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Open Data as Open Educational Resources

Open Data Day Event
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Open Data through an Open Education Lens

We have seen the rise of parallel open or 'opening' movements –

Open Education
Open Access
Open Data

Interconnected by drives for transparency, collaboration, democratisation, and citizenship.

But often seeming to operate as 'silos'!

For [UNESCO](n.d. / accessed 3 March 2016),

Open Educational Resources (OERs) are *any type of educational materials* that are in the public domain or introduced with an *open license*. The nature of these open materials means that anyone can legally and freely *copy, use, adapt and re-share* them. OERs range from textbooks to curricula, syllabi, lecture notes, assignments, tests, projects, audio, video and animation.

* We don't tend to see data in these definitions which tend to emphasise educator-produced materials

Opening assessment practices

Assessment for learning (AfL) and notion of authentic assessment, highlight the central importance of assessment in student learning and suggest assessment tasks should reflect real world practices.

Open Ed guru David Wiley has also written about the persistence of 'disposable assignments':
These are assignments that students complain about doing and faculty complain about grading. They're assignments that add no value to the world – after a student spends three hours creating it, a teacher spends 30 minutes grading it, and then the student throws it away. Not only do these assignments add no value to the world, they actually suck value out of the world.
And see Christina Hendricks on 'renewable assignments'.

New pedagogic frameworks position students as researchers, or more broadly as producers, rather than consumers, and focus this student activity around real world issues.

How can OD be used in HE?

- Collaborating with researchers in real research projects
- Collaborating with students from other disciplines
- Creating scenario-based learning activities
- Collaborating with local communities on real problems

Open Data for Skills Development

- data literacy
- data curation and information management skills
- data analysis
- research skills
- statistical skills
- critical thinking
- teamwork
- citizenship

Skills / Level	Basic	Intermediate	Proficient	Advanced
Critical thinking	Students understand basic concepts of critical thinking	Students can use data to verify information from the media	Students can analyse phenomena from their region using data and write reports critically analysing solutions	Students are able to develop and present complex evidence-based arguments in key academic formats
Data analysis skills	Students can analyse data using quantitative and qualitative methods	Students gain experience in using popular software for data analysis such as SPSS or NVivo	Students use proficiently software for data analysis which are relevant for their own disciplines	Students can present complex reports based upon data analysis in the form of research papers or posters
Data curation skills	Students can organise datasets in simple folders	Students can identify different sources of datasets and organise them in databases	Students can use electronic tools for data curation and share it with others	Students can develop databases and automate the process to organise and merge datasets, and embed metadata into the files to facilitate access to the resources
Data information management skills	Students can identify datasets from different sources	Students can select datasets from different portals in different formats	Students can extract, filter and compare data from different data sources creating a single dataset	Students can filter and format data in different formats analyse it creating complex datasets

Skills / Level	Basic	Intermediate	Proficient	Advanced
Data Mining skills	Students can locate CSV files on the internet	Students can extract datasets from PDFs	Students can extract datasets from different sources	Students can use complex methods for developing datasets
Data visualisation skills	Students can create graphics and charts	Students can use online software to develop simple infographics	Students can use graphic design software to develop infographics	Students can use data visualisation techniques to present their findings using complex statistical modelling
Research skills	Students understand the scientific method and are familiar with the concepts of quantitative and qualitative methods	Students can structure their research and apply different techniques to obtain results	Students can replicate experiments and studies following research methods explained in the literature	Students can compare data and information from different data sources and research papers and replicate experiments and studies to produce new research findings
Statistical skills	Students can perform basic statistical operation including averages, media and median	Students can perform statistical operations using clusters, standard deviations, signifiance, chi square, correlation or regression analysis	Students can use data modelling techniques for different statistical methods such as forecasting to predict future events	Students can write queries in order to perform complex statistical analysis functions and create models and complex graphs and visualisations

