Digital Literacy in Practice: Developing an interactive and accessible Open Educational Resource based on the SCONUL 7 Pillars of Information Literacy

As part of a review of the undergraduate and postgraduate curriculum at Leeds Metropolitan University, digital literacy was formally adopted as a graduate attribute in 2011. Libraries and Learning Innovation (LLI) have since been working on ways to improve the digital literacy of staff and students through a variety of means including promotion of Open Educational Resources (OER). This paper deals with one of those projects: the use of Xerte Online Toolkits (XOT)[1] to create interactive resources which are supported by mobile devices. This ongoing project is truly collaborative, with members of academic staff and library staff (academic librarians, learning technologists and the repository developer) working together to create useful tools to support learning.

The XOT project resulted from an audit by the university's Open Educational Resources Group (led by LLI) which identified a need for mobile-friendly tutorials. From this, an interactive tutorial focussing on the SCONUL 7 Pillars of Information Literacy was developed. With the addition of new software to create interactive subject guides, the project aims to create more interactive resources to support students' digital literacy.

The Seven Pillars of Information Skills model

> *Information Literacy is an umbrella term which encompasses concepts such as digital, visual and media literacies, academic literacy, information handling, information skills, data curation and data management*[2]

The Seven Pillars of Information Skills model was first introduced in 1999[3] and in 2011 the

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[1] The Xerte Project - http://www.nottingham.ac.uk/xerte/toolkits.aspx [accessed 18 November 2013]

[2] SCONUL Working Group on Information Literacy 2011. **The SCONUL seven pillars of information literacy core model for higher education.** London: SCONUL. Available online:http://www.sconul.ac.uk/sites/default/files/documents/coremodel.pdf [accessed 18 November 2013]

[3] Information skills in higher education: a SCONUL position paper -

SCONUL Working Group on Information Literacy recognised that the model needed to be updated and expanded to reflect more clearly the range of different terminologies and concepts that had evolved in the intervening 12 years. The new model was presented as a generic "core" model for Higher Education, to which a series of "lenses", representing different groups of learners, could be applied (Bent, Stubbings et al 2011).

Initially only a **research lens** was available; the model now comprises[4]:

- A **research lens** defining the skills and competencies (ability) and attitudes and behaviours (understanding) which might be attributed to researchers in UK Higher Education
- A **digital literacy lens** defines skills and competencies (ability) and attitudes and behaviours (understanding) that are increasingly relevant in the digital landscape
- An **open content lens** defines skills and competencies (ability) and attitudes and behaviours (understanding) associated with open educational practice

In addition an **evidence-based practice healthcare lens** has recently been developed from a study conducted by Michelle Dalton at University Hospital Limerick and reflects the unique information landscape and needs of evidence-based practice (EBP) in healthcare[5].

The core model emphasises that "becoming information literate is not a linear process; a person can be developing within several pillars simultaneously and independently, although in practice they are often closely linked" (Bent, Stubbings et al 2011). Similarly, the lenses are not mutually exclusive and though an **open content lens** focusses specifically on open education, the broader concept of "Digital Literacy" itself comprises a range of skills that are essential to discovering, creating and repurposing OER.

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http://www.sconul.ac.uk/sites/default/files/documents/Seven_pillars2.pdf [accessed 18 November 2013]

[4] The core mode and lenses are available as PDF and Word Documents from http://www.sconul.ac.uk/tags/7-pillars [accessed 18 November 2013]

[5] Developing an evidence-based practice healthcare lens for the SCONUL Seven Pillars of Information Literacy model - http://ojs.lboro.ac.uk/ojs/index.php/JIL/article/view/PRA-V7-I1-2013-3

Digital Literacy at Leeds Metropolitan University

At Leeds Metropolitan University, we have chosen to define digital literacy as "the confident and critical use of information and digital technologies to enhance academic, personal and professional development."[6] This definition encompasses a variety of skills and capabilities which include information literacy, digital scholarship, media literacy, computer literacy, communication and collaboration, academic practice and professional development planning. As such, the SCONUL 7 pillars model of information literacy now sits within the wider attribute of digital literacy across the university.

This definition was deliberately broad in scope and combines many elements of good practice taking place across the University; it is recognised, for example, that there is a need to create and promote OER in order to best serve teaching and learning. The logical step was to create a resource that could be used both at Leeds Met and by others to define information literacy and in order to make it relevant to others, a decision was made to include the **digital literacy lens** even though it differs slightly from our own definition of digital literacy.

