European Commission

Digital resources for schools: supporting key competence development and pedagogical practice

Key Messages of PLA#8
Paris 14-16 March 2018

Education & Training 2020 Working Group on Digital Skills and Competences

Education and Training

Background

The eighth Peer Learning Activity (PLA) of the ET2020 Working Group on Digital Skills and Competences took place on 14-16 March 2018 in Paris. It focused on how digital learning resources can support the development of key competences and innovative pedagogical practice.

Discussions focused on two main areas:

- What digital resources do we need to support the development of key competences for the 21st century? How can the supply of digital resources influence learning and teaching practices?
- What policies should be put in place to ensure a supply of high quality digital resources? What issues do we need to keep to the fore (e.g. protection of personal data, copyright, age appropriateness of resources)?

The meeting brought together 45 participants from 20 countries representing public authorities, social partners and educational organisations. Presentations and discussions were held on initiatives from Belgium (Flanders and Wallonia), Hungary, Poland and host country France. The meeting took place during the second edition of the EDUSPOT education fair, organised by the Association of Digital Education and Training Industries in France. This gave participants the opportunity to meet a variety of companies, from traditional publishers to smaller start-ups, which are involved in the production of digital resources for education.

The PLA built on discussions by the working group at the PLA on "*Supporting educators for innovative, open and digital education*" (7-8 December 2017), as well as the PLA of the Higher Education Working Group: " *Teaching Generations Y and Z: pedagogical challenges in teaching and learning environments in higher education"* (12-13 July 2017).

Digital resources for schools

Digital resources – wide variety of types and forms

Digital learning resources are widely used in school education across Europe. With the proliferation of Information and Communication Technologies the number and type of digital learning resources is expanding rapidly.

The concept of 'digital resources' covers an extensive range of assets and materials for education. In the broadest sense, digital resources refers to any kind of digital content, services or products that can have an educational use. This could range from using search engines for learning, to using and adapting a variety of online materials for educational purposes, whether or not the resources were originally planned as teaching and learning material (for instance,

using maps/geographical information systems to learn about local geography, or accessing news websites for language learning).

Digital resources can take the form of rich media objects (e.g. video, images, simulations, serious games, virtual reality, animations) or be primarily text-based. They can be gathered and made available in digital repositories and collections or shared within a specific community.

Digital resources can also vary by licence type: proprietary, free or open. Proprietary resources are those that are generally created by publishers and made available commercially to teachers, students or parents/carers. These are usually restricted by copyright. Free of charge resources are often subject to some form of copyright but are generally available for re-use at no cost. Open educational resources are those that are available free of charge under open licence for use, repurposing and modification, thus allowing users to tailor the resources to their own context and needs.

