res

Research and Education Space

The Research and Education Space Project

Learning Technologies Awards submission for Best Learning Technologies Project

BBC   **LEARNING ON SCREEN** | The British Universities and Colleges Film and Video Council   **Jisc**

Executive Summary

The Research and Education Space (RES) project aims to improve access to the UK's public archives for use in UK education and research, by facilitating the use of audio-visual and other archive media in teaching and learning. The project comprises:

- A partnership between the BBC, Learning on Screen and Jisc, working in collaboration with the GLAM and Education Technology sectors.

- An open platform (Acropolis) - built by the BBC, which organises and indexes the catalogues of publicly-held archives.

- A public service for UK education - working with public sector organisations, eg The British Museum, British Library, the BBC to release their digital collections as linked open data.

Vision

The vision for the RES project grew out of a desire to enrich the materials available for teaching and study in the UK.

It has been developed as part of the BBC's Archive Strategy, to deliver significant public value from the BBC's own huge archive, by making as much of it as possible available to those in formal UK learning, from primary schools through to universities.

Performance Need

Enhanced access to the BBC programme archive is enshrined in current legislation. Those in formal UK education are entitled to use TV and radio programmes captured off-air in teaching and research under an exemption in the 1988 Copyright, Designs and Patents Act. A group of rights holders (including the BBC) have formed the Education Recordings Agency (ERA) which issues licences to universities, FE colleges and schools for the use of broadcast material. Other performance needs met by the RES project include:

- Helping to deliver the 2016/17 BBC objective to: *Create an open BBC, working with partners*.

- Contributing towards helping the BBC deliver two of its six public purposes: *promoting education and learning* and *delivering to the public the benefit of emerging communications, technologies and services*.

- Helping the education sector comply with their copyright legislation.

- Linking with ERA's role to enhance learning experiences and provide easy access for all educational establishments to audio-visual broadcast material enabled by the ERA Licence.

- Triggering the biggest single release of BBC archive material.

RES Technology

Digital technology is changing the way we connect information to make it more meaningful, accessible and usable to others.

RES is a new semantic web platform using linked open data to transform the future of education and learning.

Powering RES is Acropolis, an open source software stack which collects, indexes and organises rich structured data about archive collections that are published as Linked Open Data (LOD) on the Web.

The collected data is organised around the people, places, events, concepts and things related to the items in the archive collections. If the archive assets themselves are available in digital form, that data includes the information on how to access them, all in a consistent machine-readable form.

The RES platform uses open APIs so applications (ie teaching products) can be built on top of it to make items in the collection accessible to teachers, students and academics.

This film visually explains how RES works: https://vimeo.com/151043150

Innovating with Linked Open Data

Linked Open Data (LOD) is a mechanism for publishing structured data on the Web about virtually anything, in a form which can be consistently retrieved and processed by software.

There are lots of resources for educators out there already, but RES aims to make the aggregation and discovery of such resources much more efficient, reliable and useable by publishing data as LOD.

Humans searching for information is a manual task. The original web technologies involve a lot of human understanding – and it can be time consuming and frustrating - especially, as teachers have told the RES project, when lesson planning.