Information and Digital Literacies and OER

According to Jisc, Open Educational Resources (OER) are teaching & learning materials licensed such that they can be re-used, re-purposed, re-mixed and re-distributed and can comprise full courses, course modules, lectures, games, teaching materials and assignments in the form of text, images, audio, video and may even be interactive[7]. However, if one considers the contextual meaning of "Open" more carefully this definition is not perhaps as straightforward as it first appears; how easily and effectively a resource can be re-used

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[6] Leeds Metropolitan University (2011) **Embedding Digital Literacy as a Graduate Attribute at Leeds Metropolitan University: Refocusing the Curriculum.** Leeds: Leeds Metropolitan University. Available from <https://www.leedsmet.ac.uk/staff/files/UG_Embedding_Digital_Literacy.pdf> Accessed 27 November 2013.
[6]

[7] A guide to open educational resources
http://www.jisc.ac.uk/publications/programmerelated/2013/Openeducationalresources.aspx [accessed 18 November 2013]

depends not only on a suitable licence but also file format, whether it is proprietary and/or requires specific software to run or edit, for example, or is compatible across different internet enabled devices (desktop computers, smart phones, tablets).

According to the "identify" pillar of the **digital literacy lens**, a mark of competence is to understand "the benefits and limitations of using different forms of digital content, tools and technologies to meet specific needs". You are almost certainly reading this document as a PDF[8] which was a proprietary format controlled by Adobe from 1993 until it was released as an open standard in 2008[9] and is ubiquitous on the modern web, discounting HTML itself probably the most prevalent format for making documents available online. However, PDF is arguably not the best format for OER that can be "re-used, re-purposed, re-mixed and re-distributed"; Adobe Acrobat or similar software is required to edit, images are not reusable in native web formats and care needs to be taken to ensure accessibility. Similarly Adobe Flash is often used to create interactive OER and traditionally has underpinned commercial e-learning software like Articulate[10] as well as being used to run a range of video and other media players. Apple's well known decision not to support the format and inconsistent implementation on other tablet devices and smart phones combined with the fact that mobile devices are increasingly important for accessing online media compared to the traditional desktop PC means that Flash is unlikely to be the best choice for developing interactive OER and its popularity reflects the historical difficulty in developing web-based interactive media, a fact that underpins the development of HTML5 that is "designed to deliver almost everything you want to do online without requiring additional plugins"[11].

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[8] PDF (Portable Document Format) was derived from the Camelot project in 1991 to solve a fundamental problem of the time; how to communicate visual material between different computer applications and systems - Warnock, J. (1991), The Camelot Project - http://www.planetpdf.com/planetpdf/pdfs/warnock_camelot.pdf
[9] http://www.adobe.com/devnet/pdf/pdf_reference.html
[10] Articulate products are also moving towards HTML5
[11] HTML5 introduction http://www.w3schools.com/html/html5_intro.asp [accessed 18 November 2013]

Xerte Online Toolkits

Xerte Online Toolkits (XOT) is Open Source Software[12] developed at the University of Nottingham, a suite of browser-based tools to create interactive learning materials.

> *Content can be delivered to all devices using standards compliant HTML5 and a responsive template can deliver material to both small screens and large desktop computers*

XOT is web rather than desktop based so needs to be installed on a web-server. Technical implementation is relatively straightforward however and has the advantage that it can be accessed from any networked PC rather than a small number of licensed machines as is often the case with specialised commercial software and means it can be made available to all staff, and potentially students, across an organisation and is itself a potential tool for teaching Digital Literacy[13]; input is form based, intuitive enough for beginners with the option to use HTML tags or more sophisticated web-based technology. It can also be embedded on any webpage using an iframe. Moreover, as output is HTML5, unlike proprietary software, content is accessible on any device/browser including mobile. Content can also be more easily reused even without access to the software itself - just by cut and paste / right click -> save as. Like any HTML webpage.

Developing an OER based on the SCONUL 7 Pillars of information literacy

At Leeds Metropolitan University we were aware of SCONUL's core model and the lenses derived from it, however, other than the primary sources (PDF and Microsoft Word documents) we were not able to find resources that could easily be "re-used, re-purposed, re-mixed and re-distributed" and XOT seemed like the ideal solution to develop an OER that comprised both the core model and existing lenses.

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[12] Open Source Software (OSS) is software that can be freely used, changed, and shared (in modified or unmodified form) - http://opensource.org/

[13] XOT has been the focus of a recent series of HEA mini-projects working with students as partners - **Digital Literacies in the disciplines** http://www.heacademy.ac.uk/digital-literacies