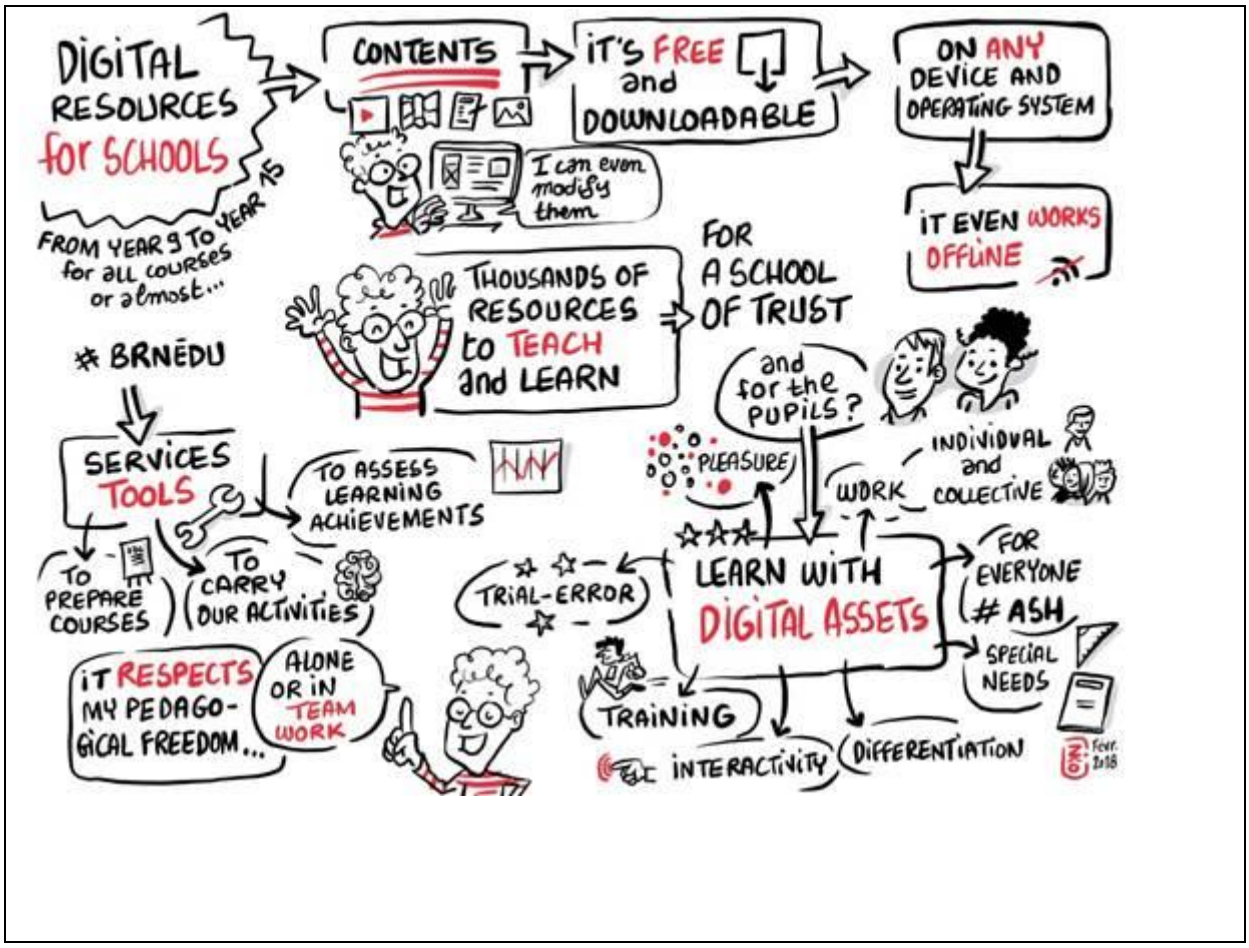
Production of digital resources

Digital resources can be produced in a number of different ways: through government-led initiatives, by commercial players and by teachers.

A number of government-led initiatives can be found across EU Member States. These initiatives tend to be well funded, thus allowing the production of high quality material and providing the advantage of a close link between the resources and national/regional curricula. Moreover, government initiatives have a possibility to address all schools within a country/region thus operating at a large scale. Risks, however, include being perceived as a top-down, 'imposed' mechanism, which might be perceived as encroaching on the pedagogical freedom of teachers.

BRNE/France

Participants learnt about the French government initiative, the BRNE (Digital Resources Databank for Education) which provides a single access point for digital resources to schools. High quality digital resources are available for free to teachers and students (ages 9-15 years) and cover subjects from upper primary to lower secondary. The resources can be used on many devices and even offline, as the content requirements by the French government strongly emphasised aspects of interoperability. Resources can also be modified to allow teachers to tailor content to their individual needs. The ministry identified around 80 companies that could provide educational content through the database. Around 65% of teachers have now joined the BRNE. The ministry also organises teacher training on how to access and use digital resources.



Commercial digital resources are becoming available in EU Member States: publishers in most countries are complementing text-based production with digital products. Education (including schools, higher education, further education and training) is a key sector for publishers, accounting for 30% of market share in Spain and Poland and 60% in Ireland. The total value of the market for Europe is around 6-7 billion euros.[1]

Publishers in the schools sector often have a long tradition of producing textbooks with high relevance to the national standards, curriculum and assessment frameworks. This knowledge and experience can give them a competitive advantage in the digital market. The EDUSPOT fair showed examples of small start-ups companies specialising in digital content partnering with larger, more traditional publishers.

Commercial publishers often argue that competition in an open market helps support the quality of resources. On the other hand, digital resources produced by commercial players can be expensive and are not always provided in a format that allows teachers to adapt them to their specific circumstances, contexts or needs. The growing use of digital resources is seeing the emergence of new business models that are currently under-explored.

[1] Figures provided by the Federation of European publishers, see https://fep-fee.eu/

Teachers have always produced educational materials. With the widespread use of digital technology, it is increasingly easy to share, find, adapt and publish Open Educational Resources (OER).[2] While the creativity, enthusiasm and skills of individual teachers are a great asset, education systems cannot rely too heavily on the work of individual teachers. Issues related to OER produced by individual teachers could include difficulties with licensing rights, quality issues and slow distribution at large scale.

KlasCement

KlasCement is the Flemish educational resource network. All resources designed for use in education (e.g. images, videos, audio clips, software, apps, lesson plans, presentations, worksheets) can be added to KlasCement. Teachers share resources they have created themselves and organisations can add material intended for the educational sector or link to their resources on the platform. The moderators of KlasCement (who are teachers) check every resource and decide whether to add it to the site based on certain admission and quality criteria.

KlasCement began 20 years ago as a grassroots, teacher-led initiative. The network is now hosted within the Ministry of Education but is still run by teachers. The resources are available to anyone to reuse and share under the Creative Commons licence.

