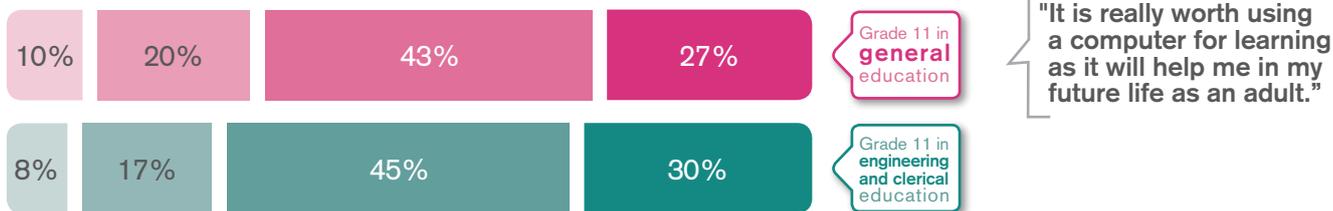
As figure 2 shows, vocational education students tend to be more aware of the usefulness of acquiring ICT skills. About 75% of them are convinced that using computers will provide them with the skills needed in adult life, as opposed to just 70% of general education students. This gap in perceptions increases in relation to work and computers: 72% of vocational school students and only 64% of general education students believe that using computers will help them in their future work life, and similar percentages are to be found when it comes to the importance of using computers for finding a job in the future. Finally, results from the *Survey* reveal that about 80% of students at grade 11 agree and strongly agree that "using a computer for learning is really fun" (figure not shown): as students enjoy leaning with technology, they also become more engaged and motivated.

More precisely:

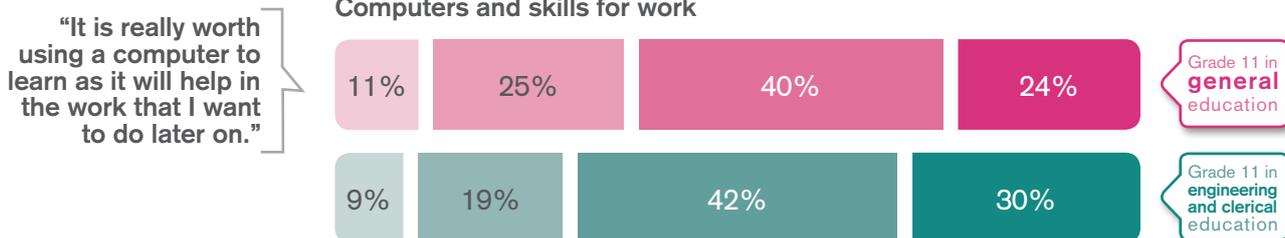
In the *Survey's* questionnaires, students were asked to what extent they agreed with eight statements regarding their attitudes towards computers, using a scale from 'strongly disagree' to 'strongly agree'. For the purpose of the current analysis, the following three statements were considered: "It is really worth using a computer for learning as it will help me in my future life as an adult," "It is really worth using a computer to learn as it will help in the work that I want to do later on," and "I learn things using computers that will help me get a job."

FIG. 2: Grade 11 students' attitudes towards using a computer and its impact on life and career (EU level, 2011-12)

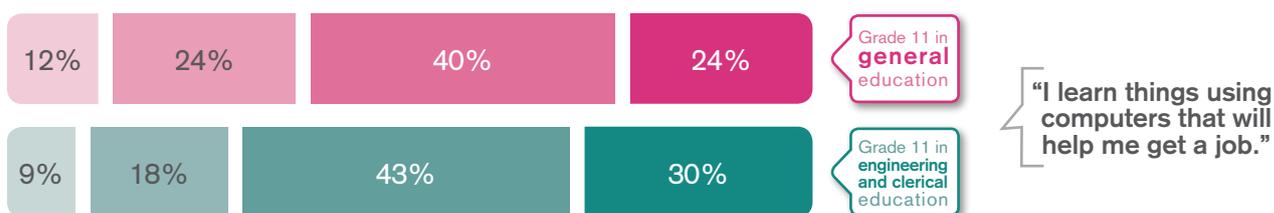
Computers and skills for adult life



Computers and skills for work



Computers and skills for getting a job



Strongly disagree
 Disagree
 Agree
 Strongly agree

Are schools enabling students to exploit the potential offered by ICT?

