Embedding Digital Literacy Capabilities

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Overview

There is a clear commitment in the Learning and Teaching Strategy 2015-20 to develop student learning abilities and the transferable skills relevant to employment (B.3.1) ensuring that graduates have the learning abilities to be successful not only in their academic endeavours but are also able to apply these in the world of work.

Policy makers recognise that the digital landscape in which we are operating has transformed education and research, bringing new ways of knowing about and studying the world. “Digital literacy is an essential tool that underpins other subjects and almost all jobs ... Universities should ensure that all graduates are digitally competent” (House of Lords Select Committee on Digital Skills 2015). The effective and critical use of technology is “so fundamental that, like writing once did, it permeates all forms of communication, presentation and reference” (Catcheside, 2012).

The development of digital capabilities should be intrinsic to academic programmes, enabling students to utilise digital technologies and information sources as they progress through their programme of study, ultimately graduating with the core skills to become digital ‘transformers’ (DigEuLit Project 2006).

Digital Literacy

Digital literacy is widely recognised as an integral element of learning, scholarship and research, and has been recognised as a key priority for lifelong learning by the UK government (House of Lords Select Committee on Digital Skills 2015). ‘Digital literacy’, in the broadest sense, is

“the capabilities required to thrive in and beyond education, in an age when digital forms of information and communication predominate” (Beetham, H et al. 2012, p. 547).

Digital literacy encompasses a wide range of capabilities and approaches outlined in various frameworks such as JISC’s ‘Six elements of digital literacy’ (revised 2015). We consider that;

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1. Outlined in various frameworks such as JISC’s Seven elements of digital literacy, JISC (2014) Developing digital literacies: full guide. [https://www.jisc.ac.uk/full-guide/18655](https://www.jisc.ac.uk/full-guide/18655). See Appendix 1 for detailed descriptions of the 6 elements.
different contexts and in the light of ever-changing technical, social, economic, cultural and educational contexts.

We take digital literacy to be the higher order critical skills linked to finding, managing, creating and sharing information and data -- the confidence and agility to test and adopt a range of appropriate technologies.

Key readings

  http://www.ucisa.ac.uk/digcap

Associated material

  http://journals.heacademy.ac.uk/doi/pdf/10.11120/ital.2006.05040249
  https://www.heacademy.ac.uk/workstreams-research/themes/online-learning/online-learning-projects/digital-literacies-disciplines
  https://www.jisc.ac.uk/rd/projects/building-digital-capability
  https://www.jisc.ac.uk/rd/projects/digital-student

Expectations for change

The draft Learning and Teaching Strategy 2015-20 states that:

*The development of fundamental learning abilities should be intrinsic to every programme. These learning abilities include critical thinking and written and oral expression. They facilitate students’ progress to their chosen discipline; they enlarge the range of opportunities graduates might consider and enable them to make reasoned judgements about which to take; they are transferable and highly applicable to the world of work.*
The development of digital capabilities, along with academic skills, are core to student progression towards the programme level learning outcomes. When working towards programme level design, thinking about the development of skills alongside the academic content will enable the department to fully embed digital capabilities and academic skills across the programme, showing clear progression linked to the programme outcomes. The expectation is that **skills development is embedded in programmes and modules as this is an integral part of the York Pedagogy** [B.3.1, C.4.5].

Central to the pedagogy is the design of student work, linked to key concepts and skills which have to be understood or mastered in order to progress. **The design of student work should draw directly on activities known to enhance learning, including the development of transferable skills.** It is important that students understand and can demonstrate the way in which their knowledge and competencies are being developed to build on them and apply them in different situations.

The expectation is that **staff will engage in professional development regarding digital fluency to ensure that all of the programmes and modules benefit from critical appreciation of the effective use of digital tools** (C4.5). Technology should be fully exploited, appropriately in student work, in teaching, and to enable a range of assessment and feedback methods.

**Key readings, research and associated material**
- University of York Learning and Teaching Strategy 2015-2020
- University of York Statement on Teaching Performance Expectations
- Vision Statement for e-Learning

**Tools to stimulate thinking**
With the UK government and higher education quality assurance organisations placing a great emphasis on digital capabilities and the use of technology to support learning and teaching, there has been a proliferation of literature produced on this topic. The following section highlights some best practice examples of H.E. institutional and departmental initiatives to develop digital literacy capabilities. Links are also provided to case studies from the University of York, and support materials.

**Digital literacy frameworks and curricula**
In recent years a number of Higher Education Institutions and organisations with an interest in digital technologies and information services have developed frameworks and curricula to articulate digital literacy development.