# Diagram illustrating how the RES platform works
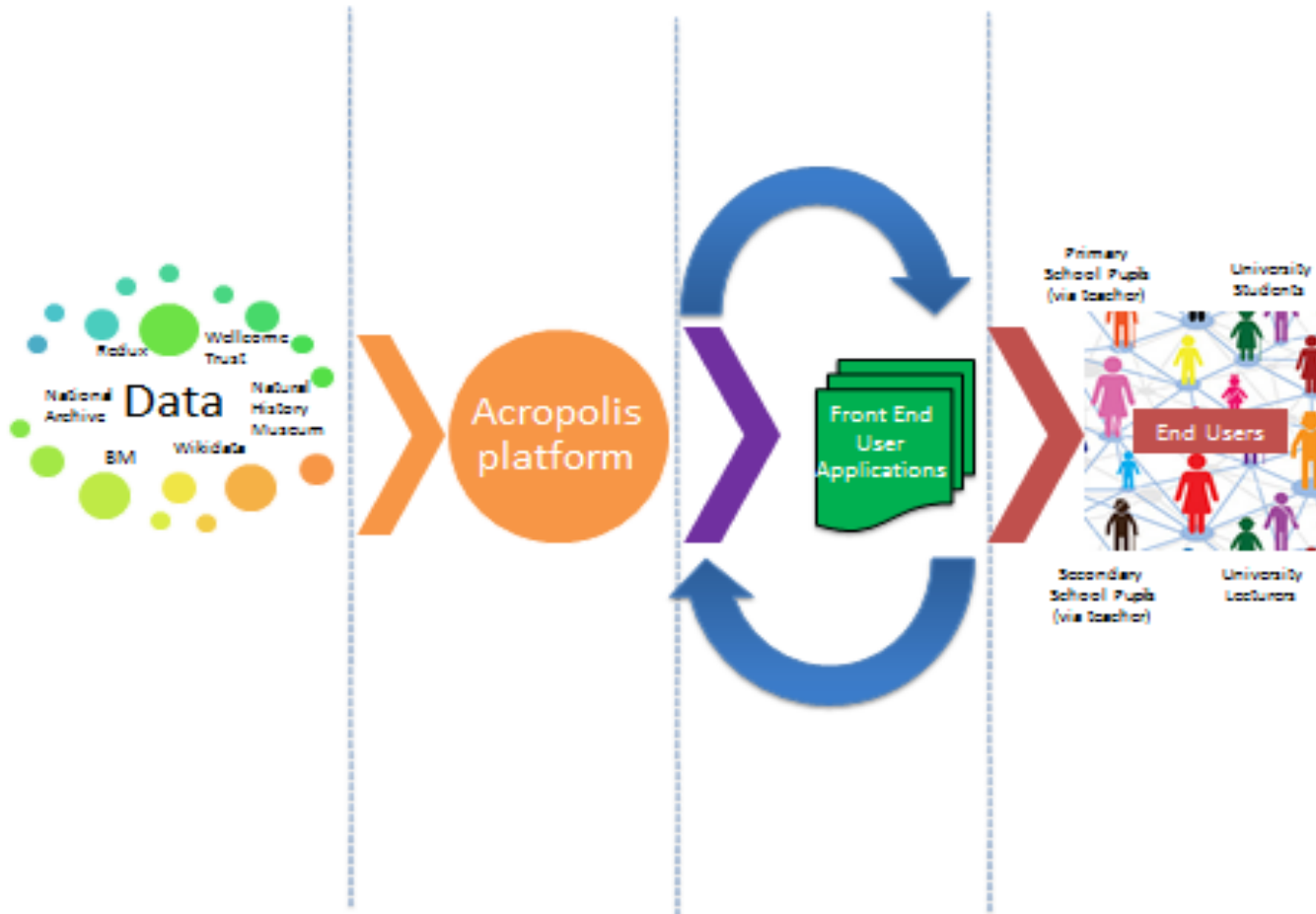
Illustration of RES workflow

Acropolis is a platform that relies on Linked Data technology to consume and expose data. Linked Data is organised around documents describing "resources" published on the Web. Acropolis is designed to consume those documents and generate new ones. The entire workflow is pictured below:
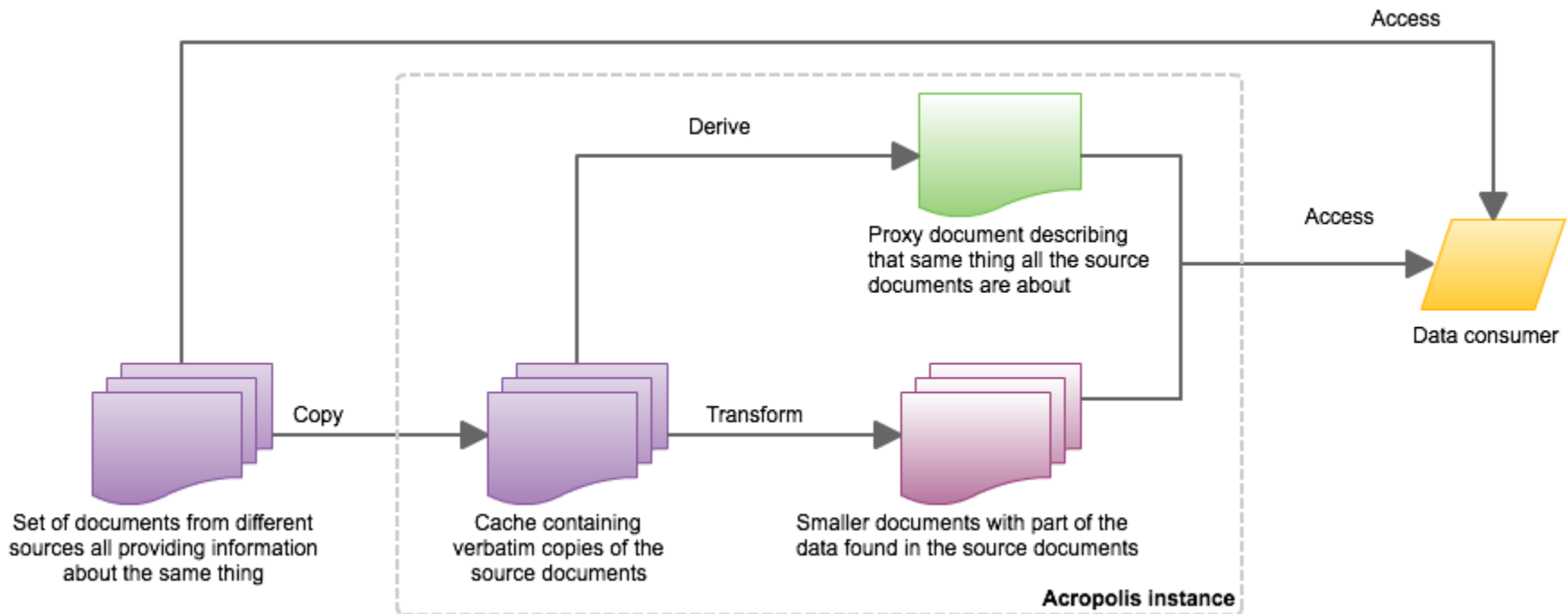
Examples

Search for a topic

The RES platform offers a keyword-based search to find proxy entities based on their name. This example shows how to find entities using this feature.

Fetch media items

The RES platform is only an index that points to content. This example shows how to get actual media associated to a proxy entity. Note that some media access may require specific credentials

Concepts/Media network

Concepts are associated to media, which are in turn associated to concepts. This create a network of interconnected pieces of information that can be browsed.

RES Objectives & Outcomes (1)

Provide BBC TV and radio programmes via RES to UK primary and secondary schools, FE/HE colleges and universities to allow teachers, students and academics access to large quantities of publicly-held archive material for educational use.

The BBC has made more than 1 million programmes broadcast since 2007 available to UK formal education via three ERA licensed providers of off-air capture services: BoB, Planet eStream and ClickView . The BBC's first thematic collection of linked open data and assets indexed by RES is the BBC Shakespeare Archive – a resource containing more than 600 plays, documentaries and interviews from 1950 to present day cleared for formal educational use. Other BBC content being made available through RES includes 100k photographs from the BBC's collection, additional programmes broadcast since 1989 and BBC Wildlife Finder.

Deliver a fully operational Acropolis platform, clearly documented and accessible for public collection holders and developers

The RES platform can now capture, validate and ingest linked open data, process it and deliver meaningful results. A guide to RES for contributors and developers is available on the website.

Engage with multiple public collection holder organisations in the UK to integrate their digitised collections in RES and champion understanding of what linked open data means to the public sector organisations.

