6.5 ICT in education: digital schools and classrooms

Why should regions invest in ICT infrastructure and connectivity in schools?

The Internet has dramatically changed the lives of citizens in many different aspects; however EU Education is failing to keep pace with the digital society and economy. The potential that digital technologies can offer EU education and training systems across Europe remains untapped.

At present 63% of 9-year olds in Europe are without access to digital equipment, fast broadband and high connectivity in schools; teachers acknowledge that they would like to use the technology in teaching, but 65% lack the necessary confidence and say they want training.

Transforming education requires pedagogical, organisational and technological innovation, and one of the basic conditions for enabling learning practices to flourish is the availability of ICT equipment, tools and networks. Learning takes place in learning environments which are increasingly open and flexible, embedding a diversity of learning and teaching practices and responding to the personalised needs of each learner. The level of ICT equipment and adequate broadband capacity – connectivity – in schools in the EU is often poor. There is an urgent need to step from an early adoption of ICT use in education towards its mainstreaming across all classrooms in Europe.

A wider use and uptake of digital technologies in teaching and learning can also enable and facilitate Europeans to acquire the basic level of digital skills needed for finding jobs. At present these skills are not being fostered or developed thoroughly. For example by 2015, 90% of jobs will require at least a basic level of digital skills, while as of today only 50% of Europeans have these.

Barriers and challenges

Though there are many examples of grass root initiatives at national, regional and or local level, these suffer from lack of sustainability and scale. Moreover, the collaboration between practitioners and decision makers, required to achieve the necessary critical mass, is frequently limited.

Different types of bottlenecks - at different levels and affecting different stakeholders - hamper the digital education value chain. There is uneven availability of ICT, including connectivity, across Member States. Teachers lack the digital skills to innovate their teaching through digital technologies. There are persistent organisational barriers to supporting innovative and personalised learning and teaching as well as assessment practices. The legal and operational frameworks (e.g. curricula, assessment, funding) are often too restrictive and leave teachers insufficient space for innovation and creativity. There is a lack of quality digital contents across languages and subjects.

The digital learning infrastructure includes mobile devices, e-learning technology platforms, digital educational content, multimedia solutions, as well as broadband network of adequate performance and reach (including abundant wireless coverage in and out of school buildings. Any upgrading of the digital learning infrastructure must be also be accompanied by adequate measures in terms of teacher training (to ensure that teachers are digitally confident to teach through technologies effectively) and local leadership for the removal of organisational barriers for innovative pedagogical practices.

How to act?

In September 2013, the Commission launched the ‘Opening up Education’ initiative to boost innovation and digital skills in schools and universities. This joint initiative, led by two Commissioners (Neelie Kroes, Commission Vice-President responsible for the Digital Agenda and Androulla Vassiliou, Commissioner for Education and Culture) focuses on three main areas:

• Creating opportunities for organisations, teachers and learners to innovate;

• Increased use of Open Educational Resources (OER), ensuring that educational materials produced with public funding are available to all;

• Better ICT infrastructure and connectivity in schools.

This initiative also ties in with the Grand Coalition for Digital Jobs, a multi-stakeholder platform tackling the lack of ICT skills and up to 900,000 unfilled ICT-related vacancies.

Regions wishing to invest in order to support and contribute to the activities in their country should consider the following steps:

1. Analysis: Assess the kind of ICT Infrastructure and classroom connectivity development needed in the regions, and the educational level (e.g. primary, secondary, vocational training) and how actors at regional level could contribute to promoting an upgrade of digital infrastructures in education and training institutions, including broadband. Investigate the potential sources of complementary public (e.g. local and or at school level) and private financing.

2. **Stakeholder involvement**: Public regional and local authorities should engage with relevant stakeholders. The stakeholders will vary depending on the specific situation in the MS and in the region, but should include:

- Public authorities who are increasingly aware of the potential of technologies to innovate in learning and teaching the importance of digital literacy in curricula and learning outcomes;
- Education and training institutions themselves;
- Learners (e.g. primary and secondary students, students with special needs, vocational training students, etc.);
- Teachers and trainers having to adapt and develop their traditional teaching practices;
- Private sector; including ICT industry and SMEs, and Education technology providers (publishers, content providers, device manufactures interactive whiteboards manufacturers, etc.).

3. **Priority setting**: Establish clear roadmaps/strategic plans to reach the desired goals, in line with EU initiatives like Opening up Education.

4. **Policy mix**: In this process, regions should also seek synergies with other national and regional initiatives (e.g. from an educational and innovation policies perspective) and EU activities. The main responsibilities for designing, developing and implementing reforms in education and training systems remain with Member States. The EU will support and coordinate actions funded by Erasmus+ and Horizon 2020 programmes.

5. **European networking**: Not all Member States and regions are investing with equal speed and scale in the integration of ICT in mainstreaming education and training. National initiatives are often fragmented, isolated and result in large uptake gaps.

This means that cooperation at European level is paramount. There needs to be a strategy for how regional activities will align with national priorities to ensure that there is a coordinated national approach which will feed into achieving the objectives of the “Opening Up education” initiative.

Further reading & forthcoming events

http://s3platform.jrc.ec.europa.eu/education