

DIGITAL SKILLS FOR THE FUTURE

REPORT

Autumn 2015

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A GAP BETWEEN BUSINESS NEEDS AND EDUCATION

Students are not getting the kind of education they need to land them a job in the future, a Friends of Europe and Google event 'Digital skills for the future' heard on 17 November. According to research carried out by The Economist's Intelligence Unit (EIU), less than half of under-25s feel that their education system is teaching them what they need to succeed, while 51% of company executives believe a skills gap is hampering their business.

While employers surveyed by the EIU say they need people with problem solving, team working and communication skills, under-25s predict they will need more digital literacy, creativity and entrepreneurship skills in the future. But 49% of teachers said they don't have time to incorporate such "21st century skills" into their classes because of a rigid curriculum, while a third feel they lack the necessary training.

"There's a growing gap between what business needs and what education provides," said **Esther Wojcicki**, teacher at California-based Palo Alto High School and author of 'Moonshots in Education: Launching Blended Learning in the Classroom'. "As a matter of fact, it's getting bigger, not smaller."

The survey, led by **Irène Mia**, Global Editorial Director, Thought Leadership at the Economist Group, points to the fact that education systems are not able to keep up with the pace of technological change. **"The traditional classroom has had its day,"** Mia said. **"Now it's more about providing the skills to address the future challenges rather than providing the answers,** as we used to 20 years ago."

DIGITAL SKILLS

The EIU survey's young respondents are right to prioritise digital literacy: the information and communications technology (ICT) sector is adding 150,000 jobs a year. But, despite the fact that there are 22 million people currently out of work in the EU - 4.5 million of them under 25 - employers are unable to find the skills they need. By 2020, the European Commission estimates there will be almost a million unfilled ICT vacancies.

According to Eurofound, the EU's agency for working conditions, computer programming is one of the fastest-growing areas of ICT, where many highly-paid vacancies are opening up. **René Tristan Lydixsen**, Managing Director of LEGO Education Europe, believes schools should prepare for this. "I believe that six-year-olds should be taught how to code an algorithm," said Lydixsen. **"We need to play a role in engaging teachers to teach the difficult stuff like coding."**

His comments were echoed by **David Minne**, Head of ICT at Belgian Primary School VZW Moorsledegem. Sixth graders in his school use chat and video conferencing to work together on projects and kids even younger are programming using Scratch, a free online platform where they can create their own interactive stories, games and animations.

But it's not only in school that kids are learning - students are teaching themselves what they need to know. According to the EIU survey, only 58% of 18-25-year-olds say they are taught digital literacy in school, yet 80% say they are good at it. **"Even if education is not providing the skills they need, students are getting them from other sources,"** said Irène Mia, Global Editorial Director, Thought Leadership at the Economist Group, and author of the EIU study.

Finally, it's also about teaching the teachers, who often find it difficult to keep up with the pace of change. Out of those surveyed by the EIU, 85% of teachers say that technological advances have

changed the way they teach, but 58% still believe their students have a more advanced understanding of technology than they do.

“We also have to make sure that teachers know how to use these things,” **Liz Sproat**, Google’s Head of Education for Europe, Middle East and Africa said of Google’s classroom apps and devices. Teacher training is top on the priority list for David Minne. “When I walk around schools I see some teachers working all day with technology - and in the classroom next door I see some writing on paper all day long,” Minne said. **“Students should be getting the same kind education - all teachers should use technology in their classrooms to improve skills.”**

The private sector is also thinking up its own ways to improve digital literacy. Google’s Sproat says her company has set aside €3.5m to fund computer science. Why? **“If we can build the right skills into people and help them be empowered by technology then they can do the most amazing things,”** she said. And “we have the chance to create an inclusive future.”

A case in point were three young Google Science Fair finalists who presented their inspiring projects that might one day change the world: UK **Krtin Nithiyanandam**, who has worked on a molecular-level 'Trojan Horse' which can be used as a sensitive method for earlier diagnosis of Alzheimer's Disease; Lithuanian **Laura Steponavičiūtė**, who has been experimenting with impacts of nanoparticles on nature; and UK **Matthew Reed**, who is developing a low-cost, lightweight, open-source satellite (the ArduOrbiter) that will be free for anyone to use and develop.