Engaged with over 40 collection holders worldwide and so far integrated collections from British Museum, British Library, Wellcome Collection, Europeana, The National Archives, Natural History Museum, People's Collection Wales, WikiData and the BBC; the list of institutions who are publishing their data in a RES-friendly format continues to grow. This film explains the benefits of LOD to collection holders:
https://vimeo.com/170650098

RES Objectives & Outcomes (2)

Establish working relationships with technology providers who will develop user-facing propositions for the platform aimed at all levels of education from primary school to Higher Education and Research facilities.

Using the BBC's Connected Studio programme, the BBC commissioned audience-facing products from 3 commercial companies as pilot prototypes to demonstrate the value of the collections surfaced by the RES platform to teachers and academics. The programme also delivered widespread awareness about the RES platform amongst technology providers and effective working relationships were formed and followed up at various educational and technological conferences and events, eg BETT, Jisc's Digifest.

Maintain working relationships with all our partners who represent the target audience (primary, secondary, HE/FE).

Since the RES project began in 2013, we have formed relationships with around 100 different external organisations: including those from education, cultural and heritage institutions, technologists and education software providers; public policy makers and government departments. With support from project partners Jisc, content has also been made available via the UK Access Management Federation (UKAMF) enabling students and researchers in HE/FE seamless access to BBC audio visual materials.

RES Objectives & Outcomes (3)

Raise awareness of RES project in UK education at all levels and communicate benefits to collection holders and product developers.

The project has used a variety of channels to communicate with our target audiences: BBC Connected Studio programme, Schools Research Groups, Focus Groups, Edtech conferences/events (both speaking and exhibiting).

Promotional literature and 3 films have been produced. The BBC Shakespeare Archive Resource was promoted to all UK primary/secondary schools, FE /HE institutions via email, articles and our partners. The RES website (http://res.space) and a blog were launched together with a social media campaign which has helped RES grow a significant following on Twitter @RES_Project.

Learning Outcomes (1)

- We engaged with teachers and practitioners at the Primary, Secondary, Further and Higher Education sectors to gauge needs and requirements for suitable collections and products/ platforms to be developed.

- We ran research/focus groups around the UK (Manchester and London) on the 3 Connected Studio prototypes developed.

- Regular feedback and contact from teachers helped us to narrow down and prioritise collections published as linked open data, thereby meeting the needs of the teaching profession to help teach specific areas of the curriculum and learning objectives.

- A History steering group was set up (including representatives from the BBC, National Archives, BFI, Into Film and Historical Association) to respond to a DfE/National Archives report about teaching of the History curriculum at all levels and work towards creating a universal platform which could be used for History teaching. RES is being piloted as the platform for this specific area of the curriculum.

- Conversations with members of the archives/ GLAM sector have been universally positive about how RES can meet their strategic needs, which many have been planning for some time.

Learning Outcomes (2)

- The BBC Shakespeare Archive Resource has been launched to much acclaim from the education sector. It has made over 600 BBC radio and TV productions of Shakespeare's work from the 1950s to 2007, including all the classic productions, documentaries, animated versions and classic BBC comedy and entertainment shows, available to the UK education community at all levels, from Orkney to Cornwall. First, the content had to be digitised, then put into a RES-friendly format to make it available through the RES platform, Acropolis. This Teaching Shakespeare film illustrates how this resource is being used to teach Shakespeare. This blog explains how the project team went about selecting and digitising the collection and communicating how to access the resource.

- There are developer resources available on the website with guidance and documentation for application developers, data contributors, and users of RES tools. The project has also produced two blog posts - Inside Acropolis and Interacting with RES in PHP to help explain how to work with the Acropolis platform. In addition, 3rd parties are already using it.

# Screenshots of 3rd parties already ingesting content from the RES platform

RES Builder, developed by Gooii, allows the user to highlight text from any document, extract concepts from that text using the RES platform, and display all related media to the user.