Personalised learning and universal design

Digital learning resources can help personalise teaching and learning, which can be of particular value for students with special educational needs. With accessibility by design as a rule for new digital learning resources, expensive adjustments can be avoided afterwards. It should be recognised that what is needed for some learners is often good for *all* learners. When designing and developing new digital learning resources, Member States could make use of new and emerging digital technologies and developments, such as gamification of learning, 3D printing, connected objects etc.

Concerns regarding data protection

The development of digital learning resources should also be closely linked to data protection and privacy, in particular with the new provisions of the GPPR.

Le Gestionnaire d'Accès aux Ressources

The French ministry shared an example of the Educational Resource Access Manager (Le Gestionnaire d'Accès aux Ressources) which acts as a filter controlling the personal data which resource providers have access to when students and teachers use their digital resources. The system uses a single sign-on access to resources from Virtual Learning Environments and meets the

[2] It is important to note that teachers are also contributing to the commercial production of digital and non-digital resources.

proportionality and relevance principles defined by the French legislation on Information Technology and Personal Freedom.

The development of the Educational Resource Access Manager has involved various actors from industry, the Ministry of Education, local level actors (schools) and educational authorities as well as the CNIL, the national data protection authority.

Distribution of digital learning resources

In order to distribute digital learning resources to schools, teachers and students, a number of countries have created national platforms where teachers can identify resources not only from educational authorities, but also from universities or research organisations and cultural institutions.

Other countries rely more on grassroots, 'bottom-up' initiatives where groups of individual teachers can submit, publish and share resources they have developed. While the more top-down models often have comprehensive quality assurance measures, bottom-up models can have more basic checks on copyright and licensing, leaving the quality control more in the hands of the user.

Uptake of digital learning resources

Several factors come into play for an uptake of digital resources.

Quality assurance mechanisms can be vital. It is possible to distinguish between top-down quality assurance mechanisms, such as approval of the resources from national educational authorities, universities or cultural institutions, and bottom-up mechanisms such as listing numbers of downloads for each resource, voting or ranking systems that can be used by teachers as well as reviews by learners. Quality can also have a number of dimensions including pedagogical quality, technical quality and easy-of-use. If they are to be useful, digital resources must be **relevant** and **respond to the needs of teachers and learners**.

It is also important that teachers receive **training** and support in how to find and select high quality digital learning resources that are relevant to the curriculum. To promote and encourage the uptake of digital learning resources teachers need to be supported with continuous professional development (CPD). This is particularly true when it comes to non-traditional learning resources such as 3D animations, 3D printers and robotics or other maker kits. Such learning resources can play a key role in stimulating project work and cross-curricula activities, i.e. developing the key competences needed in today and tomorrow's society and labour market. Besides training, it is important to offer **support** to teachers who wish to use digital resources. This support should cover technical

aspects and critically the pedagogical dimension, in particular, looking at teaching practices in the use of digital resources.

Measuring the uptake and impact of digital resources

It is important, but also complex, to measure the impact of digital learning resources on student learning. The European Commission's Joint Research Centre is developing a Guide to evaluate the impact of digital resources on student achievement, for example, by using the results in national examinations. The research currently underway analyses the efficiency and effectiveness of the e-textbooks programme in Poland, thus also analysing the economic impact of publicly funded digital resources

The aim is for this research methodology to be replicated and taken up in other countries, thereby finding ways for policy-makers in MS to base their decisions on relevant empirical evidence while making decisions regarding (open) digital resources. Such research into the impact of digital resources is crucial and is currently lacking in Europe. More research would allow us to see how and where digital learning resources can add value rather than merely replacing traditional teaching practices and paper-based resources.

Sustainability of digital resources platforms

To ensure their sustainability, platforms offering digital resources require technical infrastructure, user participation and policy support and engagement.

Technical infrastructure should be solid in terms of standards and metadata **Metadata** has an important role in digital resource management. Metadata refers to the information that is needed to identify, locate and describe digital resources. It is also crucial in order to link digital resources to national curriculum and its goals. A coherent and efficient use of metadata can ensure that teachers, even at entry level, can easily engage with existing digital resources.

Participation of teachers (both as end users and/or as producers of digital resources) is central for sustainability. The **community** within a platform can ensure the quality of the resources and the practices around their use, provide approval and support by peers, reward teacher contribution and generate a constructive dialogue. Every digital resource platform will need a critical mass of active users to be sustainable and affordable. When/if a community moves from local to global, a series of challenges emerge: the language of the resources, relevance to the national/local curriculum and the issue of different copyright regimes in different countries.

Policy-makers can play an important role regarding the sustainability of digital resource platforms and securing resources for their development. They can also play a role in measuring the *impact* of the digital resources on learning outcomes and key competences. They can use feedback from teachers and students to

make recommendations on how to improve the resources. Finally they can share experiences on digital resource development, distribution, uptake and impact with other Member States where the challenges faced are similar.