



Europeana Space – Spaces of possibility for the creative reuse of Europeana’s content
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1 EXECUTIVE SUMMARY

Galleries, Libraries, Archives and Museums (GLAMs) sit on a huge potential of digital learning material. Many of their digitised assets could become used as learning resources, but in order for the educational sector to take them on increased attention to some aspects is required. The quality of the provided content or digital asset should be good enough (e.g. digitised text is readable), the quality of context should be of good standard (e.g. enough contextual information is provided), and GLAMs should think of and try to identify the impact that they are pursuing.

As education becomes ever more technologically orientated, teachers need to understand how to optimally use this 'edtech' in their educational practices. They need to understand how a certain technology may boost a specific learning effect, or define other useful areas for which technological tools may be used as effect enhancers. Simultaneously, GLAMs should become aware of these different learning situations and context, in order to understand how they could optimally offer their assets to the teaching community – both in compulsory and higher education.

Successful and varied educational examples incorporating digital heritage assets are identified on local, regional and European levels. The E-Space project has developed inspirational proofs of concept, as did Europeana in cooperation with the private sector. All of these practices would be greatly facilitated with a clear IPR framework, or with skills to use more Open Educational Resources (OER). GLAM institutions could greatly contribute to a worldwide OER repository of certified, studied digital heritage assets.

However, it is not just as simple as putting a cat next to a bowl of milk. Some facets of the 'education + digital heritage' spectrum need more thought. A giant repository such as Europeana has lots to offer to teachers – in terms of content, metadata, stories, but unless there is a degree of curation, steering teachers towards what they are looking for, the degree of use will remain rather low. The actual impact that technology has on education may also be questioned. It would be too simple to say that de facto ICT tools boost education(al impact). A similar criticism can be heard regarding the current 'gamification' of many assets or learning resources. There is also the cost that ICT based education brings: investments in hard- and software and increased investment in time (from GLAMs as well as re-users).

2 INTRODUCTION

2.1 BACKGROUND

The E-Space project is focused on the creative re-use of available digital cultural content. A very important target sector for the project is Education. 'Education' refers not only to the general school system but also to educational services in museums or lifelong-learning programmes. The work that E-Space is developing in this domain is varied, including five examples of educational demonstrators, a Massive Open Online Course (MOOC), dissemination events and collection of resources and best practices. Moreover, the six thematic pilots that are being carried out in the project also have an impact on education and lessons to be shared. Education has proven to be a common thread among many of the project's activities and work packages, which is why, among other things, a dedicated mini website was established, collecting everything E-Space is doing in this field.

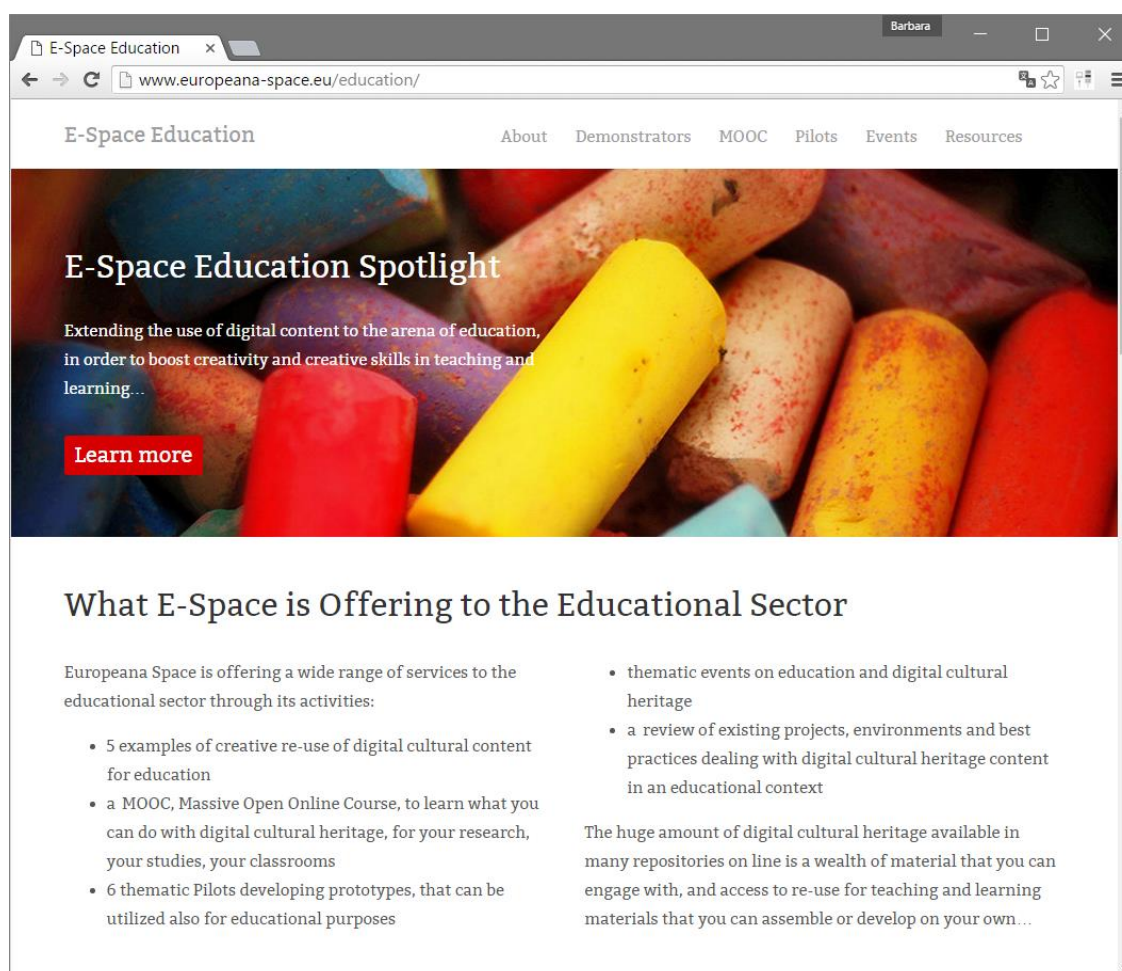


Figure 1: E-Space educational mini website, <http://www.europeana-space.eu/education/>

The E-Space work on education targets users from primary school to universities, and the applications which are being developed strive to be more than a teacher's presentation tool. Instead, what E-Space is trying to do is to unlock the creativity of the users from both ends (teachers and learners), engaging them with digital cultural heritage. The project has experimented, and thereby learnt lessons, to help make it as easy for others, in this case GLAMs (Galleries, Libraries, Archives and Museums) or teachers, to copy what has been done in this project.

2.2 ROLE OF THIS DELIVERABLE IN THE PROJECT

In task 5.6 of the E-Space project - *Best practice and demonstration of innovative access to content for education*, five project partners developed an educational demonstrator – each in its own way showcasing what a potential heritage-inspired digital tool to be used in education, could look like.

This deliverable documents the work of the educational demonstrators, as well as the other ways in which E-Space has been active on the educational front: the thematic pilots, the MOOC, the mini website. The deliverable provides results as best practice examples that may become exemplary or used as a model for other GLAMs or other parties interested in making the bridge between digital heritage and education.

2.3 APPROACH

This WP5 report is the result of various information inputs. The theoretical findings are based on desk research and the analysis of existing project findings outside of the E-Space project. One of the tasks in WP5 was the supervision of the educational demonstrators that have been developed. The findings taken from their development trajectory have also contributed to this deliverable. Lastly there were the inspirational speakers at the E-Space educational events, who provided useful insights and other resources.

At the Kick-off meeting, it was agreed that PACKED would be responsible for this deliverable rather than PostScriptum. In July 2015, the EC Project Officer and Project Manager agreed that, as there is a further educational workshop still to take place after the Month 24 due date, this deliverable would only be submitted in draft ahead of the Technical Review and then re-submitted, after enhancement, later in the year.

2.4 STRUCTURE OF THE DOCUMENT

The document starts by setting the scene of what is happening in the field of education and digital heritage. It starts by looking at trends in education which are growing more and more towards using 'edtech' or ICT in teaching environments. Then it looks at how education can be matched with digital culture and heritage. Requirements for enabling the relationship between GLAM materials and education are pointed out – identifying goals, providing good quality resources and equal context.

In a following chapter, the European dimension of the digital heritage and education story is looked at. The first focus is on the work E-Space is doing in this domain, discussing the educational demonstrators, the educational dimension of the six pilot actions, the E-Space MOOC and then the project's two educational workshops. The 'Europeana for Education' campaign is then also discussed.

Before concluding, the document identifies some myths, trends & opportunities that require further exploration. There is the question of how ICT tools are generating educational impact, or what the importance is of providing Open Educational Resources (also in the form of digital heritage assets). ICT use in schools and digital heritage is considered, followed by the question of whether 'gamification' of materials really stimulates better learning outcomes. Lastly, how the market also affects the incorporation of ICT and digital resources in education is discussed.

The report concludes with a set of best practices recommendations for those that want to pursue digital heritage educational projects or make their assets available as educational material, and future expectations.

3 EDUCATION AND DIGITAL HERITAGE

3.1 EDUCATION AND DIGITAL TRENDS/TOOLS

“Not so long ago, the back to school season was marked by a dash to Woolworths for exercise books and colouring pencils. Today it’s not just the shop that’s gone; books and pencils are joined by Chromebook laptops and tablet computers as educational essentials.” - Sophie Curtis¹

Children that are starting their school career have already plenty of experience with technology – even small toddlers are playing intuitive iPad games. This generation of school children is fully digital native, just like those currently in their last year of school. Those that are ‘behind’ may well be the teachers, not their students.

Technology is growing with these children and is more prominent in the classroom. Computers are no longer relegated to a computer lab or ICT classes. The growth of technology in the classroom is simply evolving in parallel with the students’ daily lives. While this may seem self-evident, a lot of different factors influence the pace at which this evolution is taking place.

The Horizon Report Europe - 2014 Schools Edition,² said that European schools are facing key challenges linked to the impact and use of new technologies:

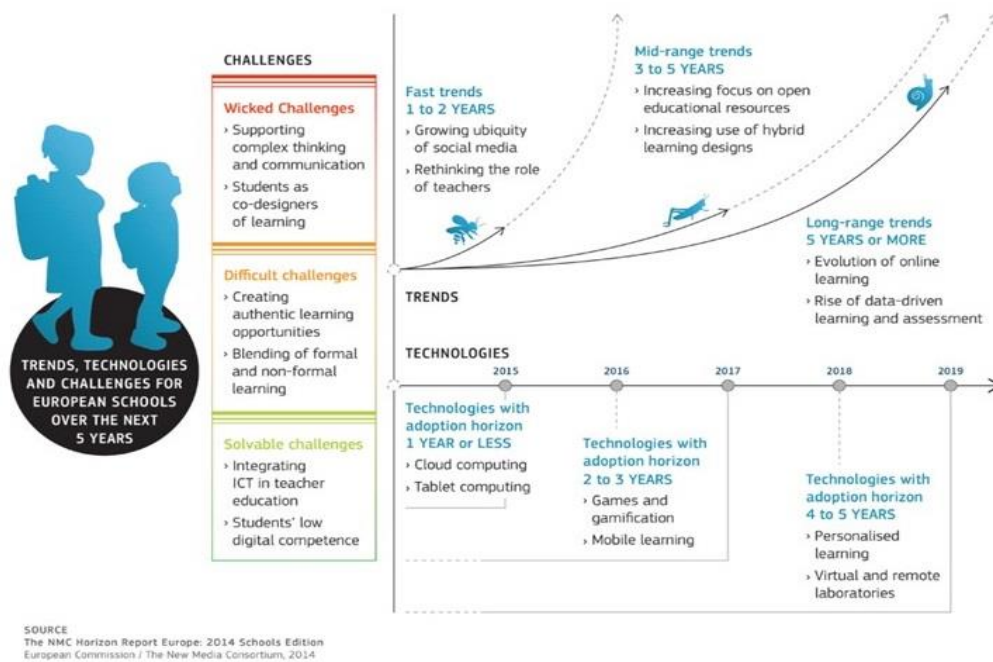


Figure 2: Infographic from the Horizon report, illustrating the three types of challenges that schools face

The infographic indicates the trends that look ahead for next five years. They are also categorised per difficulty level: solvable, difficult or wicked. *“This report provides valuable insights and guidance for policy-makers and school leaders about the need to embrace digital and open resources. Europe needs to raise its game if we are to ensure our young generation*

¹ See <http://www.telegraph.co.uk/technology/news/11051228/Digital-learning-how-technology-is-reshaping-teaching.html>

² Available from <https://ec.europa.eu/jrc/en/publication/eur-scientific-and-technical-research-reports/horizon-report-europe-2014-schools-edition>

are prepared for their future careers," said Androulla Vassiliou, European Commissioner for Education, Culture, Multilingualism and Youth. "Improved digital skills and access to digital and open resources are crucial, not just for better teaching, but also for creating flexible education models that make life-long learning easier."³

As one of its 'Fast Trends', the report indicates a "Driving Ed Tech adoption in European schools over the next one to two years."⁴ In the US 2013-2014 has seen a purchase of more than 23 million devices for classroom use – with a shift from laptop computers to iPads and Chromebooks (less expensive web-based laptops).⁵

3.1.1 Higher Education

Higher Education has seen the emergence of MOOCs (Massive Open Online Courses) and their counterpart the SPOCs (Small Private Online Courses). MOOCs and SPOCS are arguably 'flipping the classroom': the information students should 'learn' can be seen in a video watched at home, freeing time during actual classes for subject matter related exercises and answer specific questions. Flipped classes can generate much more student activity than regular sit-and-listen lessons. The challenge here is not the creation of the video material but making the best use of the time that has been freed up.⁶

Teachers who implement this method create short film clips as there is the view that current generations have shorter attention spans and some information is better understood through visuals, although this is not done for every piece of knowledge.⁷ As one Professor suggests "E-learning is still a tool, not a goal."⁸ Following this mindset some universities choose to invest in educational technologies rather than creating different content forms. This can for example include a streaming service, which allows one class to be viewed in different classrooms at disparate locations of the same university.

3.1.2 Primary Education

In primary school, the digital trend encourages more forms of 'blended learning'. This is a way of teaching where the teacher-to-student approach is combined with technology-based instructions. In 2013 the French Ministry of Education for example launched 'Les Fondamentaux':⁹ short two-minute clips and animations, explaining some of the core knowledge points in French primary schools. They fit in themes like French (language), maths, sciences and discovery. The teacher can play the clips to the whole class, or have students browse them on a tablet.

³ See http://europa.eu/rapid/press-release_IP-14-1075_en.htm

⁴ See 2014 Horizon Report, p. 12. Available from <https://ec.europa.eu/jrc/en/publication/eur-scientific-and-technical-research-reports/horizon-report-europe-2014-schools-edition>

⁵ See <http://www.edweek.org/ew/issues/technology-in-education/>

⁶ See <https://www.kennisnet.nl/artikel/alles-wat-je-moet-weten-over-flipping-the-classroom/>

⁷ The Europeana Space ReWind TV app allows a teacher to prepare a video list that a student could use. See D4.4 – *Outcome of the TV Pilot*.

⁸ Jean-Michel Rigo, vice rector education of the Hasselt University in a newspaper article - 19/09/2015 in De Standaard. Available online: <http://icto.ugent.be/sites/default/files/Nieuws-DeStandaard-Chillen%20met%20de%20prof.pdf>

⁹ See <http://www.education.gouv.fr/cid72314/des-services-pour-faire-entrer-ecole-dans-ere-numerique-les-fondamentaux.html>

FAIRE ENTRER L'ÉCOLE DANS L'ÈRE DU NUMÉRIQUE

LES FONDAMENTAUX

(titre provisoire)

2 minutes pour comprendre les points clés du programme de l'école primaire

1

Des usages :

- dans le cadre scolaire ; en classe ou sur le temps d'accompagnement pédagogique complémentaire (APC)
- dans le cercle familial

Des films d'animation de 2 minutes

3 objectifs :

- traiter les notions étudiées en classe, en se servant du support de l'image
- aborder les difficultés principales rencontrées lors des apprentissages
- favoriser la compréhension par les élèves des points clés du programme

L'ESSENTIEL

- ▶ **Cible :**
 - les élèves du CP au CM2
- ▶ **Les fondamentaux :**
 - **français :** clics visuelles, identification des mots, enrichissement du lexique...
 - **mathématiques :** le triangle rectangle, conversions de mesures, calcul mental des sommes...
 - **sciences, découverte et éducation civique :** les mouvements corporels, les déchets, lire l'heure...
- ▶ **Des films d'animation mis en ligne ligne selon le calendrier suivant :**
 - 100 épisodes en 2013
 - 500 en 2014

[#EcoleNumerique](#) © ministère de l'éducation nationale - juin 2013

Figure 3: Information leaflet on the French initiative 'Les Fondamentaux'¹⁰

Technology in schools has been a steady, reactionary evolution. The UK association Schoolzone states, "Where previously schools had focused their attention on school-wide, expensive systems [...] they now see a future in tablets delivering the same benefits they see when using them at home. Much of the growth in spending, especially in primary schools, is related to the uptake of tablets, especially iPads, and this is expected to continue to grow, as far as budget constraints allow."¹¹ There is a technological base for blended and other new forms of learning, but it is not easy. Aside from poor Wi-Fi connections, digital learning curriculum needs good content.

¹⁰ Taken from http://cache.media.education.gouv.fr/file/06_Juin/45/7/Les-fondamentaux_255457.pdf

¹¹ See http://www.schoolzone.co.uk/schools/articles/Digital_Revolution_in_schools_2015.pdf p. 3

3.2 EDUCATION AND DIGITAL CULTURE/HERITAGE

“To speak of the educational value of a museum is to go beyond the activities offered to the public and step back to reflect on their logic and their impact. NEMO believes that museums, when offering opportunities for formal and informal learning to people of all profiles and all backgrounds, can inspire, engage and help them understand the world in which they live.” - NEMO, Network of European Museums Organisations¹²

If it is assumed that schools are incorporating digital devices in their daily practices and that a platform like Europeana already provides access to over 52 million digitised heritage artefacts, it should only be a matter of time before these two fields converge. With more and more cultural and heritage artefacts being digitised and becoming available on the web, GLAM institutions are trying to figure out how to work these materials into education.

‘Education’ in this sense is multifaceted and provided:

- by the institution, at the institution;
- by the institution, from the institution – for schools, professional education programmes, lifelong learning.

3.2.1 By the institution, at the institution

When talking about education it is all too easy to think of showing a digitised painting on a screen in a standard classroom setting. However, GLAMs have been creating educational services for many years. Even in the early days, archives would offer a microfiche through which it was possible to consult archive pieces in a reading room. Museums organise guided tours for schools. They prepare booklets for individual visitors, offering more background information. An exhibition may end with a catalogue room, providing a range of reading material for whoever wants to ‘learn more’. In doing so, they – and their audiences – moved from paper to audio guide, to tablet apps and even to the very recent virtual reality experiences. What these experiences have in common is that they were somewhat ‘inward’ looking. People needed to physically visit the museum to have these learning experiences.