The Library & IT Services’ Teaching and Learning Team have developed a Digital Literacy Framework based on the digital literacy development model of Beetham and Sharpe (2010). The Framework has been produced to articulate the attributes, practices, skills and understanding of a “digitally literate person”. The framework can be used to help map digital literacy provision across an academic programme, inform the development of
learning and teaching support materials, and identify intended learning outcomes.

This is not intended to be used as a definitive tick-box list of skills and a dictated set of attributes. The skills outlined are not independent of one another when applied in practice and should always be considered and situated within academic practice. However, this is a useful tool to aid understanding, mapping and planning.

**York Digital Literacy Framework and associated documents**
- Overview of the York Digital Literacy Framework: [https://drive.google.com/open?id=1mVa75PDfwwWNTz4JT71IsYbLjRq2tg22KSzLTbEntdY](https://drive.google.com/open?id=1mVa75PDfwwWNTz4JT71IsYbLjRq2tg22KSzLTbEntdY)
- York Digital Literacy Framework: [https://drive.google.com/open?id=1vAEIdF9cK-g2-Kz8SjoxZ9l63jGHgpAPXT3vucwkxa4](https://drive.google.com/open?id=1vAEIdF9cK-g2-Kz8SjoxZ9l63jGHgpAPXT3vucwkxa4)
- Developing a Digital Literacy Framework (posters presented at the University of York Learning and Teaching Conference 2015): [Poster 1, Poster 2](https://sites.google.com/site/dlframework/home).

**JISC Six elements of digital capabilities**

This is a nationally recognised framework from JISC (Joint Information Systems Committee), updated in July 2015. We use the JISC model when having discussions with academic and other University staff about what we mean by digital capabilities. Rather than a curriculum or detailed framework it is a looser model, good for stimulating discussion and helping groups and individuals arrive at their own shared understandings within their own context.

See [appendix 1](#) for more detail.

**Other useful frameworks and curricula from across the HE sector**
- SCONUL (2013) Seven Pillars of Information Literacy Digital Literacy lens (SCONUL7), 7 pillars. [http://www.sconul.ac.uk/tags/7-pillars](http://www.sconul.ac.uk/tags/7-pillars).
Reviewing digital literacy in academic programmes
The Teaching and Learning Team have been working collaboratively with the Department of Health Sciences to map digital literacy provision across the BSc Nursing programme. The aim of the review was to identify current learning and teaching support for digital literacy within the curriculum and to identify opportunities for developing digital literacy capabilities. The review involved:

- Mapping digital literacy skills linked to assessment criteria and intended learning outcomes
- Consultation with academic and support staff to identify perceived strengths and weaknesses linked to digital capabilities and the skills outlined in the York Digital Literacy Framework
- Feedback from students on areas where they would like additional support to develop their digital literacy skills

As a result of the Review a number of learning and teaching support materials were developed, including:

- Staff training programme covering reference management software, Google Apps for Education, Open Access, Copyright and Literature Searching.
- Development of a collection of online digital literacy learning and teaching materials, including interactive tutorials, video guides and quizzes.
- Review of the content of face-to-face digital literacy workshops delivered by the Academic Liaison Librarian as part of the Cooperative Learning Group modules.

The Teaching and Learning team will be working with the Archaeology and Environment departments in 2015-16 to support them in reviewing digital literacy provision across their undergraduate programmes.

Additional documents and materials associated with the Health Science Digital Literacy Review
- Project Proposal
- Work Based Schedule
- Interim Report
- “Working collaboratively to map digital literacy provision”, presentation delivered at the Librarians Information Literacy Conference 2015: http://www.slideshare.net/infolit_group/halfpenny-brown

Embedding digital capabilities for students case studies
Digital literacy capabilities and academic skills are integral to students’ successful completion of academic programmes. Learning and teaching support for the development of these learning abilities is most successful if it is fully embedded in academic programmes and aligned with the intended learning outcomes and assessment criteria. The following case studies illustrate some of the examples where digital literacy has been effectively embedded into academic programmes and modules, at the University of York and other Higher Education Institutions.
Case studies from York

- **Archaeology**: using Twitter to facilitate discussion beyond the classroom.
- **Chemistry**: students producing educational videos and uploading them to YouTube.
- **Philosophy**: using Google Sites as an alternative to textual documents for student work, in this case, a dissertation about a philosopher.
- **York Law School**: case study looking at the digital literacy teaching and learning interventions introduced by the Law School to the first year undergraduate programme, in collaboration with their Academic Liaison Librarian, to support students with their transition to problem based learning curriculum.
- **York Management School**: introducing real collaboration into a PG module in the York Management School, using online collaborative tools offered in the Google Apps for Education suite to aid with group work.