The resource is available from Jorum[14] and is included in the new Information & Digital Literacy Skills collection[15]. It provides an interactive version of the core model and each of the lenses (including Michelle Dalton's evidence-based practice healthcare lens) with pillars as clickable hotspots to enable the user to navigate their way around.
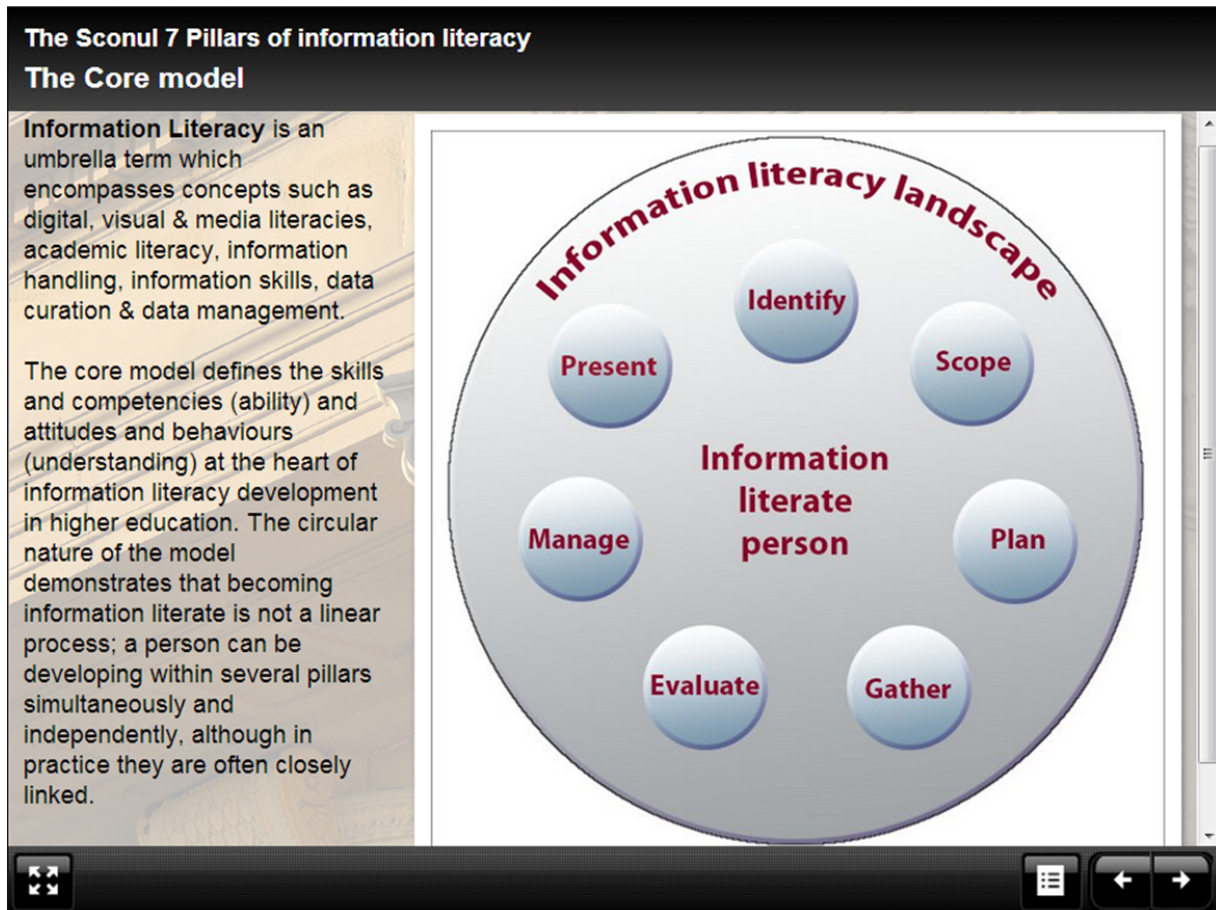
As a derivative resource it is licensed according to the terms of the licence applied to the original; Creative Commons Attribution-ShareAlike 3.0 Unported licence (CC BY-SA 3.0)[16] which means you are free to Share (to copy, distribute and transmit the work), to Remix (to adapt the work) and to make commercial use of the work with appropriate attribution. ShareAlike means that if you alter, transform, or build upon this work, you may distribute the

[14] Sconul 7 Pillars of Information Literacy - http://find.jorum.ac.uk/resources/18381
[15] Building a library for Information & Digital Literacy Skills - http://www.jorum.ac.uk/blog/post/77/il-launch
[16] http://creativecommons.org/licenses/by-sa/3.0/

resulting work only under the same or similar licence. It includes links to download 3 different versions of the resource; a zip file that can be uploaded to a web server, a SCORM package for use in a VLE like Blackboard or Moodle and an "archive zip" for import/edit in XOT.

Future developments

This resource comprises fairly basic functionality and future iterations might utilise more of Xerte's functionality, to incorporate quizzes for example or other self-assessment activities.

A project group from the library is continuing to explore XOT as a potential tool to develop a wide range of tutorials as well as advocating its use to develop teaching and learning materials and OER across the University.