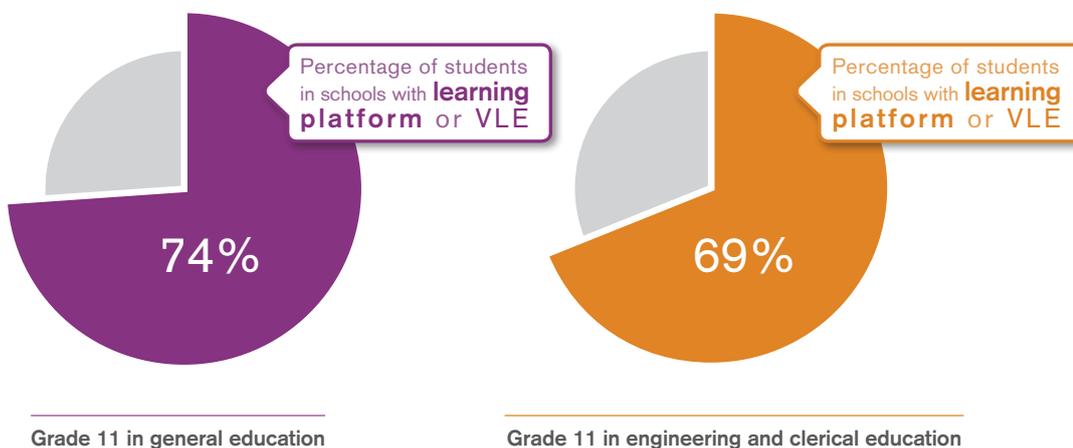
While the vast majority of students, along with their teachers and head teachers, are aware of the importance of ICT - not only for learning but also in light of their adult and work life - it is worth exploring how the school system is enabling them to exploit the potential offered by ICT. The fact that computers arrived in students' houses well before they arrived in schools is a well-known story. Even though students in vocational education have started using computers in schools later than their peers in general education, this gap seems to have closed in the year preceding the survey (2011-12).

However, Europe offers quite an interesting picture when it comes to learning platforms and virtual learning environments (VLEs). Between a quarter and a third of students at grade 11 in Europe do not have any access to such environments, but students in general education tend to be more exposed to VLEs than students in the two branches of vocational education under analysis (74% versus 69%, respectively). Additionally, only about 70% of students are in schools

with a VLE that offers out-of-school connection. Even if mobile learning technology starts to penetrate education, replacing in some cases VLE-type of technology, such findings reveals a meaningful difference between general and vocation education.

Additionally, disparities among European countries are quite striking: on one side of the spectrum we can find Luxembourg and Belgium, where about 90% of students are in schools with VLEs, while at the opposite side we can find Greece, Croatia and Ireland, where less than 50% students have access to a VLE. Differences within countries are also present; while in most cases general education students have more access to VLEs than their peers, exceptions in this trend are to be found in Eastern Europe (Czech Republic, Estonia, Hungary, Lithuania, Poland, Romania), as well as in Greece, Cyprus and Sweden.

FIG. 3: Percentage of grade 11 students in schools with learning platform or virtual learning environment (EU level, 2011-12)



Conclusions

Results from the *Survey* indicate that most students are quite aware of the importance of using ICT for learning, as well as for acquiring life and work-related skills. On the other hand, a non-negligible proportion of students, particularly in general education, still underestimate how using computers will help them in their lives as adults, in finding a job and in performing well at work. Also teachers, and to a larger extent head teachers, appear to be aware of the positive impact of ICT on students' skills, motivation and achievement. However, results also show that schools do not appear to keep the pace with the changes that are occurring in the world and within households: students are still more familiar in using computers at home than at school and the diffusion of VLEs, especially with outside-of-school connection, is still not sufficiently widespread in most countries.