Activity / Level	Initial	Intermediate	Advanced
All levels	Invite subject and data experts to discuss face to face or online with your students about local and global issues	Engage students with political and legal deliberations and discussions at local and global level asking to them analyse the data related to it	Establish a model for students to understand the process and engage them in policy making by reviewing and analysing data and official reports
Undergraduate	Engage students in evaluating facts and contrasting information by analysing data presented in news media	Encourage students to use digital tools to engage and monitor political activities and to assess reports and news by analysing their data	Support students in assessing data from their government to identify problems and compare local with global information
Postgraduate	Support students in identifying organisations that are campaigning in citizenship issues and enable instances for students to engage in civic monitoring activities and evaluate data driven arguments	Promote student collaboration with civil society organisations, in order to gain experience working with their data, supporting their activities, and enhancing their openness through data and publications	Support students in writing dissertations based on analysis of open data which engages with a real local or global problem; encourage them to publish findings in an open format

See: Atenas, J. and Havemann, L. and Priego, E. (2015) Open Data as Open Educational Resources: Towards transversal skills and global citizenship. *Open Praxis* 7 (4), pp. 377-389. Available: http://www.openpraxis.org/index.php/OpenPraxis/article/view/233/
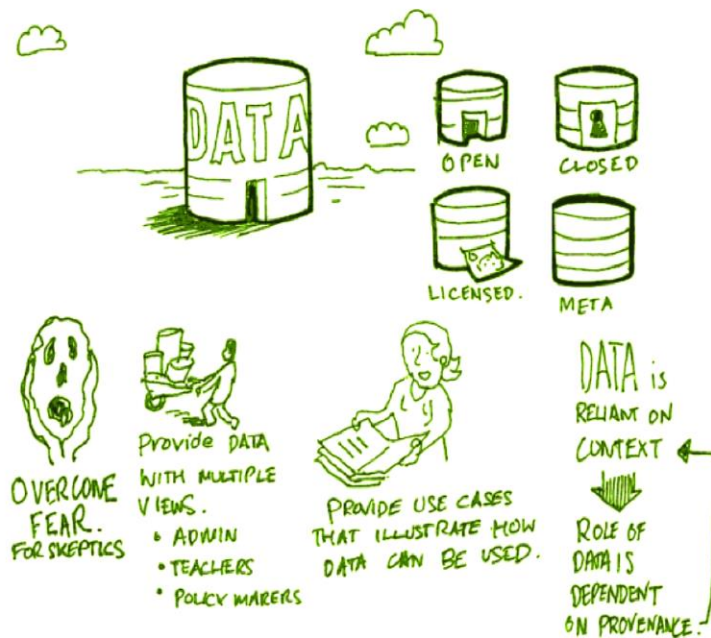
When embedding Open Data in learning activities, do…

- Identify and describe the learning outcomes for the intended activities;

- Identify the portals which will source the data;

- Clearly identify and describe the challenges students might face;

- Provide training materials for the software students will need to use;

- Support students in communicating their findings to local or wider communities.

And please do download…

Open Data as Open Educational Resources

Case studies of emerging practice

OPEN   CLOSED

LICENSED.   META

OVERCOME FEAR. FOR SKEPTICS

Provide DATA WITH MULTIPLE VIEWS.
• ADMIN
• TEACHERS
• POLICY MAKERS

PROVIDE USE CASES THAT ILLUSTRATE HOW DATA CAN BE USED.

DATA is RELIANT ON CONTEXT
ROLE OF DATA IS DEPENDENT ON PROVENANCE.

Edited by Javiera Atenas & Leo Havemann

- Open access book/OER
- Available: http://education.okfn.org/open-data-as-open-educational-resources-case-studies-of-emerging-practice/

Further info on OD and Open Education

- Open Definition http://opendefinition.org
- Open Data Handbook http://opendatahandbook.org
- Open Education Handbook http://education.okfn.org/handbook/
- Figshare http://figshare.com
- About Open Data as OER http://education.okfn.org/the-21st-centurys-raw-material-using-open-data-as-open-educational-resources/
- Open Data Europe https://open-data.europa.eu/en/data/
- UK Open Data Portal http://data.gov.uk
- UK HE Data Portal http://www.data.ac.uk/
- Directory of Data Repositories http://oad.simmons.edu/oadwiki/Data_repositories