The latest technologies are slowly breaking down these barriers, still offering the same strand of programmes but that can now also to be partially enjoyed at home. A nice example is the recent Bruegel project¹³ that a couple of European fine arts museums organised in cooperation with the Google Cultural Institute. It is possible to see the exhibition with selected masterpieces in a real museum as it is touring, but also enjoy a high quality 360° video that draws you into an artwork from your own couch. A user can also discover video tours online, created and narrated by museum curators who reveal particular details on one of the artworks in the exhibition.

¹² See http://www.nemo.org/fileadmin/Dateien/public/NEMO_documents/NEMO_AC2015_EduVal_documentation.pdf p. 8

¹³ Bruegel Unseen Masterpieces, see <http://www.google.com/culturalinstitute/bruegel/>



Figure 4: Visitor enjoying the smartphone app on the Bruegel exhibition at the Royal Museums of Fine Arts Brussels (Belgium), using a Google Cardboard Virtual Reality Viewer¹⁴

3.2.2 By the institution, from the institution – for schools, professional education programmes, lifelong learning

Next to creating educational materials for use within the own institution, GLAMs also provide educational assets to be picked up elsewhere: in schools or other education programmes and in closer connection to the life of the ‘student’ in broad sense of that word. Sometimes the initiative for such use grows from the students’ needs. Libraries for example have set up digital loan systems, allowing students to ask for a certain digitised asset (e.g. parts of a book, an article) to facilitate their research.

There is also content specifically prepared for use in more formal education settings. An exhibition may be the incentive to prepare a self-explanatory lesson plan that teachers can just follow and execute in the classroom. Furthermore, there are materials that get used in classroom settings that might not have been created with that specific purpose in mind. High quality digitisation of paintings allows for long-term preservation, but also allows for classroom analysis. Digitised works of art can now be shown in incredible detail in every possible city and classroom.

In each of these scenarios, the uptake of digital heritage in an education context can be enabled through attending to specific questions. What is the goal to be achieved, what quality can be provided and what is the context that surrounds it? These are formulated from the perspective of the ‘offering’ side: the GLAMs.

3.2.2.1 Goal

When thinking about (digital) heritage in education GLAMs should ask themselves key questions regarding the purpose and goal of a project, such as: does it contribute to support learning on a certain topic or theme? Are materials simply used as illustration or are they the key learning resource? Is it focused on entertainment or education?

¹⁴ Source: <http://deredactie.be/cm/vrtnieuws/cultuur%2Ben%2Bmedia/kunsten/1.2594256>

Most (cultural) heritage artefacts are only used in obvious and expected lesson strands such as history, art history, society & culture sciences, masters in art, etc. In these cases, the digitised object really is a learning asset without which the teacher's information would only be half as valuable. In other cases cultural heritage material may also be used to replace more traditional teaching elements. This would allow room for interdisciplinary lessons or courses. For example, instead of plain coloured dots in math exercises, colourful vases could be used instead. Especially in an education landscape where the trend is to cross subjects so that segmented thinking is slowly broken down, this may be a small but nice change of the use of resources.

[...] the increasingly prominent role museums are playing in society means that education no longer equals conveying content or information about the collection, but is often intertwined with activities which aim to achieve inclusion, intercultural dialogue, public engagement, participation, community empowerment, or to stimulate creativity and support innovation. Activities that use museum objects as tools to do something quite different, like teaching a foreign language, transmitting basic numeracy and literacy skills, generating self-esteem, or improving health, and physical and mental wellbeing. - Margherita Sani¹⁵

In the example case on the Digital Block Calendar, heritage material is used as a short entertainment break, mixed with inspiration/spark while making a link with local history. This means that hybrid models are also possible.

3.2.2.2 Quality

Coming back to the need for 'good content', digital cultural heritage has something to offer – albeit not without effort. It should go without saying, but quality is the main prerequisite when looking to offer content as an educational resource. In one of its recent policy documents, Europeana has drawn attention to the incredibly low quality items accessible through their portal: *“Low quality, small, or incomplete objects with little or poor descriptive metadata are simply not suitable to be re-used in the target sectors. Similarly, high-quality, well-described objects with limiting or prescriptive licensing conditions are no good. To be fit for re-use, a digitized object must be of high quality and decent size, with good quality descriptive metadata and licensing conditions that allow for re-use.”*¹⁶ This statement takes into account the re-use conditions and context, and criticises basic elements such as ensuring that a digitised text is actually readable, or essential details on a reproduced painting are clearly visible.

3.2.2.3 Context

When (good quality) content is king, good context is queen. A digital object must be well contextualised. Simple metadata such as format rights statements, teaching subject, classification, date created and region are pedagogical attributes that make a digitised object a useable asset. However, institutions must also consider adding this kind of 'LOM-metadata' to their digital objects. LOM is short for Learning Object Metadata,¹⁷ and is highly relevant for teachers.

¹⁵ See http://www.ne-mo.org/fileadmin/Dateien/public/NEMO_documents/NEMO_AC2015_EduVal_documentation.pdf p. 10.

¹⁶ See 'Transforming the world with Culture', available from http://pro.europeana.eu/files/Europeana_Professional/Publications/Europeana%20Presidencies%20White%20Paper.pdf, p. 6

¹⁷ https://en.wikipedia.org/wiki/Learning_object_metadata. Read on about what may be the definition of a Learning Object: https://en.wikiversity.org/wiki/Introduction_to_Learning_Objects

However, adding this kind of information means an additional investment for the data and content provider, but will make materials more enticing to re-use. If a teacher can choose between resources including LOM information or those without, his balance between result and investable search time will be improved. Adding good LOM information to your digital content prepares it for optimal educational use (and uptake).

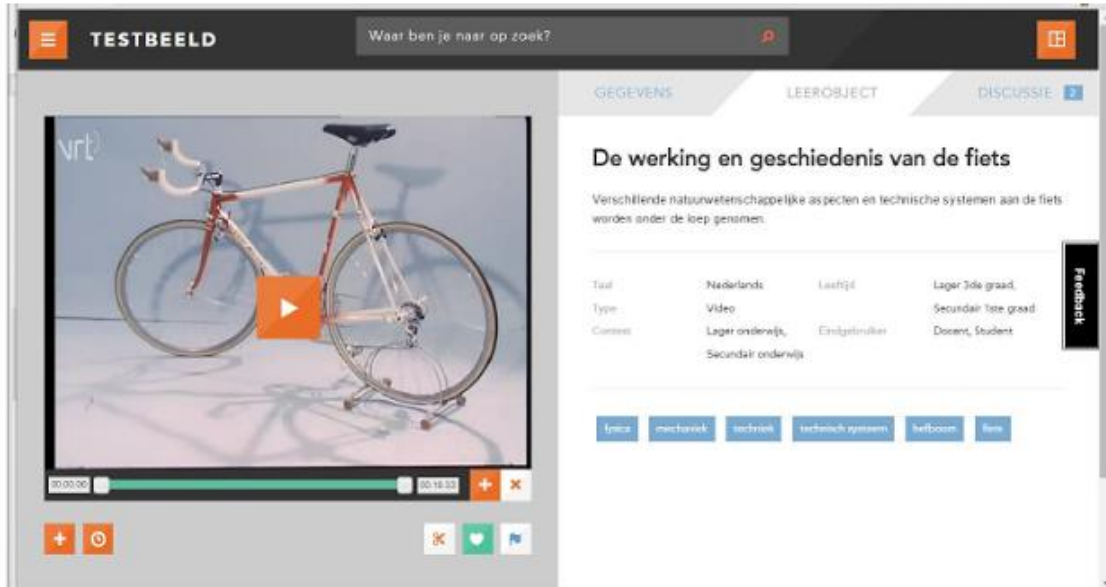


Figure 5: LOM information on an audio-visual digitised snippet from the Flemish broadcaster VRT, available through the website Het Archief voor Onderwijs¹⁸

3.2.2.4 Example cases

Four different real life cases are presented, using different approaches to make a connection between education (in different forms) and culture/heritage (in different forms).

Reinventing MoMa's Education Programs for the 21st Century Visitor¹⁹

By MoMa, USA

MoMa is one of the institutions that 'faced' an increasingly available digital collection and an ever more digitally native audience. They started asking themselves questions: Why are museums relevant? What types of cultural experiences do people look for in a museum? What makes a satisfying museum learning experience on the web? Answers proved to be diverse, and 'a' conclusion could be that educators are often faced with limited resources (in money and time), thus in need of making sound decisions on scenarios in which digital content and tools can enhance success.²⁰

¹⁸ See <https://onderwijs.hetarchief.be/>

¹⁹ Reinventing MoMa's Education Programs for the 21st Century Visitor by Jacki Armstrong, Deborah Howes, and Wendy Woon. In book: Digital Heritage and Culture: Strategy and Implementation, 2015. <https://books.google.be/books?id=kj-7CgAAQBAJ&lpg=PA73&ots=L70rwWdM9v&dq=digital%20heritage%20classroom&hl=nl&pg=PA55#v=onepage&q=digital%20heritage%20classroom&f=false>

²⁰ pp. 59-60 of abovementioned article 'Reinventing MoMa's Education Programs for the 21st Century Visitor'

This case is one of the examples that crosses the borders between ‘in the institution’ and ‘in the classroom’ setting.

“Museums and cultural heritage sites worldwide are developing more responsive and innovative education methods that empower visitors to challenge assumptions and inspire creative thinking that can be models for, or complements to, formal education.”
- Armstrong, Howes & Woon²¹

They empower visitors onsite and believe that this impact will also feed into formal education. By doing so, MoMa’s Education department hopes to “serve people of all ages and abilities over a lifetime.”²² They have recorded and streamed lectures, made interactive programmes and also implemented peer-to-peer learning.²³

These online materials also support the ‘flipped’ classroom scenario. Students – albeit not in the formal term of the word – can view the videos by themselves and then onsite where MoMa Educators will engage the students in a physical classroom, providing deeper meaning and context around the videos. Since debuting, these MoMa Online Courses have attracted over 4,500 subscribers from over 60 countries.²⁴

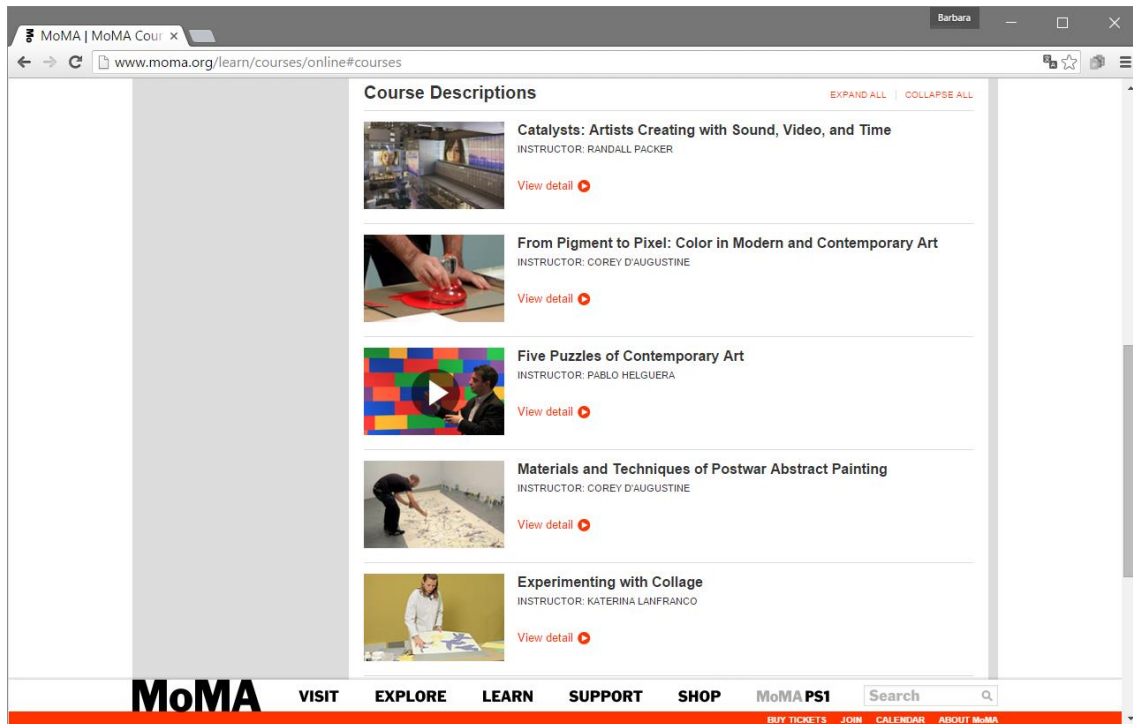


Figure 6: Screen of the online MoMa courses webpage²⁵

²¹ p. 56 of idem article

²² pp. 55-56 of idem article

²³ Find these resources here: <http://www.moma.org/momalearning>

²⁴ p. 72 of idem article

²⁵ Webpage <http://www.moma.org/coursesonline>

In July 2013 they also launched a MOOC on 'Art and Inquiry: Museum Teaching Strategies for Your Classroom', a free, four-week course that explores object-based learning and discussion as a classroom activity.²⁶ What is remarkable about their approach on creating these materials and making them accessible online, is their objective behind it: *"Chief [...] in offering this course is raising teachers' awareness of MoMa's comprehensive online resources on Modern and Contemporary Art, including the MoMa Learning website, and to contribute to the effectiveness of primary- and secondary-school education worldwide."*²⁷

Art every day: the digital block calendar (Elke dag kunst: digitale scheurkalender)

By Museum Kröller-Müller, the Netherlands

Last year, the Kröller-Müller museum won the Dutch Museumeducatie Prijs²⁸ for their primary school programme 'Art Every Day'.²⁹ This tool has been specifically designed/developed for the digital school board as a fun, swift and low-level encounter with art and (local) history. The application provides an 'inspiring (and entertaining) break' that can be used at any moment of the day and can be used independently from an arts project or a planned museum visit. It makes art accessible and approachable for students and teachers who may have previously deemed the subject too complex. Through a set of simple questions, interactive games and creative processing tasks, twelve works of art from the collection get linked to events from the history of Ede, a Dutch town nearby. Children and teachers discover surprising links between things like Charley Toorop and the local war memorial, or between families from Ede and 'The Potato Eaters' by Vincent van Gogh.

The Museum hopes to inspire other schools, municipalities and archives to take this example and develop their own calendars.



Figure 7: A look on how the 'Art Every Day' calendar is used in a classroom

²⁶ Link: www.coursera.org/moma

²⁷ p. 73 of abovementioned article

²⁸ This 'Dutch Museum Education Award' is granted for the most appealing cooperative project between schools in primary education and museums. The Award is an incentive to share good practices with others in the field, and stimulate their uptake or further development.

²⁹ <http://krollermuller.nl/digitale-scheurkalender>. The project is also explained in a YouTube clip (in Dutch): https://youtu.be/tiOXQV_8w2U

Magna Carta & the Emergence of Parliament

By the National Archives, UK

The UK Parliament and The National Archives have collaborated to deliver an interactive online educational resource that takes students on a journey from 1215 – 1297.³⁰ According to the Parliament, “The resource comprises a selection of documents, including the Magna Carta itself, which have been digitised for the first time. Students can explore the issues that were being discussed in the 13th century – the relationship between the king and his barons; the relationship between Magna Carta, war and taxation; and the intervention of the Pope and the emergence of parliament as a fundamental part of political life.”³¹

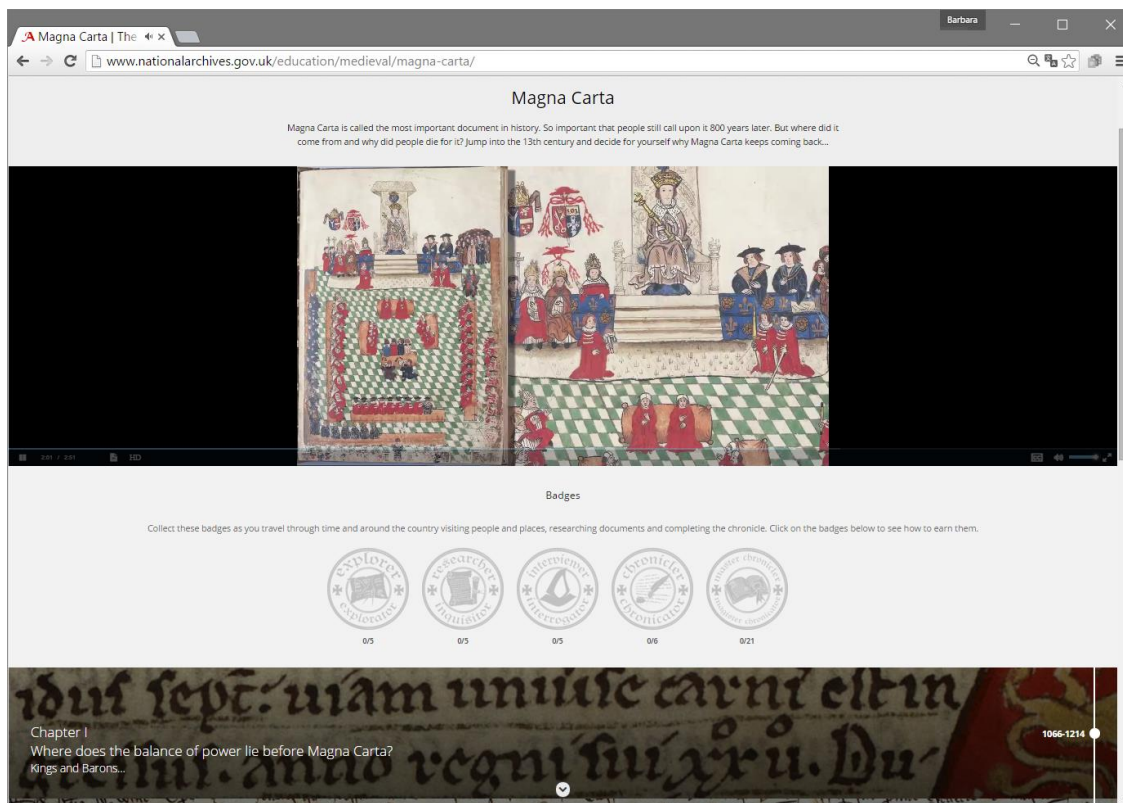


Figure 8: One of the screens of the Magna Carta digital resource³²

It is a great example of cooperation with a heritage organisation, showcasing some of its masterpieces to a student audience – and doing it in a fun, interactive way. The Magna Carta resource won a 2016 MEDEA Award, winner of the Jury Prize.

³⁰ See <http://www.parliament.uk/education/teaching-resources-lesson-plans/magna-carta-and-the-emergence-of-parliament/> and <http://www.nationalarchives.gov.uk/about/news/magna-carta-emergence-parliament/>

³¹ <http://www.parliament.uk/education/teaching-resources-lesson-plans/magna-carta-and-the-emergence-of-parliament/>

³² Direct access to the resource on line:

<http://www.nationalarchives.gov.uk/education/medieval/magna-carta/>

In addition to the storyline and materials that can be browsed independently, the National Archives offer lessons through their Virtual Classroom, another feature that is worth spotlighting. This ‘classroom’ is an interactive virtual environment enabling students to participate in a live session led by an actor or an education officer from The National Archives. Via computers or tablet interaction, students can examine and annotate high quality digital images of original documents, and exchange ideas and ask questions via a chat-box and by microphone – all without leaving their physical classroom.³³



Figure 9: An actor evocating a historical figure as part of the digital Magna Carta resource³⁴

The Samsung Digital Discovery Centre

By the British Museum, UK

In 2009, the British Museum and Samsung Electronics signed a five-year partnership agreement to develop a range of new digital learning programmes for the museum’s family and school audiences. The programmes were offered through the Samsung Digital Discovery Centre (SDDC), opened in March 2009. Within the first five years after its opening, the SDDC welcomed more than 51,000 participants aged three to 18 years old, and around 5,000 schools every year. In 2013 the Samsung sponsorship was renewed for another five years, including a provision of new digital technologies to support the Centre’s aims for expanding and improving its educational offer.