Tunnels, developed by Amplify, uses a creative timeline of selected clips of archival media to explore a topic.
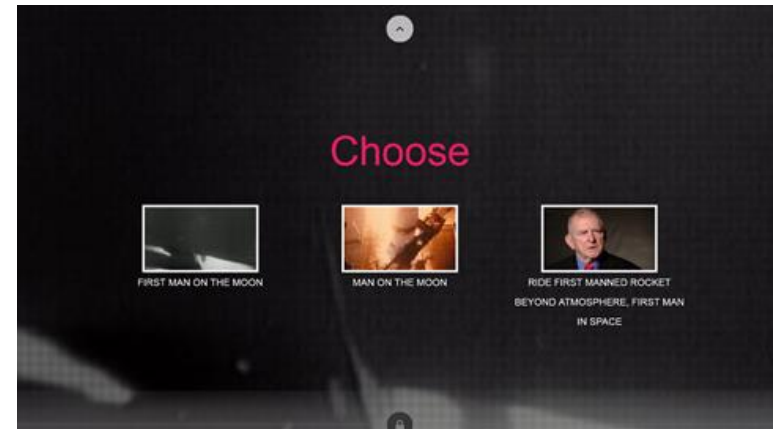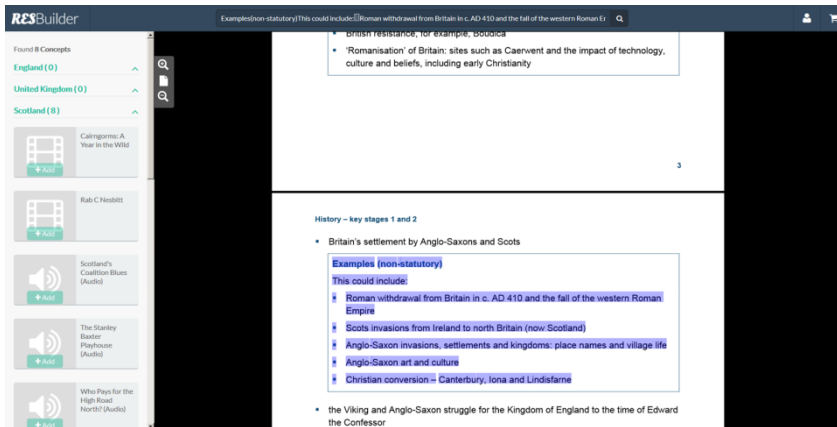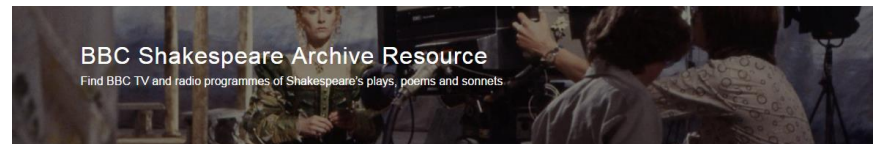
Screenshots of 3rd parties already ingesting content from the RES platform