Case studies from other higher education institutions

A quick literature search reveals many examples from specific disciplines and these are constantly being added to. One larger project worth mentioning from 2013-14 is the HEA and JISC’s Digital Literacy in the Disciplines project, which funded academics in various disciplines on a series of mini-projects. The broad aim was to encourage the development of digital literacies among staff and students within a disciplinary context and academic staff worked with students on these. Some of these specifically involved embedding new content in the curriculum and others worked outside the curriculum. A list of these projects and contact details can be found here:

- [https://www.heacademy.ac.uk/workstreams-research/themes/online-learning/online-learning-projects/digital-literacies-disciplines](https://www.heacademy.ac.uk/workstreams-research/themes/online-learning/online-learning-projects/digital-literacies-disciplines)

**Example**

Faculty of Biological Sciences, University of Leeds. Dr David Lewis.

Research projects make a substantial contribution (33%) of the students’ final year mark. To cater for those students who do not wish to go onto careers in scientific research, the Project Lead developed non-laboratory based alternative Final Year research projects to enable students to develop alternative skill sets to those gained in the laboratory and gain experience which more closely matches their final career destinations.

For their final year projects, the students created digital learning resources, using Xerte, for inclusion into and enhancement of the curricula. Four Xerte learning objects were produced; two will be utilised to facilitate student transition from School to University or as a guide to summer studentships, the remaining two will be inserted into module VLE pages as supplementary resources to support existing lecture materials. The intention is to incorporate future learning objects into curricula to supplement other learning and teaching resources and activities.

Project overview, outcomes and conclusions

Technology enhanced learning
One of the expectations of the Learning and Teaching strategy is the use of technology to facilitate learning and to streamline the administrative process. The following section provides some links to case studies showing innovative use of technology to support learning and teaching.

Case studies from York
- Streaming Seminars via Google Hangouts: York Heritage Research Seminars hosted by the Department of Archaeology are live-streamed using Google Hangouts and are accessible to viewers around the world.
- Making marking easier: using editable rubric, connected to advice, utilising the functionality offered by Google Forms and Docs to auto-generate feedback forms.

Support materials for reviewing and developing digital capabilities
This section provides links to support materials and guidance for those who want to review digital literacy provision across academic programmes.

Supporting the development of digital capabilities linked to assessment
Different types of assessment will require students to display certain digital literacy capabilities. Dependent upon the assessment criteria these may carry an associated contribution to the overall mark. The example below shows the links between the assessment format and criteria, linked to the integral associated digital literacy skills for producing an essay:

You can use the Digital Literacy Framework to help map digital literacy skills and understandings to assessment criteria.
Opportunities for developing digital capabilities

Enabling digital skills and capabilities can also be identified and linked to the assessment criteria and intended learning outcomes. The identification of enabling skills can help identify opportunities to embed digital literacy and identify areas of progression across the curriculum. The example below shows some of the enabling skills associated with ‘outstanding use of source material’:

**Identifying areas of additional support**

Are there common strengths and weaknesses associated with digital literacy capabilities that have been identified across a cohort? These could include:

- presentation of work using digital technologies
- citing and referencing academic sources
- identifying appropriate academic sources
- working collaboratively using digital technologies

You can use the York [Digital Literacy Framework](#) and the [JISC Six elements of digital capabilities model](#) to help guide discussion about the current digital capabilities of students, and identify areas to build in development and progression.

Students may also identify areas where they would like additional support. We have developed a questionnaire that can be circulated to students to gather feedback on skills support: [Skills Support Questionnaire](#)

**Developing and adopting digital literacy teaching and learning materials**

The Teaching and Learning Team have put together a database of learning and teaching support materials for developing digital literacy capabilities. The database contain links to activities, slides and online tutorials, these materials can be adapted to use in your own practice, and we are happy to assist with the delivery of teaching. You can either do a keyword search to identify useful materials or filter by the digital literacy skills and understandings outlined in the [Digital Literacy Framework](#).

- [Teaching Materials Database](#)

There are also a considerable amount of information literacy and digital literacy open educational resources available that can be adapted and reused. You may find the following OER repositories useful for identifying learning and teaching support materials:
Technology-Enhanced Learning Handbook for Practice
The York Technology-Enhanced Learning (TEL) Handbook acts as a companion to your teaching practice, presenting approaches that are designed to improve student engagement and learning and teaching.

How we can help
The E-Learning Development Team and the Teaching and Learning Team (Library and IT Services) can provide training and support for developing digital literacy capabilities.

E-Learning Development Team
We offer individuals and Departments support in the design, delivery and evaluation of learning technology interventions, at the activity, module and programme level. Working from a pedagogy-first approach, drawing upon our own research and evidence from the sector, we help you to find the right tool and approach to meet your learning objectives. We provide guidance on how to use the University's centrally-supported virtual learning environment Yorkshare, and advise on a wide range of learning technologies, including use of Google Sites for portfolios, multimedia and video, lecture recording, technology-supported assessment, in-class technologies and collaboration out of class.