SDDC offers digital learning sessions free of charge for schools and families. It also addresses teenagers aged 13 to 19 as a category on its own. The sessions focus on one or more cultural areas covered by the museum collections, and including Ancient Egypt, Asia, Ancient Rome, Ancient Greece, pre-Columbian civilisations in the Americas, and Africa.

School sessions come in three formats: full-day (lasting from 10.30 to 14.00 with lunch break), 90 minutes or self-led sessions. Sessions are offered during the scholarly year, and are designed to support subjects or areas of the English national curriculum. For instance, curricular subjects commonly targeted by SDDC learning activities include History, Geography, Religious Education, Music, Art and Design, and Computing.

³³ See digital services here: <http://www.nationalarchives.gov.uk/education/teachers/what-we-offer/#virtual>

³⁴ Direct access to the resource on line:

<http://www.nationalarchives.gov.uk/education/medieval/magna-carta/>



Figure 10: Marker scanning during the British Museum's session Passport to the afterlife, a mobile Augmented Reality trail for families

Linking with and complementing formal learning. Schools are an important audience for the SDDC. The centre reaches out to schools by offering activities that complement the curriculum, and bring as well an element of novelty: engaging with technologies that are not available or not integrated in school learning, or patterns of engagement that differ from traditional scholarly practices. Activities also stimulate and inspire teachers' practice, by pointing to new pedagogical strategies or indicating ways of following up and expanding the impact of the short learning episodes.³⁵

³⁵ A detailed case study of the SDDC and the ways in which it interacts with the educational sector is provided in chapter 5 of the RICHES project deliverable D6.1: Access, Participation, Learning: Digital strategies for audience engagement with cultural heritage in museums and libraries, together with examples of other GLAMs' approaches to lifelong learning. <http://resources.riches-project.eu/d6-1-access-participation-learning-digital-strategies-for-audience-engagement-with-cultural-heritage-in-museums-and-libraries/>

4 THE EUROPEAN DIMENSION

As with many things, every European country has its own policies and traditions towards education. Yet some issues affect transnational education and there are a number of European initiatives (E-Space being one of them) that are able to work on shared topics. NEMO, the Network of European Museum Organisations, recently launched a new publication titled 'Revisiting the educational value of museums'.³⁶ It covers, among other things, the findings of its annual conference held at the end of 2015, integrating the vision and ideas from several different European museums. One of their findings was that:

"An awareness is growing in museums that learning is not limited to disseminating information about collections. Museum education must also have a more inclusive objective: to foster and to support intercultural dialogue, participation and empowerment." - Revisiting the educational value of museums, p. 8.

Education may be fostered by a European dimension when thinking about the subject of European identity, based on our (shared) history. The question 'where we come from' greatly benefits the European dimension, but the question 'where we are going' struggles with a trend to match inclusion and outreach.

One initiative is the LEM (Learning Museum) Network,³⁷ which stems from several EU funded projects, three of which – Lifelong Museum Learning (LLML),³⁸ Volunteers for Cultural Heritage (VoCH),³⁹ and Museums as Places for Intercultural Dialogue (MAP for ID)⁴⁰ – have been identified as good practice examples by the European Commission. Through study visits and dialogue with European institutions, they issue studies on their findings. One of their recent publications was on 'Learning in Museums and Young People'.⁴¹ One of the areas of interest included exploring museums' role in the digital era, with references to the challenges and possibilities introduced by the new technologies. As they state, *"having a website is important (and also updating it), but it is no more sufficient."*⁴²

The report defines five main goals on which the international museum community could focus.⁴³ Three of them focus on youngsters' enhanced participation, and lean towards explicit or implicit learning:

- innovating in the visitors' connection to the collection – from content generator to connector between cultural heritage, knowledge and users (especially young people);
- using all the virtual spaces – such as websites or social networks – in a more dynamic way as places for debate, and to reflect and spread ideas;

³⁶ The publication documents NEMO's 23rd Annual Conference that took place from 5-7 November 2015 in Pilsen, Czech Republic. Available from http://www.ne-mo.org/fileadmin/Dateien/public/NEMO_documents/NEMO_AC2015_EduVal_documentation.pdf

³⁷ More info at <http://www.ne-mo.org/about-us/the-lem-network.html>. A working group currently continues the network established in the project 2010-2013: <http://www.ne-mo.org/about-us/working-groups/working-group-lem-the-learning-museum.html>

³⁸ See <http://www.lemproject.eu/in-focus/other-related-projects/lifelong-museum-learning>

³⁹ See <http://www.amitie.it/it/voch.htm>

⁴⁰ See <http://www.mapforid.it/>

⁴¹ Available as PDF document from http://www.ne-mo.org/fileadmin/Dateien/public/topics/Audience_Development/Museums_and_Young_People_NEMO_LEMWG_study_2015.pdf

⁴² See p. 15 of the abovementioned report

⁴³ See p. 18 of the abovementioned report

- enabling young people to actively participate in the museums' 'life' both on a virtual and on a real level.

An example of new technology use in educational practice on a European scale is EUROCLIO⁴⁴ programme Historiana – Your Portal to the Past.⁴⁵ It can be seen as the first online learning environment for history education on a European – or even global – level. Historiana is an online educational tool that works as a complementary resource to classic national history textbooks by providing digital multi-perspective, cross-border and comparative historical sources.

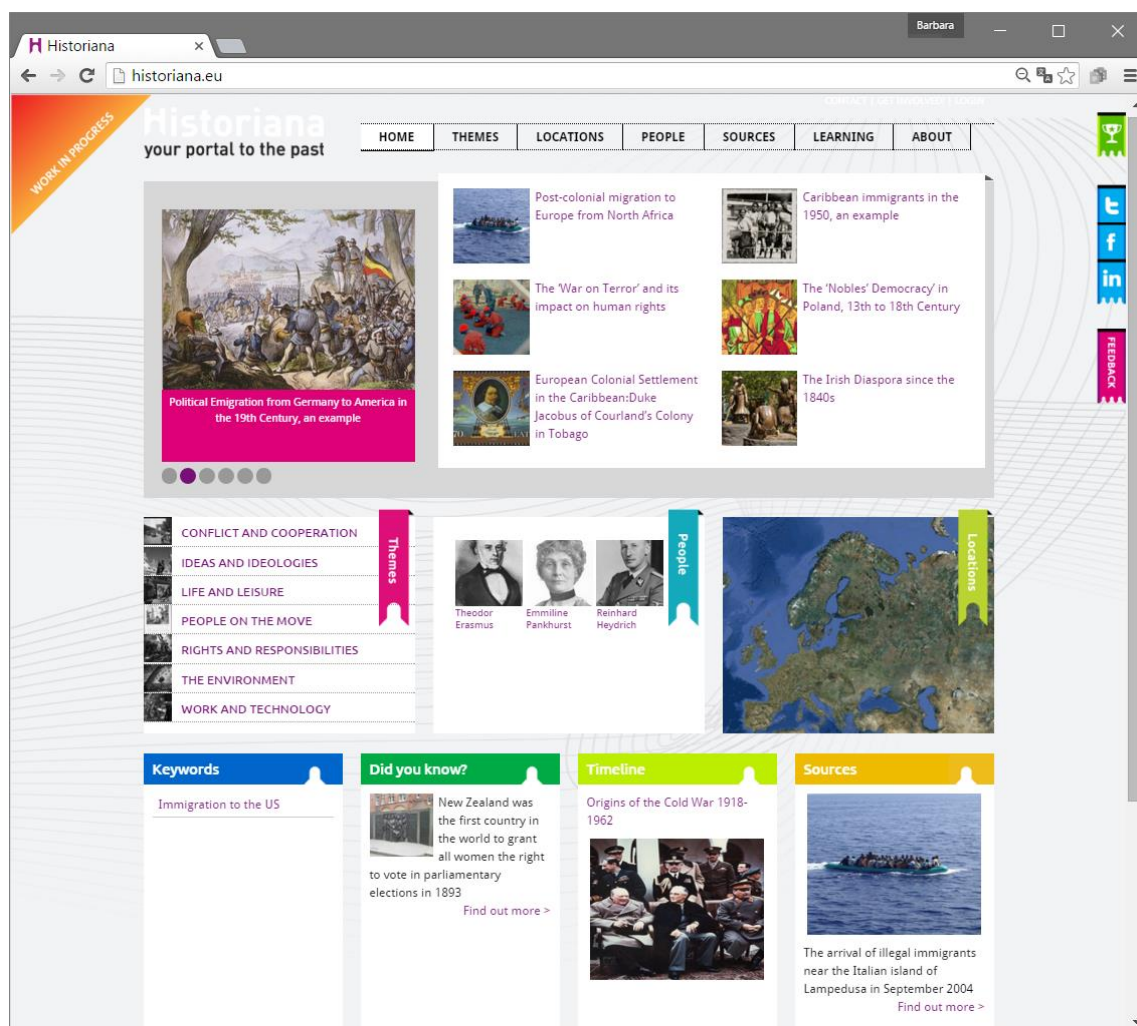


Figure 11: Homescreen of Historiana, available at <http://historiana.eu/>

Historiana might be considered a digital alternative to a European textbook, although the website does not attempt to present a comprehensive 'story of Europe' and its relationship with the rest of the world. It offers a framework for comparing and contrasting the impact on and responses by Europe's nations with a range of different events and developments that have shaped the world from past to modern times. History educators and historians from more than thirty countries have actively contributed to it. Recently also educators from India, the Middle East, North Africa and the United States have expressed an interest in contributing to the website. The platform will continue to grow as more and more contributors upload suitable material.

⁴⁴ EUROCLIO is the European Association of History Educators, see <http://euroclio.eu/>

⁴⁵ Check it on <http://historiana.eu/>

The recent Europeana Creative project⁴⁶ also investigated the re-usability of Europeana sourced materials to be used outside the regular heritage related fields. They developed three pilots with an educational approach, to work on a European-wide level:

- History Education pilot: Historiana Learning.⁴⁷ The objective of the Historiana learning section is to stimulate the re-use of digitised heritage, especially in history education through Europeana. It built on the Historiana platform to explore how content could be tailored even more to education.
- Natural History Education pilot: Memory Match.⁴⁸ This game is based on the principle of the memory game, using Europeana content and allowing users to create their own sets of content.
- Natural History Education pilot: Adventure Game.⁴⁹ This is an adventure game situated in a museum environment and designed as a first person hidden objects game.

Two of these pilots were game-oriented. Further on in this report, the impact of game-based experiences on learning is discussed, and whether it can fulfil the promise of enhancing the learning experience.

4.1 EDUCATION AND THE E-SPACE PROJECT

The E-Space project assumes that showcasing different possibilities for using digital cultural content innovatively in the context of education has a dual impact:

- students, teachers and other education professionals will acquire creative and technical skills through learning how to work with the tools/applications that are offered;
- they will also become more aware of the vast and diverse repository of digital cultural heritage content available online as a basis for teaching and learning materials that they can assemble or build upon.

The E-Space work on Education targets users from primary school to universities, and the applications that are being developed strive to be more than a teacher's presentation tool. Instead what E-Space does is to unlock the creativity of the users from both ends (teachers and learners) and engage them with digital cultural heritage. A dedicated mini website on the topic has been created: <http://www.europeana-space.eu/education/>.

4.1.1 The Educational Demonstrators

E-Space wanted to investigate whether a range of applications could be developed that would re-use content from Europeana⁵⁰ that would work in an educational setting. These applications would not be delivered as standalone full products, but in demonstrator mode to serve as an inspiration and example for others.

⁴⁶ More information about this project can be found on <http://pro.europeana.eu/structure/europeana-creative>

⁴⁷ See full description: <http://pro.europeana.eu/europeana-creative/pilots/history-education-pilot-historiana-learning-section>

⁴⁸ See full description: <http://pro.europeana.eu/europeana-creative/pilots/memory-match-natural-history-edition>

⁴⁹ See full description: <http://pro.europeana.eu/europeana-creative/pilots/natural-history-education-pilots>

⁵⁰ The E-Space educational demonstrator teams have all looked carefully at the content sourced in order to create their applications. Some demonstrators could not realise their app's potential by only using content sourced via Europeana, requiring them to also use digital content from other sources.

They each have their own specific topic focus, but are constructed in such a way that their functionality may be replicated with other content and topics. Five of these demonstrators have been developed. They are described below.⁵¹



Rode Altarpiece

The retable by Hermen Rode of St. Nicholas' Church in Tallinn is the focus of this demonstrator which uses very high resolution digital images. Download a presentation of the Demonstrator (PDF, 1.5 Mb) It is used for an educational programme in schools: Young Art Detectives The "Rode Altarpiece in Close-up" lesson plans is Actively engaging...

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Irish Folk Tales

The Irish Folktales demonstrator aims to promote the richness of Ireland's storytelling tradition in an online educational context and, within the broader context of the EuropeanaSpace Project, to demonstrate the potential that cultural heritage and creative industry partnerships can have. Access here the Demonstrator The folktales are presented in a digital application, a relevant and...

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Cavafy Poems

A digital application comprising multiple thematic layers will be developed to showcase the work of seminal Greek poet C. P. Cavafy. The application will house digitised manuscripts of a specific number of Cavafy poems along with audio and video recordings of said poems and audiovisual commentary by leading scholars. The Cavafy digital application will function... [Continue Reading](#)



Photographic Investigation of Art Works

This demonstrator is based on the website 'Closer to Van Eyck - Rediscovering the Ghent Altarpiece' which presents the Ghent Altarpiece (1432) in visual light macrophotography, infrared macrophotography, infrared reflectography and X-radiography. In total, the website contains more than 100 billion pixels of image data, hence processing and presenting such a huge amount of data posed significant...

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Archaeology in Cyprus

Objective of the demonstrator is the development of a holistic approach for educating people (grown ups and kids) on Monuments that are listed at UNESCO world heritage list, in Cyprus. The system uses all innovative digital heritage resources, in order to help the user, in a UX friendly way, to learn about the different phases...

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Figure 12: the five educational demonstrators, as shown on the E-Space educational mini website

<http://www.europeana-space.eu/education/>

⁵¹ For every demonstrator, the related webpage as part of the E-Space website is listed. On those online pages further information is available about the demonstrators, such as video clips – if applicable.

4.1.1.1 Archaeology in Cyprus

Developed by: Cyprus University of Technology (CUT)

Target audience: General public, incl. formal students of all ages⁵²

Objective: Learn about the history and background of Cyprus' UNESCO monuments and heritage sites Demonstrator webpage: <http://www.europeana-space.eu/education/2015/12/18/archaeology-in-cyprus/>

This demonstrator has a historical and archaeological focus. By combining different digital images of for example an archaeological building as part of a heritage site, the demonstrator is able to provide a 3D rotational module of the site, so that the spatial experience of it may be given also to demonstrator users with remote access (e.g. directly in a classroom) as it is compatible with all smart devices. The objective is to:

- help users to learn the history of the UNESCO monument
- educate users in architecture and cultural heritage
- raise awareness on protecting and conserving our heritage
- promote the UNESCO monuments
- inform on risks that threaten the monuments

Per monument or site, the demonstrator shows:

- digital imagery from the object, taken from different sources and different angles (in- and outside of the object if applicable);
- a lesson text with information that is given as learning material;
- video recording (if applicable), which presents the key elements that users should know about the monument (suitably subtitled for both adults and children);
- short glossary explaining some (historical) terms and providing more context;
- the 3D modelled site or building(s), which can be manipulated and moved around to see the model from different angles;
- questions in quiz-style to summarise all above information when processed.

Teachers can further enhance their lesson with a list of references for further reading. The result becomes an online learning user-friendly experience, where the users (educators, students and interested users from the general public) have the opportunity to read, watch, interact (3D model) and test their knowledge about this specific part of national cultural heritage. This demonstrator is accessible as an online resource: <http://wp.digitalheritagelab.eu/>.

⁵² When 'general public' is mentioned, this indicates that the demonstrator does not solely speak to students in a formal education system.



Figure 13: View of the homepage of the Cypriot archaeological demonstrator

4.1.1.2 Photographic investigation of artworks

Developed by: imec

Target audience: Formal education students in art, art history, restoration and imaging techniques. Advanced courses in informal art education

Objective: Allowing very thorough, detailed study of works of art

Demonstrator webpage: <http://www.europeana-space.eu/education/2015/12/18/photographic-investigation-of-art-works/>

The demonstrator is built around the principle that a work of art is digitally captured at extreme high resolution, using different imaging techniques. To showcase, the demo example uses imagery from the website 'Closer to Van Eyck – Rediscovering the Ghent Altarpiece'. This website presents more than 100 billion pixels of image data of the Ghent Altarpiece (1432) in visual light macrophotography, infrared macrophotography, infrared reflectography and X-radiography. Containing more than 100 billion pixels of image data, the website in itself provides a tremendous resource for education. For example, detailed insights can be taught on painting techniques, art restoration, imaging modalities and image processing can be shared with the students.

However, during a lecture, navigating between images from one detail to another and switching between presentation and the website can be cumbersome. Therefore, this educational demonstrator integrates the viewer into an interactive presentation. The presentation combines typical slides with one or more interactive viewers. This enables navigation from one view to another with a single mouse click. All functionality available on the website, such as comparing different modalities, is also available in the presentation. Even additional possibilities are available, such as comparison of a virtually unlimited amount of viewers. This allows multiple details from different paintings to be placed next to each other on a single slide, allowing focus on specific aspects such as pearls, faces or eyes.



Figure 14: Explanation about two different imaging techniques, used on a work of art

To illustrate the power and usefulness in a real world setting, the tool will be used in a seminar for art history students of the Université Libre de Bruxelles that will be organized in November 2016. This interactive presentation will also be made available online.

4.1.1.3 The Rode Altarpiece

Developed by: Estonian Ministry of Culture (EVK)

Target audience: General public, as the Altarpiece can be publicly visited. Specific programme for students in formal education age 6-18

Objective: Learn about the Hermen Rode altar retable; being able to interpret and conceptualise historical sources to pupils of different ages

Demonstrator webpage: <http://www.europeana-space.eu/education/2015/12/18/rode-altarpiece/>

The focus of this demonstrator is the retable by Hermen Rode of St. Nicholas' Church in Tallinn. The demonstrator combines visual and research information to provide a closer look at the oeuvre and the techniques, making it possible to compare the painted layers and underdrawings, revealing differences between the original and the executed painting compositions. Iconographic descriptions enable understanding of the stories depicted on the altarpiece; high resolution photographs allow the discovery of details that are difficult to see on the physical objects; and infrared photographs reveal what is under the surface. The retable can be experienced via the application, but is also still publicly accessible in the church in Tallinn.