True Teach, developed by Surge, ingests content from the BBC Shakespeare Archive Resource for use by those in UK education.
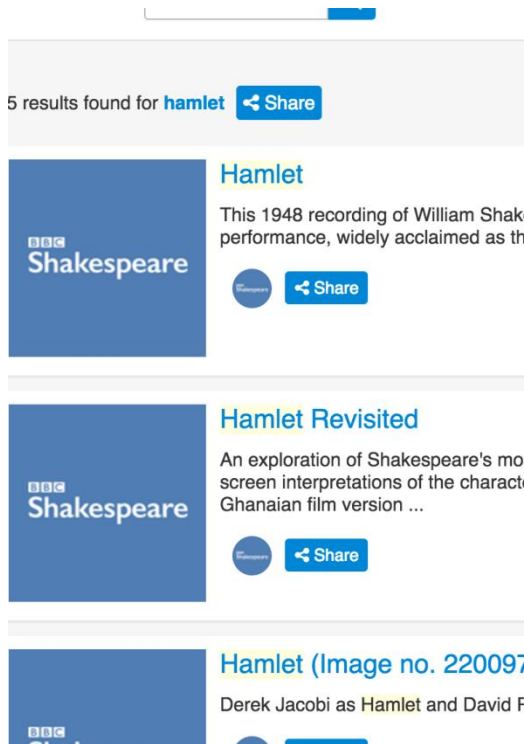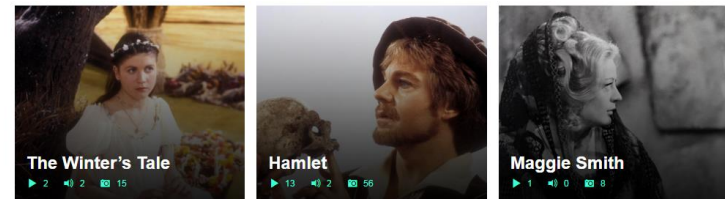
Shakespeare Archive Resource, developed by the BBC to open the BBC Shakespeare Collection for use by those in UK education and research.
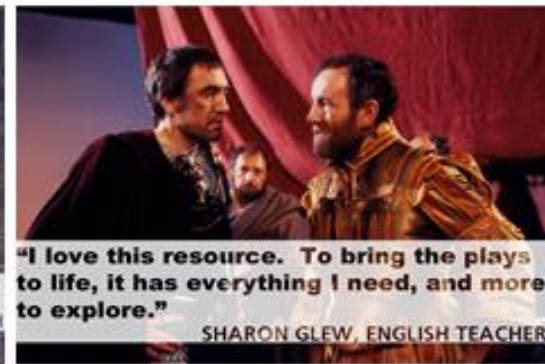
Impact of RES Project (1)

- The RES ambition has been realised over 3 phases, the final phase is due to formally complete in March 2017. It has enabled the BBC to make more of its archive available, more of its partners' archives available and, by bringing them together using semantic web technologies, make the whole greater than the sum of its parts, doing so in a way that is more informative, interesting, useful and beneficial to all.

- Several institutions have already started, with help from the project, to publish their digitised collections as LOD and being ingested by Acropolis – and if others follow suit, the impact could be far-reaching.

- In this partnership, the BBC has provided the underlying infrastructure – the platform, access to its archive and the creative and technical expertise. It supports Jisc's goal of increasing the use of digital assets within research and education, providing new education and research opportunities to the UK HE, FE and skills sector. Learning on Screen, the other core project partner, was the only organisation authorised by the Educational Recording Agency (ERA) to deliver archived off-air recordings to educational institutions via an online service. Their BoB service is available to FE/HE institutions across the UK; and they are currently exploring an expansion of the service into schools. Subsequently RES has also entered into agreements with two other providers of off-air recordings services under the ERA licence: Planet eStream and ClickView.

Impact of RES Project (2)

- The project is an acknowledgement that in the digital age it should be possible to find, access and use a richer selection of public archive material in teaching, learning and research than is currently the case. The BBC and Jisc are two organisations in particular which have a role to play in the improvement of the current situation.

- Significant progress has been made towards the ultimate goal of the RES project. In Phases I and 2 RES worked to ensure that schools and colleges with an ERA licence (which includes all funded schools in England - 7.7million pupils) get the best possible access to BBC TV and radio programmes. The project has achieved this by allowing ERA approved providers of AV material in UK formal education to access programmes stored by the BBC in its off-air capture system, Redux. In the university sector, the number of institutions subscribing to BoB has more than doubled from 23% when the project launched to over 50% currently.

Stakeholders

- Selection of comments from teachers using the BBC Shakespeare Archive Resource.

"A treasure-trove of Shakespearean jewels"
DR RICHARD LODGE, HEAD OF ENGLISH

"I love this resource. To bring the plays to life, it has everything I need, and more to explore."
SHARON GLEW, ENGLISH TEACHER

"Shakespeare has been brought to life for students exploring the plays in performance via the archive!"
MICHAEL McCULLEY, DEPUTY HEAD

"This is great for multimedia sources of the Bard's works. To use or not to use shouldn't be in question!"
PHILIP BELLAMY, SENIOR LEARNING ADVISER

BBC

LEARNING ON SCREEN | The British Universities and Colleges Film and Video Council

Jisc

Stakeholders

- Selection of top tweets about the RES Project