These findings, combined with signs from the labour market indicating a shortage of ICT professionals, and the necessity for all to acquire at least basic ICT literacy, clearly indicate a need for more engagement on the side of schools to equip students with the ICT skills needed in adult and working life. Finally, the disaggregation of results between general and vocational education students allowed to see quite clearly that, even though students in vocational education are particularly convinced of the benefits of ICT for their education and future careers, they do not seem to be receiving the same levels of exposure to ICT in school, at least for what concerns the use of computers and access to learning platforms and virtual learning environments.

References

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Project Focus: e-Skills for Jobs 2014

The Project Focus page links the main findings from the *Survey of Schools: ICT in Education* analysed in each issue of the Briefing Papers with one specific project coordinated by European Schoolnet.

As this issue explores ICT and skills for learning, adult and work life, we asked Alexa Joyce, Senior Corporate Development Manager at European Schoolnet, to explain how 'e-Skills for Jobs' is contributing to the aforementioned issues.



'e-Skills for Jobs 2014' is a cross sector, multi-stakeholder campaign, funded by the European Commission and linked to the Grand Coalition for Digital Jobs. DIGITALEUROPE and European Schoolnet are delivering the campaign for the third consecutive year. More than 600 private sector companies, NGOs and government bodies across 30 European countries are engaged in 'e-Skills for Jobs 2014'.

Q1: How is e-Skills for Jobs contributing to raise awareness on e-skills and the demand for highly skilled digital jobs?

e-Skills for Jobs is all about making people aware of the link between having and maintaining ICT skills and accessing jobs. Employment and digital literacy are intrinsically linked. Acquired ICT skills are rapidly becoming a pre-condition for people in Europe to become and remain employable. Thirty countries are engaged in *e-Skills for Jobs*, which we expect will reach more than 60 million people. EU citizens of all ages will be more aware of the ICT skills they need and where to go to get them as a result of this campaign.

e-Skills for Jobs comprises hundreds of national and European events, concerted rallying of political and business leader support and widespread social media marketing and PR. I strongly encourage you to follow us through your preferred social media platform and learn about the exciting reality and potential of ICT as an enabler of, well, nearly everything.

Q2: While the majority of students agree on the importance of acquiring ICT skills for their future lives and careers, a significant percentage think that ICT skills won't have a strong impact on their future careers. How is e-Skills for Jobs tackling the less convinced students?

e-Skills for Jobs educates people about future labour market needs. ICT is one of the areas in the EU with the biggest future job potential. All together, the green economy, the health and new technology sectors will create more than 20 millions of jobs in the years to come. All sectors increasingly need ICT: eCommerce, eHealth, eLearning, eGovernment, Smart Cities, and virtual working. This evolution in our way of doing things needs skilled people to support and leverage it. And more and more devices are connected

to the network (cars, fridges, t-shirts, glasses, watches, traffic lights, etc.). This significantly impacts demand for people who understand ICT and know how to use it. Furthermore, ICT skills are a core component of the growing Green Economy. Many of the promoted green jobs are related directly or indirectly to ICT (e.g. jobs in R&D, production, deployment, use of green technology such as smart electricity grids and wind turbines).

Q3: Students in vocational education have relatively more positive opinions on the impact of ICT on their learning than their peers in general education. Is the e-Skills for Jobs initiative taking into account this aspect?

Young people are a key audience for *e-Skills for Jobs*. Our communications target them directly through events, competitions and, critically, through social media but we also target them through teachers and parents. *e-Skills for Jobs* combines the forces of 600 stakeholders, many of whom have been working directly in or with vocational education establishments for years. Their efforts may explain why ICT skills are valued higher by

vocational sector pupils. We must expand the reach of existing and new efforts and raise the appeal of ICT to new groups. ICT jobs are for everyone. For instance, it is shocking that only 9 in 100 European app developers are female; only 19% of ICT managers and 19% of ICT entrepreneurs are women. The *e-Skills for Jobs* campaign is one way to help address this.



**Grand Coalition
for Digital Jobs**

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