A dedicated educational programme on using the demonstrator was developed,⁵³ called 'Young Art Detectives', which can be used for five age groups from pre-schoolers to the upper secondary school level. Its content is based on scientific studies of the Rode altar retable and primarily showcases interpreting and conceptualising of historical sources to pupils of different

⁵³ See also <http://www.digitalmeetsculture.net/article/young-art-detectives/>, with test groups carrying out assignments in first half of 2016.

ages. It transfers students from factual learning to exploratory and creative learning integrating various subjects. The educational environment is extended beyond the classroom to a museum or the virtual environment of the Rode altarpiece science web in order to conduct the class and pass on knowledge.

The focus and subject of assignments vary for each age group: each assignment can be adjusted for an age group one stage younger or older.⁵⁴ As an exciting and playful aspect, the children will operate as art detectives while solving the assignments. The used methods are based on active involvement of students and teach visual thinking, critical observation and analysing of historical pictures, conceptualising of depicted subjects from both historical and modern perspectives, and, based on this, analysis of self.

The creative assignments also develop fine motor and art skills of the students. Each stage of the study activities uses a multimedia app as the starting point (the object of research and analysis) – younger students will be guided by their teacher and grade 7–9 students will conduct independent work.

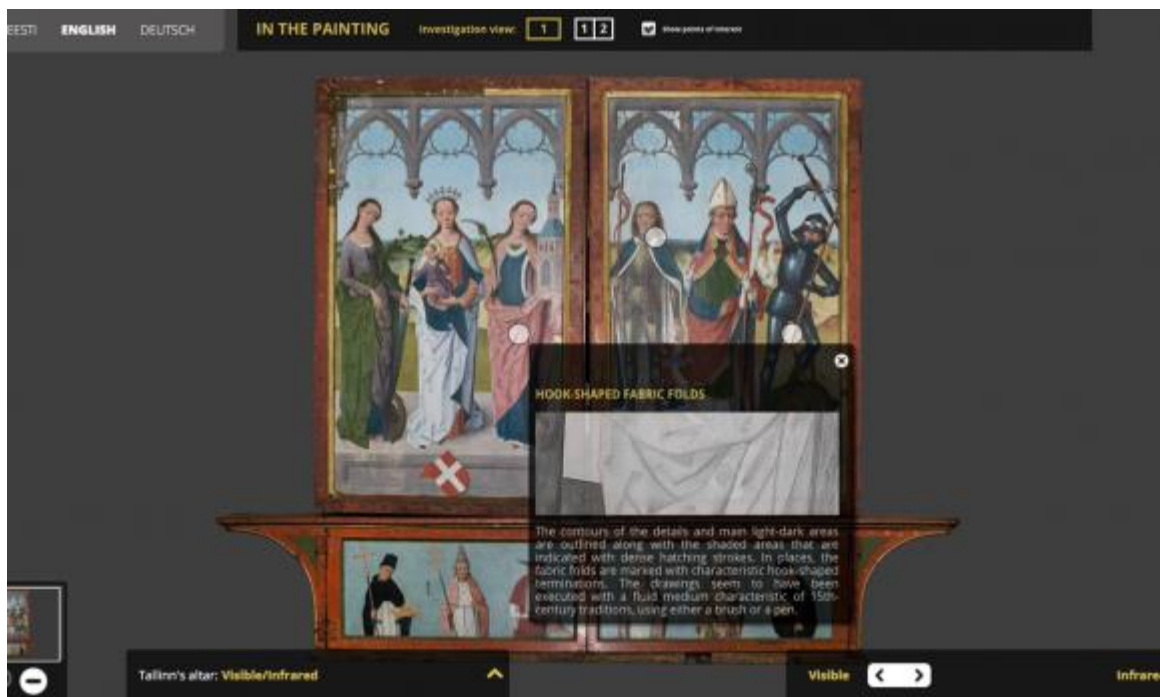


Figure 15: A view on one of the Rode Altarpiece panels in the demonstrator application

The assignment descriptions contain the topic of the class together with elaborating keywords, list of included subjects and compliance of the topic with the subject syllabi of the curricula, expected learning outcomes, overview of used methods, list of necessary materials and tools, descriptions of conducting the study activities, photo and video presentations, and recommendations for feedback and assessments.

4.1.1.4 Irish Folk tales

Developed by: LGMA & PostScriptum

Target audience: Students in formal education, age 6-12, young people visiting a library

Objective: Understand the role of folk tales in Irish history and contemporary society

Demonstrator webpage: <http://www.europeana-space.eu/education/2015/12/18/irish-folk-tales/>

⁵⁴ The age groups are as follows: pre-schoolers, grades 1–3, grades 4–6, grades 7–9 and grades 10–12.

The Irish Folktales demonstrator aims to promote the richness of Ireland's storytelling tradition in an online educational context. Famous Irish folk tales are presented in a digital application, a relevant and accessible format to connect ancient folktales with a modern, digitally literate audience. Valued-added elements such as audio, historical context, lesson plans, interactives and user upload, enhance the primary content and enrich the user experience. Interactive elements allow the user to create a personal story.

The stories that are used in this demonstrator are:

- The Stolen Child, by W.B. Yeats;
- The Fairies, by William Allingham;
- The Children of Lir;
- The Cattle Raid of Cooley.

LGMA engaged contemporary illustrators, to provide newly created illustrations to the stories that were presented in the demonstrator. Moreover, dedicated audio and video materials were recorded to be used as resource(s) in the demonstrator. LGMA worked in local partnerships with teachers, historians, artists and multimedia professionals to develop these elements.



Figure 16: An app screen showing the illustrations to one of the incorporated tales

One of the particularities of this Irish literary tradition is the reading aloud of the folk tales. Therefore, including audio materials was very important. Story readers are often more actors than readers. LGMA had recordings of live storytelling made to complement the textual material in the demonstrator.



Figure 17: Video recording of a live reading of a folk tale for a group of school children, created by LGMA⁵⁵

4.1.1.5 The Cavafy Poems

Developed by: Onassis Cultural Centre (OCC) & PostScriptum

Target audience: General public, incl. formal students of all ages, with a specific focus on higher education students in Literature education

Objective: Learn about the life and work of Greek poet C.P. Cavafy

Demonstrator webpage: <http://www.europeana-space.eu/education/2015/12/18/cavafy-poems/>

This demonstrator comprises multiple thematic layers to showcase the work of seminal Greek poet C.P. Cavafy. The application contains study materials such as digitised manuscripts of a specific number of Cavafy poems which have hitherto been unavailable at this high resolution.

The application works as a navigator through the life and work of the poet, sporting additional data layers (e.g. people, places, events, and artefacts). There is a strong connection to Europeana sourced content, not only to augment the experience of using the application but also as a way of contextualising Cavafy's place within the expansive tapestry of Europe's cultural history.

The broader aim of the application is to disseminate and make accessible the richness of the Cavafy oeuvre and investigate not only how initiatives such as this one might be implemented in the classroom but also to consider how the impact of digital literary applications such as this demonstrator might be offer new pathways into the experience of literature within specific educational and cultural contexts.

⁵⁵ This video is accessible via <https://youtu.be/DbV8MXUE1kY>.

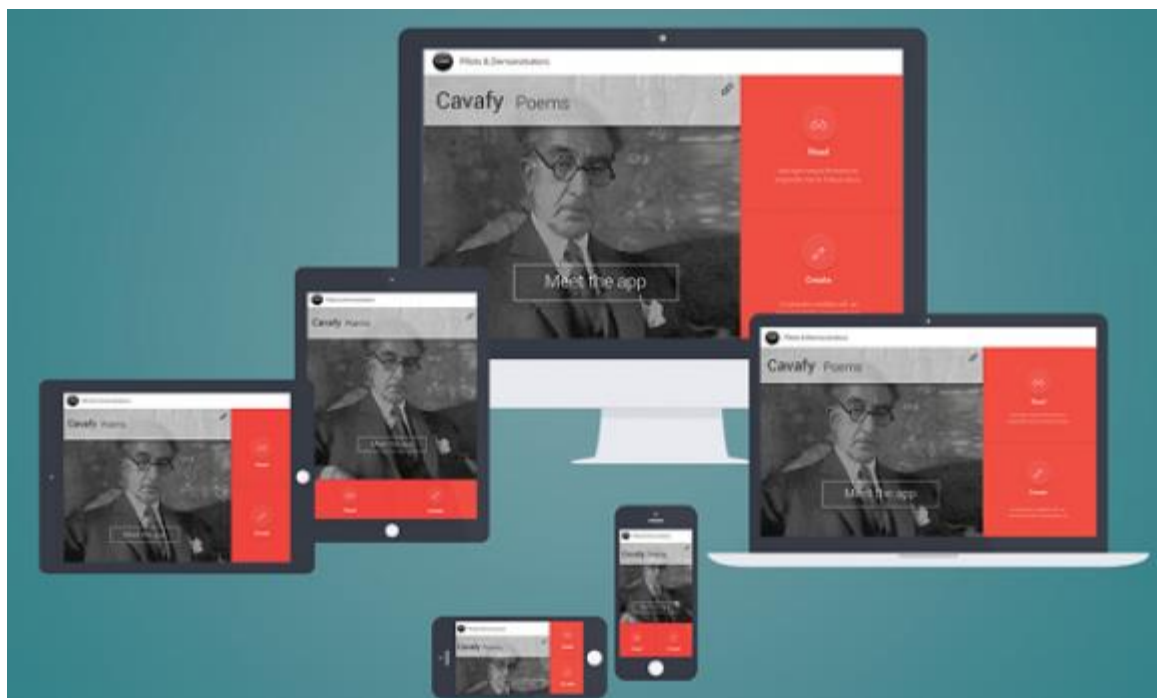


Figure 18: Responsive display of the Cavafy demonstrator app on different devices

4.1.2 The Pilots' educational dimension

E-Space has acknowledged the key role of digital cultural heritage to enhance education. The six thematic pilots in E-Space are examples of how the digitised cultural heritage can be re-used in creative ways and of course also have an educational note to them.

4.1.2.1 TV Pilot

The TV pilot has developed three tools that could be used in an educational context.

The fall of the Berlin Wall app was developed by RBB, NISV and NOTERIK

The 'Fall of the Berlin Wall' app is suitable for use in an educational context, especially for history lessons. The videos, which chronicle the history of the Berlin Wall from 1961 to 1990, are short, generally lasting a couple of minutes. Their content provides an overall picture of everyday life, culture and politics in Berlin shortly before, during and immediately after the fall of the Wall. The app is available in both a German and English version.

Through the development of the multi-screen toolkit, a second screen can be used to spatially link the videos to geographical locations in Berlin where they were filmed.



Figure 19: 'Fall of the Berlin Wall' HbbTV application

The ReWind application was developed by Proton Labs

The ReWind app can be directly applied to an educational context as it allows one person to build a tailored playlist of video for others to access. The ideal scenario would be for teachers and lecturers to use the Pusher app to create and curate archive themes for groups of students. The students can then use the Receiver app to view 'pushed' videos for research and discussion purposes. The same scenario can be applied to classroom situations where the teacher can create impromptu playlists by simply searching and curating the videos via the Pusher app, and then displaying the videos on a TV in the classroom for immediate screening. Teachers can also prepare separate homework assignments based on audio-visual content and share them with their students.

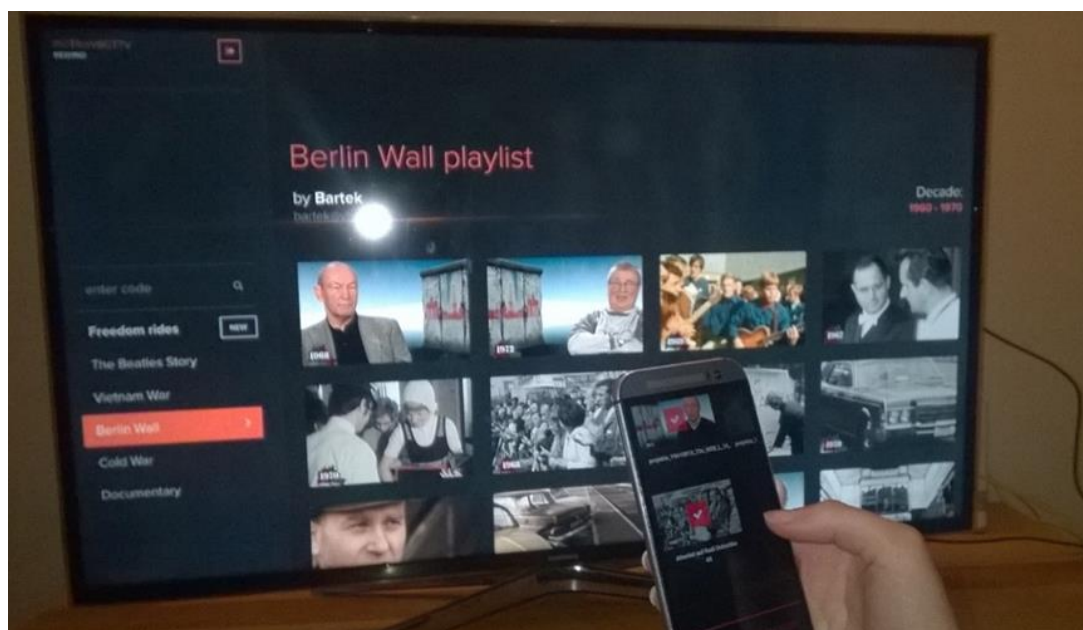


Figure 20: ReWind Pusher and Receiver app

QANDR was developed by partner Noterik

The QANDR app is a tool designed for interaction between one 'director' and other mobile device users in the same room. Once all participants (e.g. classroom or guided tour group) access a dedicated QANDR-link, they can participate in the interactive session.

One could think of a certain societal topic to be discussed in class (e.g. gender equality). The teacher, taking the role of the director, presents slides with information, for example including a poll. The students can participate in the poll via their mobile device. Alternatively, they can choose a position with a coloured cursor on an image or statistics curve, or sprawl words into a word cloud.

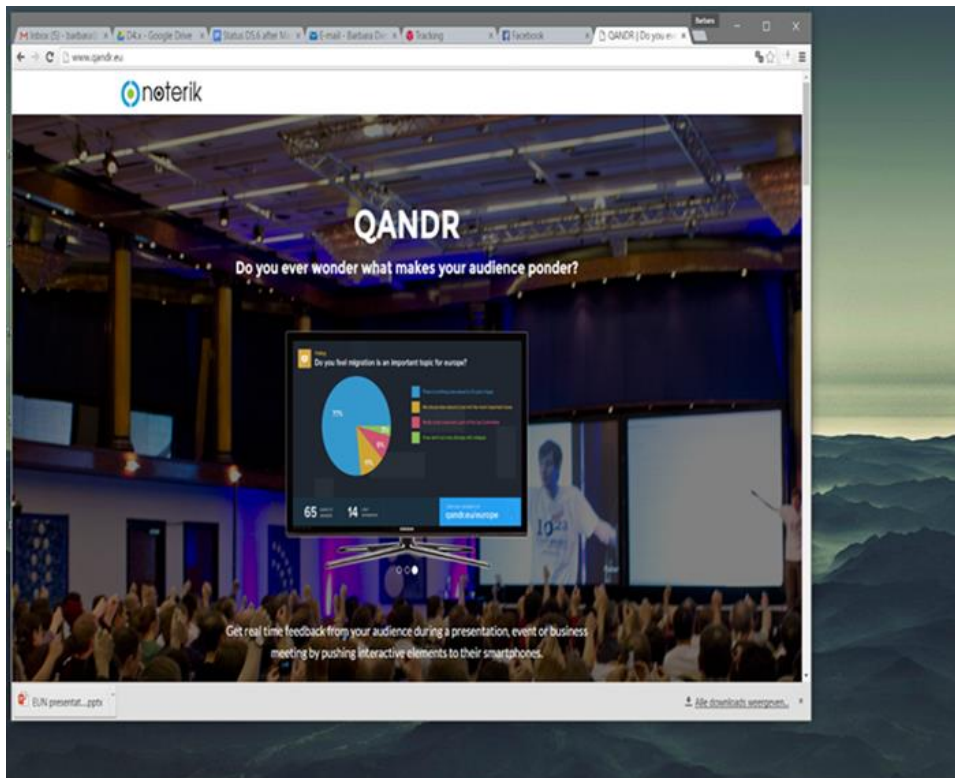


Figure 21: Screen of a general crowd-QANDR interaction

4.1.2.2 Photography Pilot

The Photography pilot has explored three educational routes; a storytelling app, an augmented reality app and the Blinkster app.

Partners involved in the Photography pilot are KU Leuven and imec and Eureva for Blinkster

The storytelling application enables users to build their own collections and stories using photographic content from online cultural heritage repositories, in combination with their own material. They can publish their own collections of photographic material, as well as build personalised stories with them, placing CH material in context. It has the potential to become an important tool for teachers to prepare narratives on different topics and share this with their students. The tool can also be used by the students themselves, for example in preparing a task assignment to present to fellow students. Photographs can be integrated into the curriculum to create more vivid images that can bring new dimension to learning.

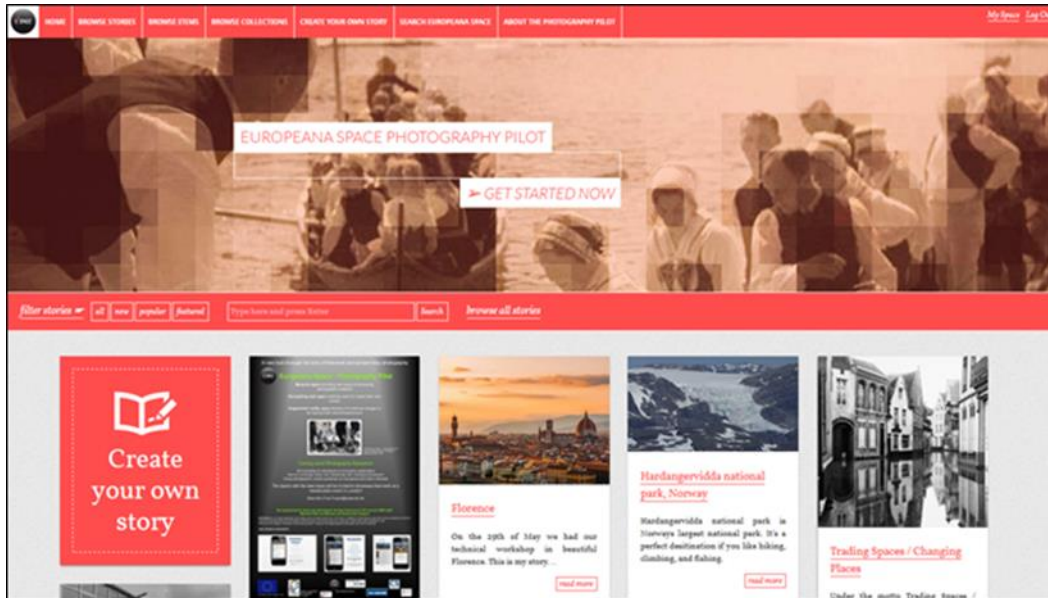


Figure 22: the Photography pilot Storytelling application

The augmented reality application creates an interaction between the present and the past, by allowing users to point their phone-cameras at pre-determined places in Leuven, ‘retake’ these historical pictures and match the original as precisely as possible. This is accompanied by historical background information and related stories and anecdotes. To create the application, 18 photographs from the City Archive were selected, each depicting centrally located places.