Contact us to discuss how technology can support learning and teaching in your Department.
- vle-support@york.ac.uk
- (01904 32) 1131

Teaching and Learning team, Library & IT Services
Our remit is wide and we can provide support for all staff and students in any aspect of digital capabilities - from digital innovation and scholarship, to communication and collaboration, digital identity, and the critical use of information and media, as well as training in some particular software and applications. We can provide support for the teaching and learning context, but also for research, management, administration and personal development.

Some of the areas for which we provide most support currently are: use of collaborative tools, for example the Google suite; use of social media in H.E. contexts; critical information searching and information use; and managing information, including bibliographic software like Paperpile and Endnote.

Digital Literacy Reviews
The Teaching and Learning team can work with you to review digital literacy provision in academic programmes. This involves:
- Reviewing assessment of digital literacy capabilities
- Identifying opportunities to embed digital literacy into the curriculum
- Assisting with the development of digital literacy teaching and learning materials.
For more details on the process for reviewing digital literacy across programmes take a look at the case study from the Department of Health Sciences.

Contact us to discuss your needs: infodir-teachingandlearning@york.ac.uk
## Appendix 1: JISC Digital Capabilities Six Elements Defined

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td><strong>ICT proficiency</strong></td>
<td>The capacity to use ICT-based devices, applications, software and services via their interfaces (mouse, keyboard, touch screen, voice control and other modes of input; screens, microphones, haptic feedback and other modes of output); to use basic productivity software, web browser, and writing/presentation software; to use digital capture devices such as a camera. At higher levels, the capacity: to choose, adapt and personalise ICT applications and systems; to critically assess the benefits/constraints of ICT applications and approaches; to design and implement ICT solutions; to recover from failures; to stay up to date with ICT as it evolves; to adopt computational modes of thinking (coding, algorithms etc).</td>
</tr>
<tr>
<td><strong>Information, media and data literacy</strong></td>
<td><strong>Information literacy</strong> The capacity to find, evaluate, manage, curate, organise and share digital information, including open content. At higher levels a critical awareness of provenance and credibility. Capacity to interpret information for academic and professional/vocational purposes. Ability to act within the rules of copyright and to use appropriate referencing. Ability to record and preserve information for future access and use.</td>
</tr>
<tr>
<td><strong>Media literacy</strong></td>
<td>The capacity to critically read communications in a range of digital media – text, graphical, video, animation, audio, haptic etc (also 'multimodal literacy'). At higher levels, the capacity to appreciate audience, purpose, accessibility, impact, modality and to understand digital media production as a practice and an industry. To act within digital copyright law.</td>
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<tr>
<td><strong>Data literacy</strong></td>
<td>The capacity to collate, manage, access and use digital data in spreadsheets and other media; to record and use personal data; to ensure data security and to use legal, ethical and security guidelines in data collection and use. At higher levels the ability to interpret data by running queries, data analyses and reports.</td>
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<tr>
<td><strong>Digital creation, scholarship and innovation</strong></td>
<td><strong>Digital creation</strong> The capacity to design and/or create new digital artefacts and materials; digital writing; digital imaging; digital editing of images, video and audio. At higher levels the ability to code and to design apps/applications, games, virtual environments and interfaces.</td>
</tr>
<tr>
<td><strong>Digital research and scholarship</strong></td>
<td>Digital research and scholarship The capacity to collect and analyse research data using digital methods. At higher levels to discover, develop and share new ideas using digital tools; to undertake open scholarship; to design new research questions and programmes around digital issues/methods; to develop new digital tools / processes; to evaluate impacts of digital interventions.</td>
</tr>
<tr>
<td><strong>Digital innovation</strong></td>
<td>The capacity to develop new practices with digital technology in organisational settings and in specialist subject areas (professional, vocational and disciplinary); digital entrepreneurship. At higher levels the ability to lead organisations, departments, teams and practice/subject areas in new directions in response to</td>
</tr>
<tr>
<td>Digital communication, collaboration and participation (participating)</td>
<td>Digital communication</td>
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<td>Digital collaboration</td>
<td>Digital collaboration</td>
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<td>Digital participation</td>
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<tr>
<td>Digital learning and personal/professional development (learning)</td>
<td>Digital learning and personal/professional development (learning)</td>
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<tr>
<td>Digital identity and wellbeing (self-actualising)</td>
<td>Digital identity management</td>
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<td>Digital wellbeing</td>
<td>Digital wellbeing</td>
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JISC (2015) CC-BY-NC-ND