CHANGING THE TEACHER MINDSET

In addition to digital literacy, there is also a big skills gap when it comes to problem solving, team working and communications. For Wojcicki, the reason students today don't have the necessary skills is that they are rarely given the opportunity to think for themselves. “The hardest thing of all is for them to come up with their own ideas because they're so used to being told what to do all the time,” she said. “They want me to tell them what to do to get an A.”

Wojcicki runs the largest media programme in the US. Her 25,000 square ft media arts building in Palo Alto looks more like Google’s iconic offices: there are break-out areas strewn with colourful cubes, tables are organised in groups rather than rows, and students use the facilities to run their own newspapers.

“I use media to train students to think,” said Wojcicki, who is also mother to YouTube CEO Susan Wojcicki. **“Students should have some control of their education, so they are working for themselves and not only for a grade.** The secret sauce of what I do is ‘TRICK’, which stands for Trust, Respect, Independence, Collaboration and Kindness.”

LEGO’s Lydixsen put the emphasis on “having fun via learning, which helps you learn faster”, illustrating his point by asking the audience to build a duck using six lego bricks and showing off a robot that he'd programmed to light up on cue.

But technology should not be used to hide behind, according to Tamsin Rose, Friends of Europe’s Non-resident Fellow and the debate moderator. **“Technology is no cure for bad teaching,”** she said. While 40% of high school students want more lessons where they can use technology, Google’s Sproat said it should not be simply for technology’s sake, and pointed to the fact that interactive whiteboards were touted as a major innovation in UK classrooms 10-15 years ago, but never really got off the ground.

“Digital skills are part of it, but they don’t need to be taught as a separate set of skills - just as part of the general education,” said the EIU’s Mia. “This has an impact on new demands for teachers but also for government - because really they may need to rethink their approach to teacher training and professional development,” she said.

POLICY RESPONSE

According to Joseph Bertemes, Director at the Luxembourg Ministry of National Education, education systems need to become less rigid in order to enable students to learn. **“If you want to progress, you need to change the education system from one-size-fits-all so students can identify what is relevant for them,”** he said.

He highlighted the main pillars of Luxembourg’s Digital(4)education initiative:

- Raising young people’s awareness about the impact technology has on their lives
- Providing every student with access to the applications they will need in the professional world for free
- Setting up a collaborative ‘wiki’/‘edusphère’ for educators with innovative tools to be used in a classroom
- Implement ‘maker spaces’ where students can go, explore and work by making errors

He also believes schools have an important role in bridging the divide between rich and poor. “A lot of talented students can’t develop their skills because they don’t have the environment [at home],” he said. “That’s where the school has to take the part and get the equity back for those kids.”

For LEGO’s Lydiksen, it is more about planning and taking the lead - not leaving education in companies’ or local authorities’ hands. “Industry has a challenge understanding its own needs, especially in the long term,” he said, adding that companies were often beholden to short-term gains for shareholders. “We have to get above the four-year planning - this is about one or two decade planning.”

According to the EIU, educators are not talking to businesses enough, which is why the skills gap has grown so wide. But industry is keen to have more of a say: 36% of employers think education systems should provide more access to company schemes and internships for students, while 35% want to improve teacher training.

CONCLUSION

Rose threw the floor open during the debate, asking the audience what key skills we should nurture in young people today to meet future demand. The results were mixed - “curiosity”, one participant wrote, “collaborative thinking”, said another, “independence”, said a third, though more traditional skills such as “IT”, “languages” and “mathematics” came up as well.

“We don’t really know what the future challenges will be, but we know we have to give our kids the skills to be able to address those challenges,” EIU’s Irène Mia said. “It’s not any more about providing answers but about teaching kids to ask questions and to come up with their own solutions.”

How to do it? We need to transform our education systems by teaching the teacher how to use technologies in the classroom, improving infrastructure, cooperating with employers and encouraging anytime and anywhere learning, concluded Minne.

Access the [event page](#) and find more information on Friends of Europe's website and social media