The mobile app aims at reviving the history of the city of Leuven and presenting it to its citizens in a visually attractive and entertaining way. History is everywhere, but often people are too busy to realise it. This app has the potential to make participants look at their town or city in a new way, to stop and notice the places that they walk through every day and take an interest in the cultural heritage that is all around them.



Leuven, c.1920.



Leuven, 2015.

Figure 23: Leuven then and now

The third Photography scenario involved using the Blinkster app at the “All Our Yesterdays” exhibition, to deepen audience understanding by providing information about each photograph via a phone or tablet. This app is described in more detail in the Museums pilot section below.

4.1.2.3 Dance Pilot

The Dance pilot has created two tools, both of which have educational value.

Partners involved in DanceSpaces are IN2 and COVUNI

DanceSpaces is a web-based application for re-using existing audio-visual content, by creating and sharing dance collections and narratives and it focuses on the needs of the general public, dance enthusiasts and pre-professionals (e.g. dance learners and educators, those who participate in dance as a social and/or recreational activity, dance audiences/viewers and tourists, etc.) who want to share and explore content about a particular dance aspect.

A Digital Dance Day was held in Coventry to introduce both tools to interested stakeholders and to gather feedback and ideas. Participant’s ideas for education use considered it to be valuable as a way for remixing sections of video, as a mashup rather than creating a playlist; a form of creative inquiry. It was also seen as a distance learning educational tool that teachers could use it to prepare playlists for different learner groups. It is also a good way of sharing non-textual content.

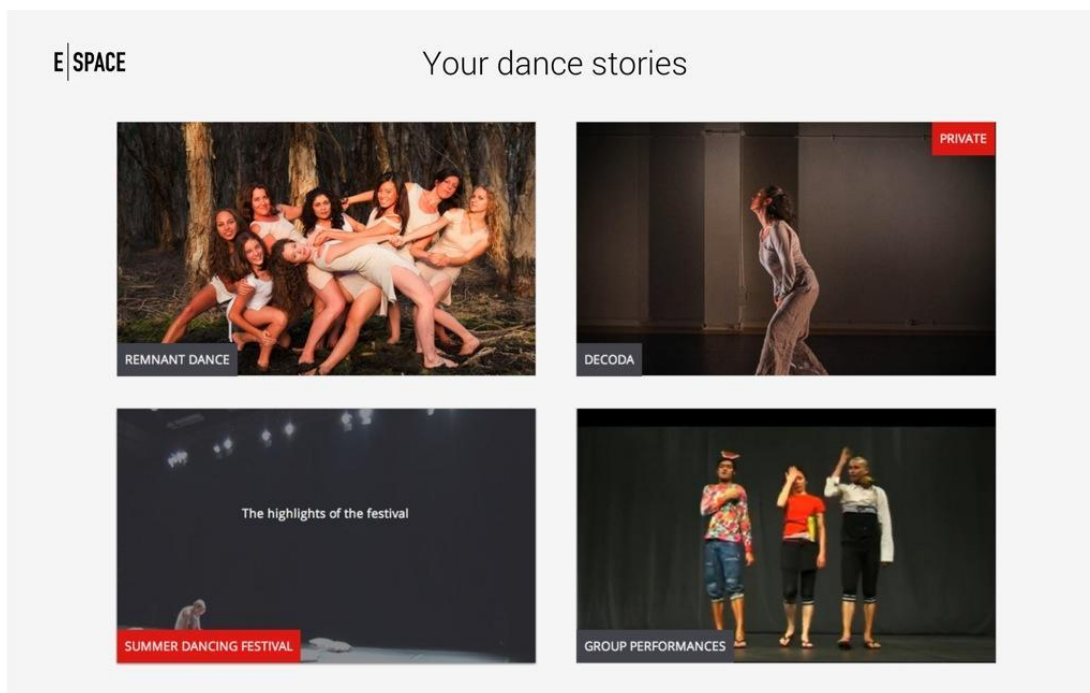


Figure 24: collection of DanceSpaces story collections

Partners involved in DancePro are FCSH-UNL and COVUNI

DancePro is a video annotator working as a digital notebook in real time for professionals during creative and compositional processes. It focuses on the needs of the researchers and dance experts (e.g. dance artists and choreographers) that need a set of powerful tools for accessing dance content and creating extensive metadata. The content used has been annotated using the automatic tools for video analysis, and the user interfaces for crowd-sourced tagging and content access was created.

At the Digital Dance Day, potential users saw multiple applications, considering it to be a valuable teaching and learning tool where student and/or choreographers can provide direct feedback on video/film content. It could be a useful transcription tool for visually impaired, used for publications of practice-based dance research and for creating annotated dance documentation. It could also be used to help people to learn to dance, as a teaching aid.

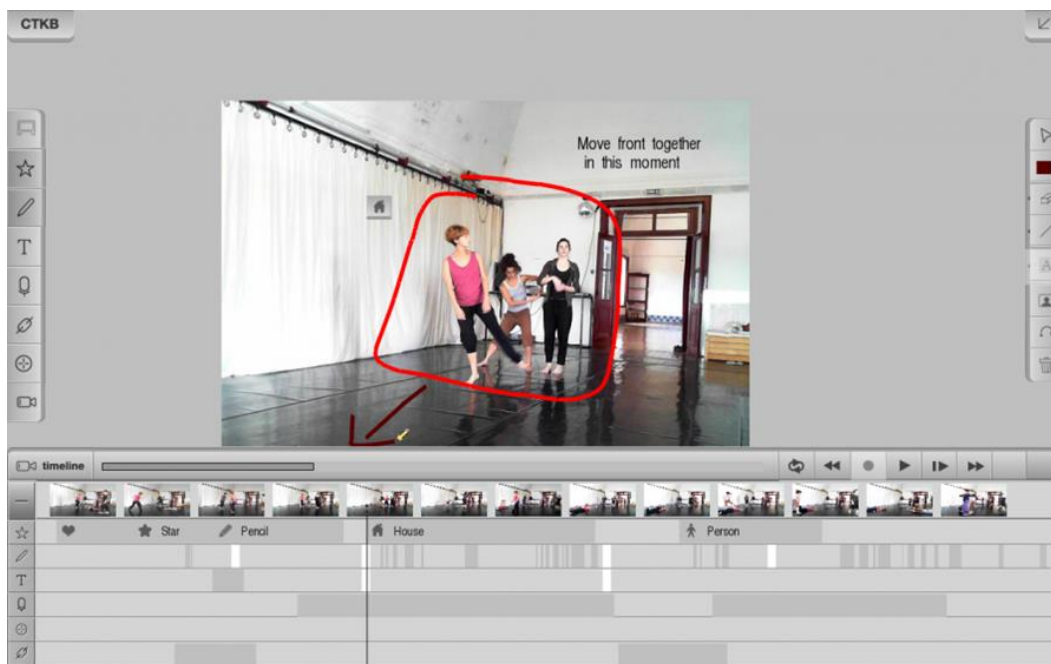


Figure 25: annotation of dance moves to aid learning

Both tools were considered to have the potential to change the way in which dance is taught and experienced in the future.

4.1.2.4 Games Pilot

The partner involved in the Games pilot was COVUNI

Three games were created, a casual game, a creative game and an educational game, each with different features and using cultural heritage content in different ways.

The casual game focuses on restoration. It presents the player with a painting (from Europeana), covered in dust. The aim is to restore the painting as quickly and effectively as possible, challenging the speed and accuracy of the player. The cleaner the painting becomes the higher percentage score is awarded to the user; this enables players to move onto the next picture. Information about the artist, title and location of each painting is available through the credits, and via the Information tab. This game has the potential to teach people about restoration, art practices and cultural heritage.



Figure 26: An image from the 'casual' art restoration game

The creative game allows the player to create collages from filmed footage, encouraging people to draw connections between content and generate their own remixes. This game encourages users to respond creatively to moving images, developing editorial and artistic skills. It is a fun game to play, and allows users to look closely at short clips, encouraging analysis and observation of the content. Attributions are clear, meaning that the user is able to conduct further research of these clips via Europeana. The game has the educational potential to introduce players to the basics of video editing.

The educational game is themed around the format of the self-portrait, using a series of images already drawn from Europeana. This is a fun game to play as users must try to emulate the images presented, or match pictures of other people to the portraits. It encourages close engagement with the painting, and draws users in through its relationship to the popular 'selfie' craze, but equally the picture can be taken of someone else, as a photograph taken on a phone. Once the picture has been taken, a series of colour and tone filters can be added to alter the picture; the objective is to get the photograph as close to the original picture as it possible. This game would bring the 'selfie into the classroom, as a way of considering works of art in a fun and informative way.

4.1.2.5 Open & Hybrid Publishing Pilot

Partners involved in the Open and Hybrid publishing pilot are Goldsmiths and COVUNI

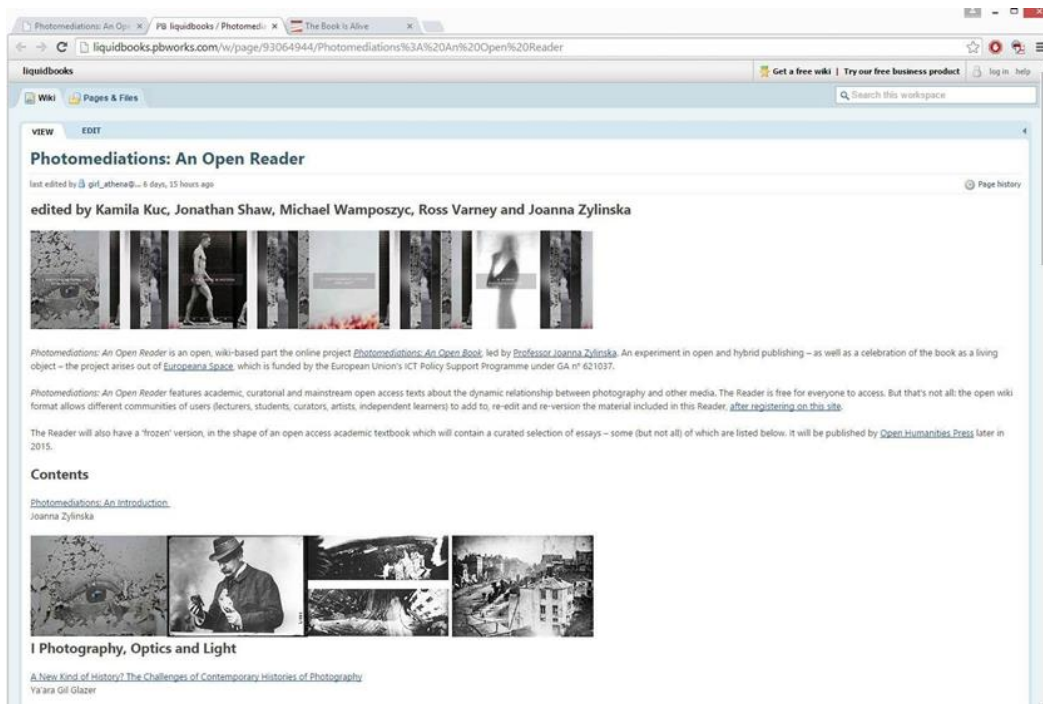


Figure 27: A chapter from the Open Book

The Open and Hybrid Publishing pilot set out to explore the possibilities of developing and embracing different forms and modes of publishing at a time when the traditional publishing model is being challenged by different ways of reading offered by portable reading devices, the wide digitisation of cultural resources, and the increased ease and speed of their electronic distribution. Responding to the ongoing disruption to the established 'closed' publishing structures, the pilot has outlined a model for 'open and hybrid publishing' as an opportunity for various stakeholders who used to be just receivers of published content but who can now themselves become editors and publishers: educators, students, arts and culture managers at institutions such as museums and galleries, artists, curators, etc.

The model for open and hybrid publishing is presented via two key outcomes:

- a creative online resource, called an 'open book', on photography and other media. Redesigning a traditional coffee-table book as an online experience and titled *Photomediations: An Open Book*, it draws its content from Europeana and other open cultural repositories, and features an offline printed component:
- 'A Guide to Open and Hybrid Publishing' in a form of a downloadable pdf brochure, using the open book mentioned above as an example to outline possibilities as well as offer technical and business advice on how to put this model into practice

In an educational context teachers and tutors would be able to develop up to date and relevant teaching materials for their courses, rather than relying upon aging textbooks and traditional images. Student would also be able to build exciting and vibrant portfolios to illustrate their work.

4.1.2.6 Museums Pilot

The Museums Pilot has explored two ways of re-using digitised cultural heritage; the Blinkster app and the Toolbox.

Partners involved in the Blinkster app: Eureva, FST, EVK, SPK and LAM



Figure 28: The Blinkster App

The Blinkster app is a smartphone application that works with image recognition. The idea behind it is that the visitor takes a photograph of an object in the exhibition (or photograph), the object is then recognised and the visitor receives further information about it to further contextualise the museum object.

A possible educational use would be to apply the app to target foreign language speakers, as the exhibition only offers a limited space for text labels. The app could be used as an external display for texts in English or other languages.

The app could be also used to engage young visitors through creating a contest (e.g. be the first one to find this object) or quest (e.g. assigning to each the task of finding a specific object).

Another possibility for educational uses of the app would be to hold workshop with the aim of creating a personalised app tour for the exhibition. People could research museum objects in the exhibition and online, discover new facts and stories, write texts and stories for the tour, photograph objects and add them into the app interface. The personalised tour could then be shared with friends and family.

Partners involved in the Toolbox: Museumsmedien and FST

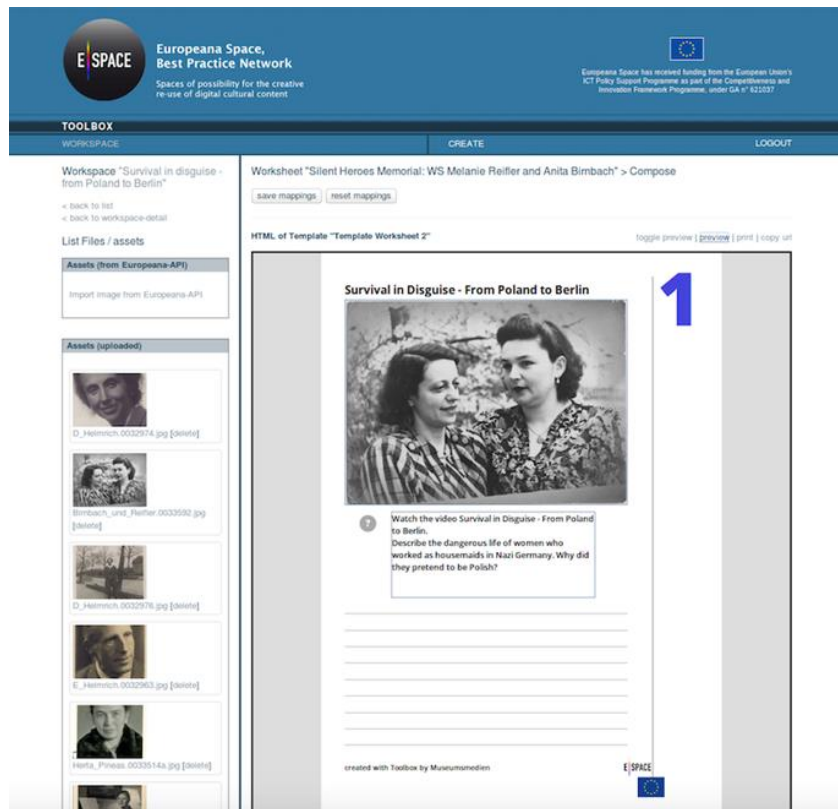


Figure 29: Worksheet example of Survival in Disguise – From Poland to Berlin

The Toolbox is an open source web based application. It aggregates different OS solutions in a very simple and intuitive web interface. The Toolbox was designed specifically for small and medium sized museums and memorials with limited resources to address their needs of being able to create new material for educational activities, for dissemination and for enriching the contents of an exhibition with contents from Europeana.

Museums, memorials and educational staff can easily create new worksheets or storyboard for producing video materials, for example, dragging and dropping images, texts, documents that are stored in their own databases and adding where necessary external related contents from Europeana.

Specific educational activities have been organised in the context of the two German Resistance Memorial Center exhibition using worksheets prepared using the Toolbox. An evaluation activity was organised with museums and memorial staff to improve the usability of the interface. The feedback from end users was extremely useful to develop a very easy to use tool.

4.1.3 Europeana Space - tools for education

There are clearly benefits in using digitised heritage content within spheres of learning, but just because it is so, it doesn't mean that it will happen automatically. Teachers already have busy jobs, without looking for content and, more importantly, trying to understand what they are allowed to use and in which contexts.

The Europeana Space project has produced an [IPR toolkit](#) which includes a glossary of terms, basic IP definitions, as well as factsheets and guidance on topics such as copyright and attribution that can provide simple answers for educationalists.

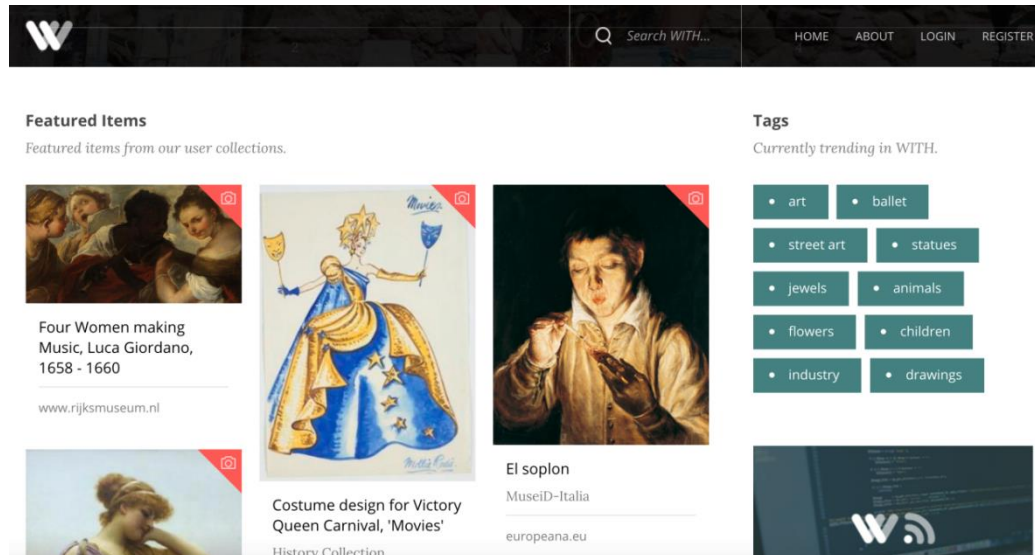


Figure 30: Image of the E-Space portal: where culture meets creativity

The E-Space portal is also available to help teachers and lecturers to find content and to build their own personalised collections of images. Through its API's federated search capability, images in multiple cultural heritage repositories are available including Europeana, The Digital Public Library of America, National Library of Australia, Digital New Zealand, Rijksmuseum, British Library collections on Flickr Commons, Europeana Fashion and YouTube. The portal is available at <http://espace.with.image.ntua.gr/assets/index.html>

4.1.4 The E-Space MOOC

The mission of the E-Space MOOC (Massive Open Online Course) is to show how people can become creative with Europeana and digital cultural content, what Europeana can bring to the learning community, and to educate people that cultural content is not just to contemplate, but to live and engage with.

The course draws upon the experiences of the E-Space pilots, IPR studies and workshops and brings to the MOOC students the results of project research, analyses and test cases. The educational concept behind the E-Space MOOC is in line with the overall objective of the project: to lower barriers to the access and reuse of cultural heritage content on Europeana and similar sources, providing tutorials and trial versions of applications and tools alongside reading materials, useful tips and best practices gathered during the course of the project. Tools, lessons learned and best practices developed are promoted, disseminated and replicated in the MOOC format in order to allow as many interested people as possible to benefit from project experiences.

The target audience for the course is diverse. Every module is organised on three levels to both utilise as much of the content developed by the pilots as possible, but also satisfy the needs of all the potential learners:

- Level 1: targets cultural heritage amateurs, students and teachers. The information provided concerns digital cultural heritage in a broad sense; different kinds of content are presented together with explanations of how to easily reuse them. No technical skills or understanding of the underlying mechanisms of the cultural sector are needed at this level.
- Level 2: targets GLAM professionals. This level pre-supposes a professional knowledge of the sector. The aim is to help GLAM professional discover and understand useful tools – such as those on the E-Space platform and Europeana Labs – that can be used to enhance, remix, rethink, plan and play with collections in new and interesting ways. The idea is to stimulate people to become proactive users of Europeana (and similar) content. This level targets for example teachers who will learn how they can easily create stories and tasks for their students with the Europeana content, saving these stories mixed with their own content into the E-Space content space. It will also target museum professionals to demonstrate how existing tools can enable them to do more with their exhibited contents.
- Level 3: targets developers. This is the most technical part of each module and is intended as a way for developers to discover tools that they can work with (e.g. the multiscreen toolkit, the Europeana APIs etc).

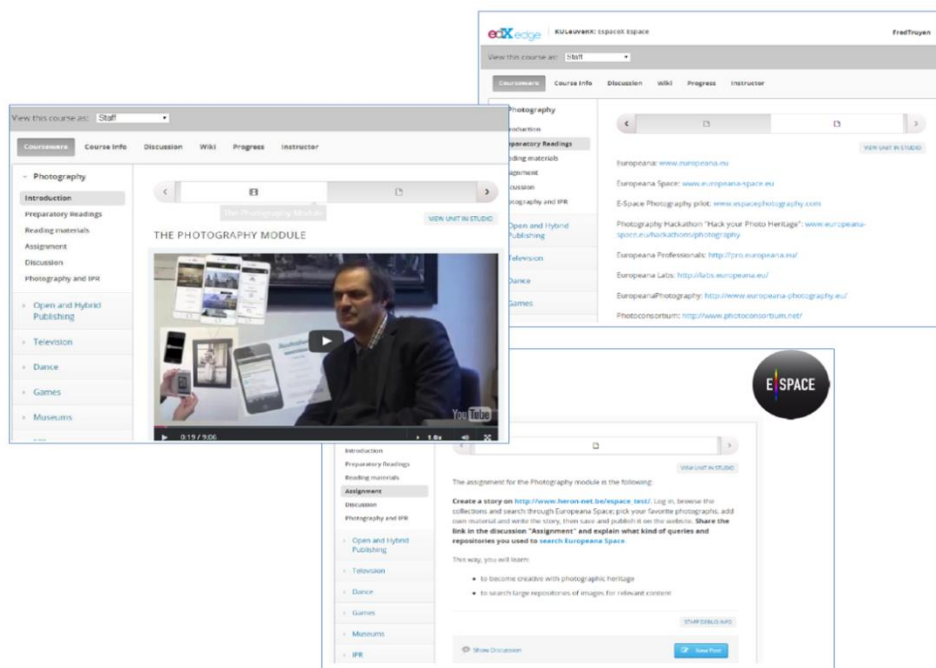


Figure 31: Screenshots from the mock-up page of the E-Space MOOC

This MOOC consists of 8 modules

Introduction: The introductory module provides information on the MOOC and the Europeana Space project. It also gives tips on how to best navigate through the course, its modules and units.

Photography: In this module students will learn how to create their own stories with vintage photographs online, using Europeana and other open content, and remixing it with personal narratives and images.

Open and Hybrid Publishing: In this task-based module the participants will learn how to put together an online book by studying aspects of Photomediations: An Open Book as a case study. Materials included in this session range from online articles on photography and other arts, some visual material, to guidance notes about the use and reuse of CC-licensed material, Open Access and Open and Hybrid Publishing model. The most exciting part of this module is a freewheeling and playful challenge exercise which involves students reusing and remixing pre-existing material from Photomediations: An Open Book in order to create their own resource.

TV: Europeana Space developed a series of multiscreen applications for TV, focusing on reuse scenarios of cultural heritage. Students will learn different ways in which archive footage can be re-used online, which formats exist, and which technology and coding languages can be utilized to make video available in a TV setting.

Dance: The E-Space Dance Pilot MOOC offers a series of activities for learners at different stages, ranging from undergraduates to post graduate research students, to showcase and encourage uptake of the dance pilot tools. The activities will enable learners to build personal dance collections on selected themes and discover how an online annotation tool can support the creation and analysis of dance.

Museums: This module will help participants designing web-based and mobile services which are tailor made for both visitors and museums/memorials staff. It is especially designed for those in charge of designing educational paths, as it shares lessons learned and best practices.

IP for the Cultural Entrepreneur: This module will guide students through the process of managing intellectual property rights, from an initial idea through to a start-up business. They will learn how to develop a clear strategy when it comes to intellectual property rights associated with digital cultural content and its commercial re-use. Participants will be introduced to E-Space tools and case studies which will demonstrate how to clear copyright, source open re-usable content, carry out IP audits and risk assessments, and how to approach licensing and the IPR associated with hackathons, business modelling and incubation.

Creative Marketing: The aim of this module is to stimulate creative ideas on communicating cultural contents with the use of new media and to show how a greater audience can be reached by combining the power of social media and storytelling and how audiences can be better engaged.

The MOOC course began on 10 October 2016 and runs until 10 January 2017 with over 500 students enrolled onto the course. It will be a self-paced course, which means that, although one module per week is suggested, the learners will be able to follow the various modules at their own pace. These first three months will allow the coordinating team at KU Leuven to gain a greater understanding of the audience, their needs, their favorite or least favorite parts of the course and the most popular modules.

At the beginning and end of the E-Space MOOC participants are asked to complete a survey for every module and each presents a section dedicated to questions and feedback. It is hoped that feedback will provide sufficient insight to enable adjustments to be made to the course where and if needed.

The MOOC will continue to promote and disseminate the E-Space experience and message after the end of the project years. The enrollment to the course is available at the following link: <https://www.edx.org/course/europeana-space-creative-digital-kuleuvenx-eurospacex#!>

Further details can be found at: <http://www.europeana-space.eu/education/mooc/>

<http://www.digitalmeetsculture.net/article/creative-with-digital-heritage-e-space-mooc-is-accepting-enrollments-right-now/>

4.1.5 Europeana Space Educational Workshops

4.1.5.1 Best Practice for Education workshop – Athens 22 January 2016

The demonstrators made in the project framework serve as an inspiration and possible model for other GLAMs wanting to develop similar projects. In January 2016, E-Space organised a public conference inviting people from the GLAM, creative culture and education sector to learn about what E-Space has developed in the field. The feedback that was generated on the demonstrator presentation session could be used by the developing teams to further optimise their application.



Figure 32: The EuropeanaSpace educational website

Next to the project sharing its results, also some external experts were invited to speak about digital heritage and education. In order to introduce the E-Space work further, the day started with some introductory keynotes that set the scene. Project partner Thodoris Chiotis (OCC) introduced the Cavafy Archive and its step into the digital realm. Prodromos Tsiavos (PostScriptum) then discussed the difficulty in maintaining openness and diversity in the global MOOCs environment, and how this was handled within OCC.

The story of MOOCs continued with Ignasi Labastida (University of Barcelona) who talked about the meaning of 'open' in education. And to close this session, Alek Tarkowski proposed a Polish project approach to going open in education (and using Creative Commons licenses). In the afternoon the idea of an E-Space MOOC was presented to the public.



Figure 33: Images taken during the Athens workshop

The day was concluded with a few short best practice presentations; successful examples of how heritage is used in educational settings in Europe. E-Space partner Barbara Dierickx (PACKED vzw) presented the Flemish platform Het Archief voor Onderwijs, which is giving

access to audio-visual heritage for teachers; Dr. Balaouras Pantelis (Greek Academic Network) showed the Greek Open Courses Program.

A full workshop report can be found on the E-Space blog:

<http://www.digitalmeetsculture.net/article/e-space-for-education-stories-from-the-athens-workshop/>.

The full programme can be found here: <http://www.europeana-space.eu/thematic-workshops/22-january-2016-best-practice-for-education-workshop/>.

4.1.5.2 Show & Tell & Touch: Digital Culture and Education – Brussels 13 May 2016

During the project, each of the six pilots has demonstrated an educational aspect of their creative re-use of cultural heritage, as detailed above. As there was no obvious forum to showcase this within the project's programme of events, a second educational workshop was scheduled in May 2016 and held at the Future Classroom Lab in Brussels <http://fcl.eun.org/>.

The event was hosted by organising partner PACKED, with introductions made by Barbara Dierickx. The first speaker was Elina Jokisalo who spoke about the work of the European Schoolnet, based at the Future Classroom Lab. She was followed by Antonella Fresa (Promoter) who introduced the project and then three further presentations from invited speakers. These were Hildegard Van Genechten (FARO) who provided examples of educational museum apps, Alain Thillay (French Ministry of Education) who presented Eduthèque: cultural resources for schools and then Stefano Caneva (Wikimedia IT/BE), who outlined the initiative of Wiki in Schools.

The next part of the programme utilised the Future Classroom setting, as each of the project's educational demonstrators had an area where participants could visit and interact with them and talk to the partners (CUT, imec, EVK, OCC and PostScriptum) involved in their development.



Figure 34: A presentation at the Brussels Show & Tell & Touch educational workshop

After the lunch break, each of the six Europeana Space pilots pitched the educational aspects and value based upon the tools created within the project. Speakers were Daniel Ockeloen (Noterik) for TV, Tiziana Lombardo (FST), and Sarah Wassermann (SPK), for Museums, Clarissa Colangelo (KU Leuven), and Frederik Temmermans (imec), for Photography, with a trio of (COVUNI) speakers Jonathan Shaw for Open and Hybrid Publishing, Sarah Whatley for Dance and Tim Hammerton for Games completing the line-up.

Three further presentations followed the pilot session, beginning with Fred Truyen (KU Leuven), introducing the E-Space MOOC. Milena Popova presented #Europeana4Education which demonstrated the importance of this strand of Europeana's work. The final speaker within this section was Prodromos Tsiavos (OCC), presenting Hybrid strategies for hybrid culture.

The concluding session of the day was a panel discussion, moderated by Caroline, Canon Cultuurcel, the Flemish Department of Education, cultural education. She was joined by previous speakers Alain Thillay (French Ministry of Education), Prodromos Tsiavos (OCC) and Milena Popova (Europeana), as well as Kamila Kuc (Goldsmiths) and Gregory Markus (NISV).

The day was summarised by Project Coordinator Sarah Whatley (COVUNI), with a lot of valuable information shared by speakers and participants.

A full workshop report can be found on the E-Space blog:

<http://www.digitalmeetsculture.net/article/show-tell-touch-digital-culture-and-education/>

The full programme can be found here: <http://www.europeana-space.eu/thematic-workshops/13-may-2016-show-tell-touch-digital-culture-and-education/>

4.2 EUROPEANA FOR EDUCATION

At the moment, Europeana gives access to over 50 million digitised cultural heritage artefacts. Meaningful re-use of this material is important, with projects like E-Space supporting them in this goal. Europeana is also operating at higher policy level. During strategy meetings under the Italian and Latvian Presidencies (2014/2015) facilitated by the Europeana Foundation, European Schoolnet and EUROCLIO – European Association of History Educators, they produced a set of recommendations for the use of digital cultural heritage in education and learning.⁵⁶ These recommendations were created by policymakers from European Ministries of Culture and Education and experts in the field of education from 21 different countries.

“There is a wealth of digital heritage available online. World renowned galleries, archives, museums and libraries provide online access to their collections, and many local initiatives make digital heritage more widely available. As access to the internet improves, and more people own smartphones and other similar devices, these collections can be accessed online by students and educators with fewer and fewer technological barriers. So far, however, this has failed to lead to the improvements in education you might expect. Why is this? And what can be done to unlock the potential for the (re)-use of digital heritage in education?” - Europeana blog⁵⁷

To answer these questions and look up practices from the field, the ‘Europeana Taskforce for Education’ (a cross-domain group of professionals working in the field of digital heritage and education) was set up. The E-Space project was also represented in this Taskforce, which was operational from 2014-2015. Its findings were presented at the Europeana AGM, November 2015.

⁵⁶ Available online: <http://pro.europeana.eu/publication/europeana-for-education-policy-recommendations>

⁵⁷ See <http://pro.europeana.eu/blogpost/seven-keys-to-unlocking-digital-heritage-for-use-in-education>



Figure 35: Barbara Dierickx (PACKED vzw, E-Space project WP5) presenting during the second meeting of the Europeana Taskforce for Education, 6-7 October 2015 at the National Audiovisual Archive of Poland (Warsaw)⁵⁸

The outcomes of the Taskforce took the shape of recommendations. They are presented in the form of seven 'keys' to unlock the potential for re-use of digital heritage in education:⁵⁹

- relevance of digital heritage for educational purposes. Collections should be used to enable specific learning outcomes.
- discoverability of digital heritage. For digital heritage to be easily found, ensure metadata includes search terms that educators and students use.
- there is sufficient context information about the source, for instance, essential information such as maker, author, date and translation.
- the source is of sufficient quality (e.g. texts are readable, essential details visible).
- copyright allows for re-use. It must be legally possible to use the digital heritage in open educational research that can be shared.
- easy and reliable access: the sources can be used beyond where they are found, for example through direct links or embed functions, and links do not change.
- interoperability: use via different learning platforms is possible, e.g. the standards used in the digital collections are interoperable.

The Taskforce also pointed out three factors that influence making these recommendations happen. They are:

- significant investments are needed in order to create these conditions, and business models are lacking.
- a variety of key stakeholders must be involved, and their interests are sometimes conflicting.
- the nature of education and technology is changing at a rapid pace.

In order to continue the work on trying to overcome these hurdles, the Taskforce aspires to continue operations. Europeana launched an according hashtag to promote education related projects or ideas with '#Europeana4Education'.⁶⁰

⁵⁸ Short meeting report available here: <http://euroclio.eu/2015/11/europeana-taskforce-for-education-meets-in-warsaw/>.

⁵⁹ See <http://pro.europeana.eu/blogpost/seven-keys-to-unlocking-digital-heritage-for-use-in-education>

⁶⁰ Find results at <https://twitter.com/search?q=%23Europeana4Education>.

The Taskforce will also release a series of blog posts about interesting novelties in the field and demonstrations of best practices. The E-Space demonstrators will be featured on this blog with dedicated articles.

The educational legacy that E-Space pilots and demonstrators will generate certainly impacts and contributes to the common efforts for providing *“added value to education and learning by facilitating and encouraging the open access and (re-)use of digital cultural heritage by students and educators,”* as described in the Europeana for Education and Learning policy paper (May 2015),⁶¹ particularly to the action items of:

- emphasising the development of inclusive and accessible digital learning resources;
- promoting open licences and improve access and re-use conditions that underpin education and learning.

⁶¹ Online available from

http://pro.europeana.eu/files/Europeana_Professional/Publications/Europeana%20for%20Education%20and%20Learning%20Policy%20Recommendations.pdf

5 MYTHS, TRENDS & OPPORTUNITIES

The digital education landscape is evolving at a rapid pace, making it attractive for digital heritage professionals to see whether this may also prove to be an opportunity for them. But is 'new' and 'change' always a good thing? Does the value of digital cultural heritage really enhance learning experiences? This chapter tries to demystify some of the perceived trends and opportunities that digital + heritage + education have to offer.



Figure 36: At the 2016 Media & Learning conference, speaker Lode Vermeersch questions why we need a change to pen and paper in education, as this proves to be a successful combination for years now

5.1 IMPACT

Technology is everywhere, yet it seems that the current educational tools have failed to produce desired learning outcomes. This is at least what the US Organization of Economic Cooperation and Development states in a 2015 report.⁶² They claim that investments in classroom technologies are yielding *“no appreciable improvements in student achievement in reading, mathematics, or science.”* The study also found technology to be of little help in trying to overcome the digital divide (bridging the skills between advantaged and disadvantaged students). It also contained the fascinating sentence *“Students who use computers very frequently at school do worse than their peers.”*⁶³

*“Will teachers be replaced by robots?” - Scott McLeod*⁶⁴

⁶² As stated in a 2015 report by US Organization of Economic Cooperation and Development, see http://www.oecd-ilibrary.org/education/students-computers-and-learning_9789264239555-en;jsessionid=34jaoc5rixr83.x-oecd-live-03.

⁶³ Idem.

⁶⁴ <http://www.edutopia.org/blog/are-we-getting-smarter-about-ed-tech-suzie-boss> (Nov 15) Scott McLeod (@mcleod), a leading voice in educational technology, at an international conference earlier this year.

Apparently not so fast; will we just have to return to books and blackboard then? Maybe. Expert in the (international) field Yong Zhao⁶⁵ wrote an excellent news post entitled 'Five Big Mistakes in Education Technology and How to Fix Them'.⁶⁶ In his post he explains why it is wrong to believe that technology substitutes as a teacher. Zao argues that despite the results of the OECD study, "[...] *enthusiasm for technology never seems to have been affected by the 'failures'. If anything, it keeps increasing, despite repeated reports of no-significant-impact.*" He goes on to state that the same mistakes are repeated in a cyclic movement, over and over again. Any new technology seems so compelling that no time can be afforded time to reflect. *"We must act quickly to realize the potential of the new technology. Otherwise, we'd be missing out on its educational benefits. As a result, we have been repeating the same mistakes."* This stands in contrast to the investments made to integrate technology into learning, including preparing teachers-to-be and creating masses of learning resources.

The five reasons he sums up as being responsible for why this impact is not as big as anticipated are:⁶⁷

- stop thinking of technology as something to either replace or aid the teacher. Technology can replace certain functions of the human teacher but not entirely. In the meantime, teachers should relinquish some of their teaching responsibilities to technology and shift their energy to do things that technology cannot do (see the blended learning, whereby a video is viewed to get the information, while the teacher is in situ to answer questions or provide clarification).
- do not use technology to help students 'consume' information more effectively, but help students to use technology as a tool for creating and making authentic products.
- move away from too much standardised testing: with increasing pressure on schools to improve student academic achievement, investment in technology has historically been justified as an effective way to raise academic results or test scores, but has been used in a limited way by providing traditional instruction through this new medium rather than as a transformative tool to create better education for all students.
- traditional approaches to educational technology have not typically viewed digital competence or the ability to live in the digital age as legitimate educational outcomes. Consequently, not much attention has been given to transforming schools into environments that cultivate digital competence.
- the final mistake is the approach to professional development of educators. Too often professional development efforts have been driven by technological products instead of the needs of students and educational change. Technology changes fast. Nevertheless, professional development programs often have a focus on teaching teachers how to use the newest technological tools instead of focusing on what students need and how technology as a whole can affect education.

⁶⁵ See <http://zhaolearning.com/>.

⁶⁶ See <https://www.washingtonpost.com/news/answer-sheet/wp/2015/10/06/never-send-a-human-to-do-a-machines-job-five-big-mistakes-in-education-technology-and-how-to-fix-them/>.

⁶⁷ See also Zhao's book at

<http://www.amazon.com/gp/product/1452282579?ie=UTF8&camp=1789&creativeASIN=1452282579&linkCode=xm2&tag=thewaspos09-20>.

What can be done then? According to Zhao there is a need to rethink the way in which technology versus the human factor is seen. He believes that technology is there “*to extend, expand and/or replace certain human functions. The redefinition of relationship can only happen when we begin to reimagine what education should be.*”⁶⁸ and this should then also happen in teachers’ minds. The way things are taught should be changed in relation to technology. Tech is still too often seen as a goal, not as a means to a (meaningful) end. Schools integrate technology because it is innovative, but teachers often forget to adapt the way they are teaching classes. Improving teacher skills is imminent⁶⁹ (see below).

However, there are some IT applications that really yield results. The French example of D’COL offers help to students who otherwise would be falling behind. This online platform offers interactive connectivity with teachers who are available for additional instruction time, as well as tests, subject information and exercises. The digital platform is designed for students with lower grades in Maths, French and English language and can prove positive results – with increases of around 10% to their previous understanding of the subject matter.⁷⁰

Of course, teachers will not be replaced with mere video any time soon. A Belgian university professor outlines that: “*There are still a lot of skills which you cannot train in an online environment, for example cooperating. Direct contact between a teacher and a student still has an added value. Sitting solely behind your computer is just a lonely thing.*”⁷¹

5.2 (OPEN) EDUCATIONAL RESOURCES (OER)⁷²

If technology can be used in a positive and impactful way, a good content is still required to feed it. So what is a ‘good’ resource? As mentioned in earlier paragraphs, it should be of sufficient quality i.e. high resolution, high frame rate, high audio quality, and should be well described, proper pedagogical metadata and LOM data. But most importantly, the object should be easy to find and freely re-usable. When the resource is openly available, educators need to invest less in ‘getting’ to use it. Teachers should not be burdened with the legalities of re-use, especially for educational purposes, nor should educators be burdened with having to search through poorly designed and organised online databases to find specific items. Both of these burdens detract from the learning process and a teacher’s real duty.

There are two understandings of making a resource openly available:

- ‘access without paying’ (gratis);
- ‘re-use with clear, or no specific educational context, requirements’.

⁶⁸ See <https://www.washingtonpost.com/news/answer-sheet/wp/2015/10/06/never-send-a-human-to-do-a-machines-job-five-big-mistakes-in-education-technology-and-how-to-fix-them/>.

⁶⁹ See http://www.iminds.be/nl/nieuws/20150924_news_educational-apps-gap.

⁷⁰ See <http://www.education.gouv.fr/cid97171/le-dispositif-d-col-dans-les-colleges-de-l-education-prioritaire-aide-principalement-les-eleves-les-plus-faibles.html> and <http://www.education.gouv.fr/cid97847/le-numerique-au-service-de-la-reussite-des-eleves.html>.

⁷¹ Bart De Prins, see <http://icto.ugent.be/sites/default/files/Nieuws-DeStandaard-Chillen%20met%20de%20prof.pdf>.

⁷² The field of OER is very big, and could easily be covered in another full deliverable. For further information about OER in/and cultural heritage, check out the work by Lisette Kalshoven (Kennisland, NL) or Kamil Sliwowski (Creative Commons Poland).

This part focusses on the second understanding whereby open mainly relieves the re-users of difficult copyright restrictions. So what exactly is the problem? In almost every European country, a teacher can benefit from exceptions and limitations regarding use of copyrighted materials in his/her classroom,⁷³ but how this is arranged in specific situations may depend on national legal implementations. Another issue is the physical versus virtual space. Showing a copyrighted clip in a classroom may not be a problem, but screening it in a virtual learning environment may be. In times where more and more teaching is happening outside of the classroom, this unnecessary discrepancy must become reduced.

“The educational copyright exception is unclear whether it covers the use of protected works within education regardless of their medium (physical or digital), online or offline. As noted, Europe needs a copyright exception that empowers teachers with sufficient freedom to do their job the way they want and need. Copyright should not be a barrier in providing high quality, flexible education.” - Alek Tarkovski, CC Poland

This is why there is a need for more Open Educational Resources (OER). According to Wikipedia,⁷⁴ OER are freely accessible, openly licensed documents and media that are useful for teaching, learning and assessing as well as for research purposes. Teachers using OERs should not have to worry about whether they are allowed to use these resources or not, because that would be self-evident.

On the one hand there is the content provided by GLAMs, on the other hand content produced by teachers themselves. If full lesson plans become available as OER, they may also boost peer-to-peer sharing.⁷⁵ This is why, in the Netherlands, schools are informed about creating an open policy and sharing the teaching materials they have produced. The iScholengroep,⁷⁶ a Dutch mediation organisation for ICT in education, worked together with Kennisland on the creation of a model policy for going open as a school. It includes information to support teachers in making available their own materials as OER.⁷⁷

⁷³ See for example <http://www.communia-association.org/2015/07/02/simple-is-beautiful-copyright-exceptions-for-education>.

⁷⁴ https://en.wikipedia.org/wiki/Open_educational_resources.

⁷⁵ Even though sharing class materials or lesson plans is possible, there is a degree of reluctance to do this. Some teachers may feel that they have put in quite an effort in creating the plan and making meaning out of different resources, and that therefore they do not wish to just share it with peers.

⁷⁶ See <http://ischolengroep.org/wat-willen-wij/>.

⁷⁷ Available from <https://www.kl.nl/publicaties/model-voor-auteursrechtenbeleid-rond-open-onderwijsmateriaal/>.

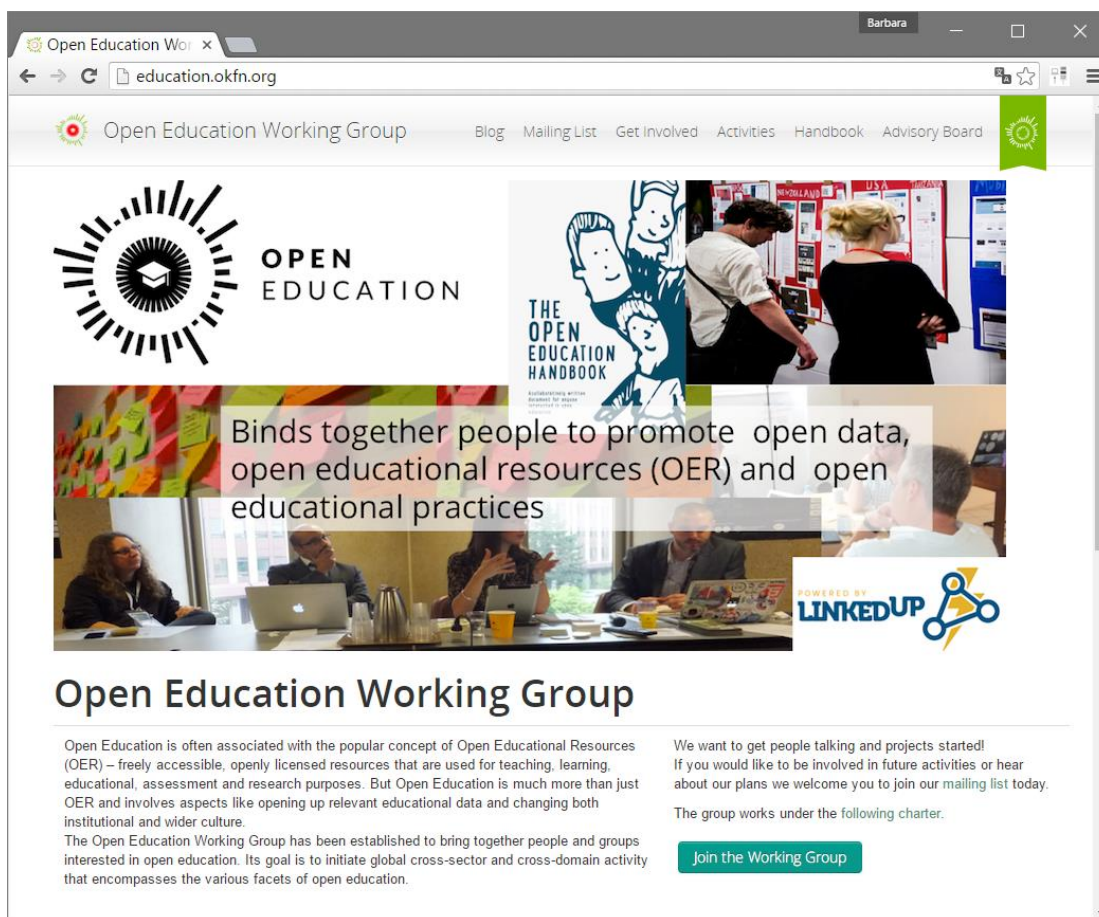


Figure 37: Screen of the international Open Education Working Group website by Open Knowledge Foundation

The Open Education movement is very international, as illustrated by the European Commission's Joint Research Centre (JRC), which has published a catalogue showcasing a set of fifty cases that illustrate a variety of ways in which European higher education institutions and other players have embraced the open education movement.⁷⁸

A few local examples are worth mentioning too. Edu-AREA⁷⁹ is an open educational resources platform to support teaching innovation developed at the University of Vigo in **Spain**. Its main goal is to promote teachers as innovators, developing their own lesson plans and contributing to the adoption of open education. The platform supports the creation of activities and lesson plans, where OER can be developed including links to externally hosted support OER. For **German** speaking countries, a nice poster⁸⁰ has been created indicating where one could find open educational resources, and how teachers can contribute to making OER available too. It lists several places where teachers can find open 'treasures', including cultural heritage sources such as Kulturpool, the Austrian aggregator for Europeana. In the **UK**, a step-by-step OER guide is available from the Leicester schools group.⁸¹ A very active OER community is also working in **Poland**.⁸² The Polish Coalition of Open Education and Digital School was the first

⁷⁸ See <http://www.openeducationeuropa.eu/en/news/ec-publishes-catalogue-50-cases-illustrate-ways-which-europe-has-embraced-open-education>

⁷⁹ See <http://www.edu-area.com>

⁸⁰ See <http://onlinecampus.virtuelle-ph.at/mod/page/view.php?id=32645>

⁸¹ See <http://schools.leicester.gov.uk/services/planning-and-property/building-schools-for-the-future-bsf/open-education-for-schools/>

⁸² See also the presentation given by Kamil Sliwowski during the 1st educational event by E-Space in Athens, January 2016.

nationwide and available for all school levels and subjects programmes creating open school textbooks. Poland has become very active in the OER field, both importing projects and resources from English-speaking countries (such as making Khan Academy translations) and exporting their own ideas. The Coalition for Open Education and Creative Commons Poland are trying to show best practices from Poland and some projects like edukacjamedialna.edu.pl are starting to create second language versions of their resources.⁸³

5.3 ICT USE IN SCHOOLS

GLAMs are increasingly expected to perform at a certain level of quality (in terms of making content optimally accessible). However, teachers are facing greater personal challenges in relation to dealing with new technologies and resources. This trend was already highlighted in the 2014 Horizon report, as “[...] teachers are increasingly expected to be adept at a variety of ICT-based and other approaches for content delivery, learner support, and assessment; to collaborate with other teachers both inside and outside their schools; to routinely use digital strategies in their work with students and act as guides and mentors; and to organise their own work and comply with administrative documentation and reporting requirements.”⁸⁴

There are two sides to the story. There is the strong need to help teachers become technology- and media savvy, but on the other hand tech and resource providers play a role in supporting the teachers.

“Others, I think, believe in the simple interaction between learner and content that technology can obscure. For them, maybe, technology is making a lot of noise in a room where they’re trying to get important work done, like a rock band in a library.” - Terry Heick⁸⁵

A recent study (2015) by iMinds⁸⁶ looks into tablet use in classrooms. It shows that 94% of respondents think that ICT in education provides an added value, while only 22% of them indicated that they actively use a tablet during a lesson. The study formulates four points for better tablet integration in education, which may also be easily translated to other carriers or digital devices.

1 - Improve technology

In this study, the available infrastructure is seen as most important hurdle to use ICT in the classroom. The most often called problem in this is an insufficient Wi-Fi connection, which is only accessible to students in 50% of the cases.⁸⁷ Also in terms of software more than 80% of teachers indicated that more support from the private sector (e.g. publishers) was needed, because in many cases existing apps were not adapted to the national curriculum, or were not offered in one of the national languages.

⁸³ See for example <http://www.openeducationeuropa.eu/en/article/Open-Educational-Resources-in-Poland%3A-Challenges-and-Opportunities>.

⁸⁴ (Horizon report 2014 p. 12, available from <https://ec.europa.eu/jrc/en/publication/eur-scientific-and-technical-research-reports/horizon-report-europe-2014-schools-edition>.

⁸⁵ See <http://www.teachthought.com/pedagogy/why-some-teachers-are-against-technology-in-education/>.

⁸⁶ See <https://mediawijs.be/dossiers/dossier-mediawijsheid-school/edutablet-%E2%80%93-platte-schermen-diepe-inzichten>. Project research: <http://www.deappklas.be/home>.

⁸⁷ The schools themselves – board and management – expect more support from the private providers in this, and indicated that government funding does not cover the need.

2 - Support teachers

On average teachers take three additional schoolings per year, of which (only) one is ICT related. The researchers also discovered a contra-effect: teachers who experience more stress from working with ICT, follow less ICT-related schoolings. Unfortunately older and female teachers are most affected by this, and feel nervous and uncomfortable when using ICT in class. Adapted schoolings, tailored to the expectations and skills of teachers, may help them to overcome barriers such as fear and loss of time.

3 - Advice on the learning context

All benefits that tablets may generate stand or fall with what is done with the learning resources in the classroom. The iMinds study for example has shown that students mainly learn and are more motivated when the tablet is complemented/switched with classical, offline moments (so called 'blended learning').⁸⁸ The step-by-step lesson description, which is so typical for a paper handbook, is totally absent for digital learning resources. Such guidelines would save teachers time in their lesson preparations.

4 - Appropriate ICT policy in schools

From the questioned principals and ICT coordinators in schools, it turned out that only 50% of them actually have an ICT policy. The adoption of tablets by schools is not always a well thought through choice supported by an institutional vision. The researchers clearly advise establishing and implementing such policies in schools, containing clear and specific goals, a well formulated approach to the choice of digital learning tools and the goals that one wants to reach.

So the circumstances or decisions made at school level may facilitate things for teachers, but they themselves also have to step up their game. Effectively integrating technology in the classroom is not a natural given. As professionals, teachers have to understand content, teaching and technology as equals because otherwise it illuminates gaps in a teacher's expertise. That does not mean that teachers who are questioning the use of educational technology in their practices do so just because they are not good at it, but one rarely hears people complain about things that they master. On top of that, education technology is costly. It takes practice and a lot of trial-and-error and just when one starts to find a rhythm, it all changes again.⁸⁹

In order to prepare teachers to tackle technology with sufficient understanding of how to USE it in their daily practice, teacher education also starts to offer specific training modules. The francophone Haute Ecole Francisco Ferrer (HEFF, Brussels) offers a one-year training on integrating technology in education.⁹⁰

So when training is complete and objectives for using ICT in the classroom are clear, it is time to finding useful (and preferably open) digital educational resources. The fact that several resources are openly available, does not mean that they will now be used by teachers at every possible occasion.

⁸⁸ See https://en.wikipedia.org/wiki/Blended_learning.

⁸⁹ See <http://www.teachthought.com/pedagogy/why-some-teachers-are-against-technology-in-education/>.

⁹⁰ Programme see <https://www.brussel.be/dwnld/78264013/TICE.pdf>.

As with other re-use sectors – creative market, research, and entertainment – they still need to be marketed in the right way. In their day-to-day activities, teachers already have to deal with a huge amount of activities. It cannot be expected that teachers will go diving into the more than fifty million records available on Europeana. Some kind of education on relevant curation is a must, and there are several parties who can take up a role here.

First of all the GLAM resource providers need to make the records easily identifiable and usable. Second, the platforms offering the content have the responsibility to curate, either the institution's own website or a large aggregator like Europeana. Simply throwing a lot of content online is poor public service and worse marketing. Curation around themes, time periods, people, places etc. will make the collections easier to navigate and exploit.

- **Content curation in Themes:** the teachers look for material to bring together that fits within a given theme, with the necessary LOM-metadata. Broader subjects, such as 'voting and elections', are offered for different age categories.

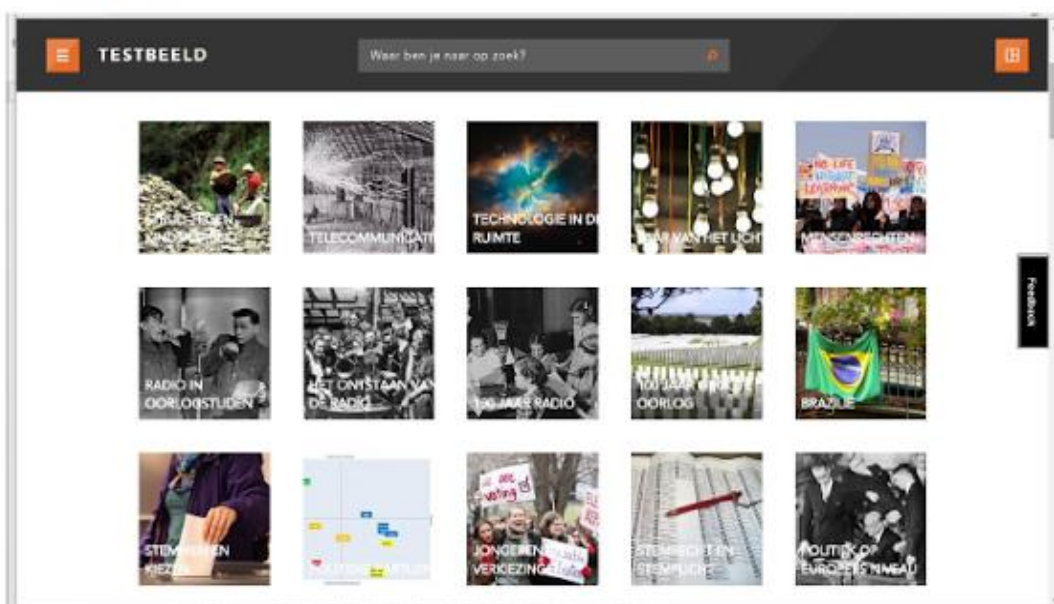


Figure 38: Screen of the 'Themes' page on the Het Archief voor Onderwijs platform, whereby audio-visual heritage content is already grouped together based on categories and themes that appear in the national curriculum

5.4 GAMING

Improving pupils' skills through gaming has become increasingly popular because these games capitalise on the benefits of engagement and interest. A 2015 Schoolzone report states that "In 2007, Becta research reported the growing trend in educational software developers merging principles and design features from their commercial software into their edutainment resources, such as LTS's 'The Serf's Quest' and the BBC's online curriculum 'BBC Jam'. These intended to deliver learning experiences which embodied video, games, audio and animation."⁹¹ Digital game based learning is thought to motivate students and transfer knowledge, but do games really reach these goals? Or is their impact highly exaggerated?⁹²

⁹¹ See [http://www.schoolzone.co.uk/schools/articles/Digital Revolution in schools 2015.pdf](http://www.schoolzone.co.uk/schools/articles/Digital%20Revolution%20in%20schools%202015.pdf) p. 8.

⁹² See http://www.iminds.be/nl/nieuws/20151124_educationalgames-learningeffect and video 'Gamification for education', available from <https://vimeo.com/145123093>.

A recent study by the University of Ghent looked into this issue and checked whether educational games were more effective than traditional teaching methods, when teaching English vocabulary to primary school kids. They also checked whether a debriefing (reflecting about the learning experience together with the teacher) had any impact on the learning effects. The results of the tests show that the game scored equally well as the traditional lesson in the short term. In the longer term however, pupils who followed a 'classical' lesson scored significantly higher. The English vocabulary stuck better in their heads when taught by a teacher. The pupils on the other hand liked the learning experience better when it was done via games. Adding a debriefing session after playing the game did not generate an added value in terms of learning effect compared to only playing the game.⁹³

These results do not imply that games are entirely useless. Students think games are much nicer and they may be used as a teaser to instigate curiosity and attain a first learning effect. Then the teacher can follow this in a more traditional way and establish a learning effect in the longer run. Such approach provides an opportunity for students who are less motivated to get to school. Games may also help to heighten the self-esteem of lower performing students before the traditional lesson, to shorten the learning gap between them and their higher performing classmates.⁹⁴ This assumption is also backed by a 2014 U.S. survey on the topic, which indicated that "[...] perhaps the biggest impact of video games will be on students who have not responded as well to traditional teaching methods. Nearly half of the teachers surveyed say it is the low-performing students who generally benefit from the use of games, and more than half believe games have the ability to motivate struggling and special education students."⁹⁵

Scot Osterweil, research director at Massachusetts Institute of Technology's Comparative Media Studies programme and creative director of the school's Education Arcade initiative (exploring how games can be used to promote learning), thinks that games in class are still a powerful learning tool when combined with other exploratory, hands-on activities and ongoing instruction from a teacher acting more as a coach than a lecturer.⁹⁶

Another benefit of gamification in education may lie in the impact gameplay can have on developing technology skills that will come in handy in these pupils' future academic and professional careers. Most school children are familiar with Minecraft, a digital game that promotes imagination as players build various structures out of cubes. Now there is also MinecraftEdu, a version of the game that teachers created for educational purposes, which teaches mathematical concepts including perimeter, area and probabilities, as well as foreign languages.⁹⁷

However, the question may also be, do games provide added value or if they are just another market fad that players are tapping into. Valve Corporation, an American video game developer and digital distribution company⁹⁸, created an entire educational platform around their programmes Portal™ and Portal 2. The websites 'Teach with Portals'⁹⁹ and 'Learn with Portals'¹⁰⁰ are supposed to help teach physics and critical-thinking skills.

⁹³ See http://www.iminds.be/nl/nieuws/20151124_educationalgames-learningeffect and video 'Gamification for education', available from <https://vimeo.com/145123093>

⁹⁴ Ibidem

⁹⁵ See <http://www.scientificamerican.com/article/fact-or-fiction-video-games-are-the-future-of-education/>

⁹⁶ Ibidem

⁹⁷ Ibidem

⁹⁸ See https://en.wikipedia.org/wiki/Valve_Corporation

⁹⁹ See <http://www.teachwithportals.com/index.php/about/>

¹⁰⁰ See <http://www.learnwithportals.com/>

There is no proof (yet) of the impact that these platforms may or may not have on these two suggested areas of impact, and how it might affect knowledge gain in this area. Perhaps creating or maintaining the trend, may be of more interest to companies rather than school context.

5.5 THE MARKET

Going digital within schools is costly as both software and hardware are expensive. And numerous businesses are fighting for a slice of the cake: both big corporate establishments and creative start-ups.

Administrative information is communicated to university students via a mailing system, or perhaps an online learning platform. Such a platform is used to enrol for courses, have message boards for student-professor interaction, gather video or slide presentation material for the course(s), etc. Blackboards in primary education have been dismissed for interactive whiteboards, requiring a computer playing a piece of dedicated software to 'run' the board's programmes and features. A beamer is required to project information onto it or play audio-visual content. Students may work on single tasks from their individual tablet.

Not only does this new classroom picture require a significant investment, 'having' something does not mean it is a one-off cost without future investments. On the contrary, operating systems must stay updated and compatible, software or projects created must be interoperable on different devices, etc. The ICT 'look' of a school may not be an all new 'Apple everything' environment, but is in many cases an eclectic collection of hardware. A handful of nineties desktop computers, six-year old interactive whiteboards as well as brand new ones, a handful of Android tablets that were bought in a region-wide group purchase with other schools and some Apple iPads that were donated. One teacher brings a personal laptop to school, while some others work with school machines. This kind of setting is often already quite challenging to start with, let alone to maintain or fit into a school's ICT education policy.

So what does the future hold? Software seems to be clearly moving in directions that support tablets and other devices. In particular, the move to cloud-based provisions means that devices can be used both at home and at school. Alongside this, schools are more likely to purchase software by subscription and (wireless) internet access in schools has become more reliable. This is likely to be a growth area as existing provision becomes redundant and the cost of large-scale replacement is pressured by reduced school budgets.¹⁰¹

As the UK associations Schoolzone states, *"Where previously schools had focused their attention on school-wide, expensive systems [...] they now see a future in tablets delivering the same benefits they see when using them at home. Much of the growth in spending, especially in primary schools, is related to the uptake of tablets, especially iPads, and this is expected to continue to grow, as far as budget constraints allow."* However, this is still a bit of a wild frontier for schools – will the novelty wear off? Will (secondary) schools be too reluctant to abandon desktop suites having invested so heavily in the infrastructure?¹⁰²

Europeana has recently teamed up with Apple and its distinguished educator programme to launch a Multi-Touch book and iTunesU course.¹⁰³ These resources take material contributed to Europeana about the First World War and transform it into teaching resources for the

¹⁰¹ See http://www.schoolzone.co.uk/schools/articles/Digital_Revolution_in_schools_2015.pdf p. 3-4.

¹⁰² See http://www.schoolzone.co.uk/schools/articles/Digital_Revolution_in_schools_2015.pdf p. 3.

¹⁰³ Learn more about this project at <http://pro.europeana.eu/blogpost/an-apple-for-the-teacher-interview-with-gwen-vergouwen>.

classroom.¹⁰⁴ It allows learners to explore a diverse range of diverse historical sources from Europeana 1914-1918 alongside learning resources from EUROCLIO. From letters exchanged between a German soldier and a British girl, to the ID card of a prisoner of war, the build up to the conflict is shown from a number of different perspectives. Using these unique historical materials, students are encouraged through a variety of interactive assignments to develop their own understanding of what lead to war in 1914. The book was developed jointly by Europeana, EUROCLIO and Gwen Vergouwen, an Apple Distinguished Educator (ADE) and Belgian history teacher, as part of Apple's ADEs in Residence Programme.



[View in iTunes](#)

Free

Available on iPad, iPhone and Mac.

Category: History
Published: Oct 05, 2015
Publisher: Europeana
Seller: Europeana
Print Length: 58 Pages
Language: English
Version: 1.0

Requirements: To view this book, you must have an iPad with iBooks 2 or later and iOS 5 or later, or an iPhone with iOS 8.4 or later, or a Mac with OS X 10.9 or later.

Customer Ratings

We have not received enough ratings to display an average for this textbook.

Description

This Multi-Touch book introduces secondary education students and history enthusiasts to different interpretations of what caused the First World War.

It allow learners to explore a diverse range of diverse historical sources from Europeana 1914–1918 alongside learning resources from EUROCLIO. From letters exchanged between a German soldier and a British girl, to the ID card of a prisoner of war, the build up to the conflict is shown from a number of different perspectives. Using these unique historical materials, students are encouraged through a variety of interactive assignments to develop their own understanding of what lead to war in 1914.

The book is developed jointly by Europeana, EUROCLIO and Gwen Vergouwen, an Apple Distinguished Educator (ADE) and Belgian history teacher as part of Apple's ADEs in Residence Programme. ADEs work with some of the world's leading museums, archives, science centres, and cultural organizations to develop innovative teaching and learning resources.

Screenshots

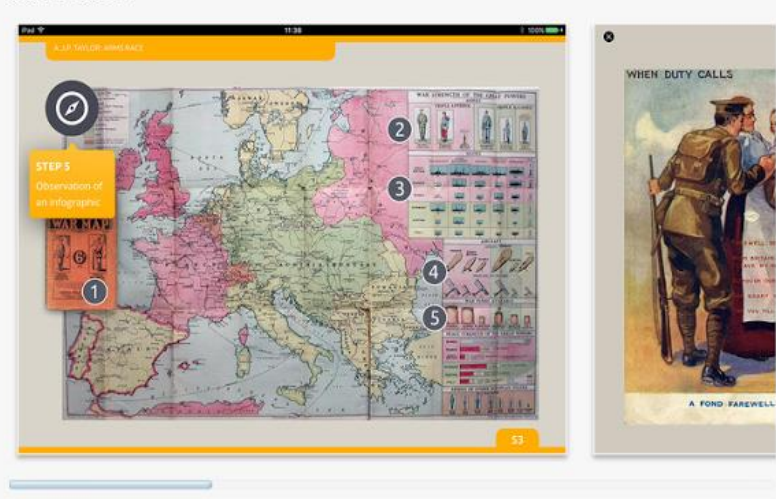


Figure 39: Screen of Europeana's iTunesU book on World War I

This approach of course generates a win-win situation. Content from Europeana (and underlying GLAM institutions) gains visibility by getting published on a channel like iTunesU. On the other hand, the book can only be viewed on dedicated Apple devices,¹⁰⁵ which need to be purchased.

There are also examples of co-operations between the GLAM sector and more 'traditional' educational publishers – those who print paper textbooks. In order to add a tech/AV content to their textbooks, these publishers tended to print CD-ROMs including additional content such as a video snippet, photo slides, or a pre-recorded lecture.

¹⁰⁴ Download the book here: <https://itunes.apple.com/us/book/world-war-i-battle-perspectives/id1044759339?mt=13>.

¹⁰⁵ The specifics read: "To view this book, you must have an iPad with iBooks 2 or later and iOS 5 or later, or an iPhone with iOS 8.4 or later, or a Mac with OS X 10.9 or later." - see <https://itunes.apple.com/us/book/world-war-i-battle-perspectives/id1044759339?mt=13>

These CDs then got shipped together with the textbooks and now and then they would need to be updated, reprinted and shipped again. In order to make this kind of updating more flexible (and also cheaper for the publishers), the Flemish VIAA¹⁰⁶ cooperates with these publishers. They grant them access to a vast repository containing several thousands of digital assets (such as video fragments, news clips, digitised newspapers) from Belgian GLAM institutions and the national broadcasting company. In this closed repository, that is only accessible for teachers, the publishers build their own collections of relevant materials. They gather these collections or single assets under their own publishing account and make this known in the printed textbooks. Teachers can surf to the page of the textbook publisher, select their topic and age, and find the appropriate additional content that is connected to their own very textbook.

A final component to do with market thinking is impact, or branding. Moving at the forefront of digital educational resource creation (be it open or not), may add to the weight of an institution's identity as being innovative. The rise of MOOCs may be seen as an example of this. The real impact or value of such recorded lessons may be put to question. *"Take for example Harvard's brilliant, professionally made documentaries 'on BBC level' whereby you see a professor in ancient history tell you something while standing in front of the Akropolis, but what's the return?"*¹⁰⁷ And return in this context is twofold. Is there a (better) learning impact with such educational resource? And how is the investment for its creation justified?

Harvard is making available splendid courses via iTunes for free, so that the business model behind MOOCs is yet to arise. Attending a full course on a particular topic from behind a private computer bypasses college registration fees, but does not allow for taking exams and obtaining a (formal) qualification. Is this more about prestige and branding of the producing university, than about generating income?¹⁰⁸

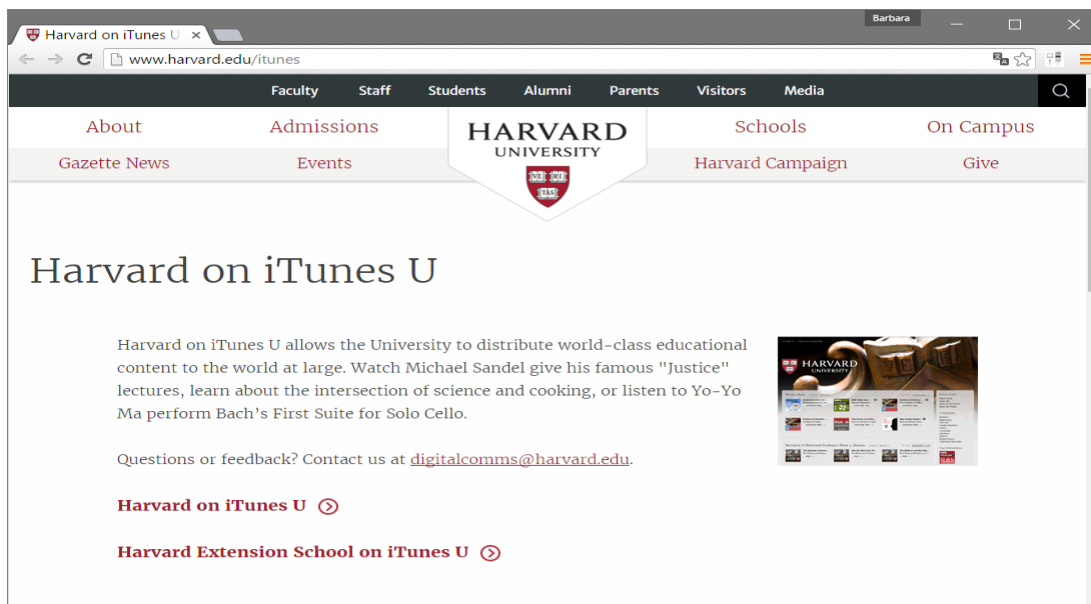


Figure 40: Screen of Harvard lectures, available from their dedicated iTunes U channel

¹⁰⁶ See <http://viaa.be/en/about-viaa/>

¹⁰⁷ See <http://icto.ugent.be/sites/default/files/Nieuws-DeStandaard-Chillen%20met%20de%20prof.pdf>

¹⁰⁸ Ibidem

6 LOOKING AHEAD

Over the past few years there have been many influences upon the education sector with new plans, approaches and technologies adopted, some successfully and others soon forgotten as the next idea comes along. So, what needs to be done in the future to make integration of cultural heritage materials within cultural heritage more successful?

It is no longer a question of whether digital tools should be used within education; it is more a decision of how they are most effectively deployed. The technological revolution shouldn't automatically remove all traditional approaches, as many have been successful and to some extent digitised learning is still unproven. However, children grow up using devices and expect to use them in the classroom and to an ever more advanced level as they progress through the educational system. The balance is to blend teaching, to gain the best of both worlds (especially as it is important for learners to have real world skill too). It is also important that any technology used works efficiently and is of sufficient quality to engage learners; the key message is that any design should be built to benefit the end user and not just be to create another 'fantastic tool'.

By showcasing the E-Space pilot products and educational demonstrators, as well as considering the First World War book created through collaboration between Apple and Europeana, there is proof that digitised cultural heritage materials can be used within educational contexts. However, there is a big leap to the point where educational institutions will take the time to seek out the material, as well as GLAMs adapting their thinking to align with this search. It is therefore not just about GLAMs making content available for creative/educational re-use, it is the consistency of language, platform and the effectiveness of APIs that are built to make content more easily found. This is, of course, not a simple solution, as countries adopt differing approaches. The only way for a coherent approach to be developed is to link institutions, policy makers and the educational sector through various lobbying methods to demonstrate benefits for all parties; an example is the Europeana for Education and Learning Policy Recommendation.¹⁰⁹

Over the past few years, Europeana has established a series of thematic collections such as 1914-18, music and art. Wikimedia has been used as a source of sharing and showcasing digitised cultural heritage content and many forward thinking GLAMs have contributed to this process, including aligning their approaches to educational curricula. This is a process that needs to maintain its development.

A significant hurdle is language. It has been established that people feel more included when they can read and learn in their own language, but the cost and time taken to translate materials and texts into many languages can be prohibitive, even where there is a desire and willingness to do so. To make things more practical and develop a standardised approach, often it is only possible to use a single language. For the E-Space MOOC, introductions were created in several languages, but unfortunately, it was not possible to do this for the entire course. Europeana is therefore working with a series of distribution and facilitation partners to strengthen the cultural aspect of education rather than trying to manage such a massive task alone.

¹⁰⁹ See <http://pro.europeana.eu/publication/europeana-for-education-policy-recommendations>

Europeana is working through initiatives such as EUROCLIO for history teaching and Inventing Europe which has a scientific and technological theme, but realises that there is a much bigger playing field which is targeted through the Europeana4Education online space. It is worth returning to the points discussed within section 4.2 and the findings of the Europeana Taskforce for Education. Any content to be used within education has to be relevant to learning, discoverable, of sufficient quality, attributable and available for re-use.

Great strides have been made in the field of integrating digitised cultural heritage content into (formal and informal) learning and this continues to improve. However, to have an effective and standardised approach, key stakeholders (including policy makers) need to be involved, investment is needed, as well adaptation to new technological developments, while never forgetting that any learning tools need to prioritise the needs of the end users/learners.

7 CONCLUSION

The scene at European level is very rich and varied, but confirms the great potential and the crucial role that museums as learning environments can play in forming more responsible citizens and contributing to a more inclusive and informed society. - Margherita Sani¹¹⁰

Digital technologies in education can play an important role in opening up European cultural heritage resources and make them more widely known and accessible for teaching purposes. However, integrating such technology in learning environments (whether it be in a formal classroom setting or elsewhere) requires caution in terms of careful policy-making, planning and implementation to create the highest impact. This includes having a close look at the requirements and characteristics of said technology, the nature and effects of open, flipped or blended teaching, as well as for teachers' training on how to best integrate this within classroom settings. Its use should be supportive of the type of skills students need to develop to prepare them for life in a technology society, and can be especially tailored to support lower performing students.

One of the difficulties in such a fast-changing field is that developments are already out-dated the moment they have been integrated. It is therefore important to not focus on specific tools as such, but to build skills as well as self-confidence to flexibly incorporate new possibilities. Another interesting challenge is that students are usually more digitally native than their teachers.

Education has been an important theme for the Europeana Space project and also for Europeana, as there is an unquestionable potential for creative re-use of cultural heritage content. This deliverable has looked at existing use, examples of GLAMs that have aligned themselves with educational curricula, considered some myths, trends and opportunities, as well as provided demonstrations of E-Space educational tools. There is a definite move towards technologically enhanced teaching, but it still needs greater consideration and planning that puts learners at the heart of future developments. GLAMs, educational institutions and policy makers need to standardise approaches to build upon the interesting and valuable assets that already exist and integrate digitised cultural heritage material into the wider educational sector.

¹¹⁰ See http://www.net-mo.org/fileadmin/Dateien/public/NEMO_documents/NEMO_AC2015_EduVal_documentation.pdf p. 10