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discourse: Deakin University Library research and practice



No. 3 2016

Digital literacy

Sue Owen, Pauline Hagel, Bernie Lingham, Daisy Tyson



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discourse: Deakin University Library research and practice

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Deakin University
Graduate learning outcomes



Discipline-specific knowledge and capabilities



Communication skills



Digital literacy



Critical thinking



Problem solving



Self-management



Teamwork



Global citizenship

Digital literacy

Sue Owen, Pauline Hagel, Bernie Lingham, Daisy Tyson

Abstract

While digital literacy may be understood and defined differently within disciplines, the concept is primarily about literacies rather than digital technologies or digital competence. Digital literacy involves finding, using and disseminating information in a digital world. Digital Literacy underpins teaching and research, regardless of discipline, and is an essential graduate skill for effective participation in employment and all aspects of life. Building on all Deakin Graduate Attributes, digital literacy already has a good foundation in many unit curricula, with many academic staff modelling aspects of this literacy both in their teaching and their research practice.

Keywords: digital literacy, graduate outcomes

WHAT IS DIGITAL LITERACY?

Deakin University's Graduate Learning Outcome 3 (DU GLO3) defines digital literacy as using technologies to find, use and disseminate information.

Paul Gilster first popularised the term in his book, *Digital Literacy*, published in 1997. He conceived of digital literacy as, simply, 'literacy for a digital age'. A recent review of the Digital Literacy literature (Hagel 2015a) enhances our understanding of this learning outcome. Digital literacy is often understood differently depending on disciplines, however, fundamentally, it focuses more on literacies rather than media and involves finding, using and disseminating information in a digital world. Many courses at Deakin University already include the development of digital literacy and some have assessment rubrics for various aspects of this literacy – these are taken up in the detail of this guide.

With digital media sources utilised everyday as part of life and work, we know that the volume, choice, range and complexity of information can be overwhelming. This then can lead to poor selection of sources and time wasted on re-tracing materials. Navigation skills and information management can ensure that up to date, relevant sources are located in an accessible format and sources are well organised and documented to enable efficient retrieval – as and when needed. The sheer influence and ubiquity of digital media mean that synthesis and critical assessment of a diverse array of resources are also key skills. Further, ethical and legal use of information and maintaining the security and privacy of the user's – and others' – information are paramount.

Digital literacy is not a stationary concept: as ICT changes, what it means to be digitally literate also needs to evolve to ensure that students develop and apply skills in appropriate new technologies for information discovery, transfer, analysis, review and communication.

WHY ARE DIGITAL LITERACY SKILLS IMPORTANT FOR STUDENTS?

Digital Literacy is a key 21st Century skill which significantly enhances graduate employability. The AQF specifies that students will develop skills to 'analyse and evaluate information to complete a range of activities, and transmit knowledge, skills and ideas to others' (Deakin University 2013). Integrating Digital Literacy in course curricula aligns with the AQF requirement to future-proof students for evolving careers. Achieving a minimum standard of digital literacy, students will graduate with the capabilities associated with information use required by the AQF Level 7 Bachelor Degree. Many courses and units already include activities and assessment tasks for

digital literacy development. Deakin University's Course Enhancement and curriculum review processes build on existing areas of good and evolving digital literacy practice.

When integrated in course curricula and evidenced in aligned assessments, good digital literacy practice contributes to students' effective engagement in premium cloud and located learning environments. These skills also impact students' employability, with recruitment being increasingly undertaken via social media and a professional digital identity being key to future networking within a profession, seeking opportunities and ensuring mobility over a career.

ASPECTS OF DIGITAL LITERACY TO CONSIDER

Bawdon (2008, pp. 29–30) has developed a useful conceptualisation of digital literacy which comprises four dimensions: underpinnings, background knowledge, central competencies, and attitudes and perspectives:

- *Underpinnings*: Foundational literacy; Basic ICT skills
- *Background knowledge*: The nature of information – forms, sources/origins, understanding of the 'publication chains', authorship, provenance
- *Central competencies*: Finding/searching; Navigating; Synthesising; Critically analysing; Creating; and Communicating
- *Perspectives*: Independent learning; Ethical use of information (respect for privacy); and Ethical behaviour in digital communication.

In a higher education environment, foundational literacy and basic ICT skills are a student pre-requisite and not part of digital literacy programs.

The other dimensions identified by Bawdon are all incorporated in the DLF 'Course Learning Outcomes Standards Templates for AQF Level 7 Bachelor Degree Courses' for CLO3 – Digital Literacy.

TEACHING DIGITAL LITERACY

As a key learning outcome for your unit, Digital Literacy can build on what is already taught – especially where current curriculum is based on inquiry-based teaching and learning practices, such as evidence-based practice (EBP); problem-based learning (PBL); case-based learning; or project-based and design-based learning.

The following examples illustrate how faculty and library staff are collaborating at Deakin University to integrate digital literacy development and assessment in the curriculum.

Evidence-based practice (EBP) involves the use of the most relevant and valid research evidence to inform clinical decision-making (Illic 2009). This involves skills in asking clinical questions, in finding, appraising, and applying the evidence to the clinical scenario, followed by an evaluation of the outcomes of the actions. The fundamentals of EBP are introduced to Deakin's first year Medical students through a scenario-based interactive class. The teaching is shared between the Library and School academics, and is supported by online documentation. <http://deakin.libguides.com/ebp>

Problem-based learning (PBL) focuses on addressing real world problems. The curricula for Deakin University Nursing students includes authentic nursing problem based scenarios in clinical situations. Each PBL assessment provides students with a scenario (including a video recorded handover by a nurse on the previous shift and descriptive patients' profiles), activities to support students' learning needs and additional resources on the topic or a related general area.

Case-based learning focuses on the analysis of case narratives that may include wide-ranging information or require students to do further research (Aditomo et al. 2011). Through the presentation of a topical case, case-based learning in the Bachelor of Health Sciences encourages students to reflect on their skills and identify their

own learning gaps. The approach requires learners to find and evaluate appropriate information to support their knowledge development to then address those gaps.

Project based and design based learning. Curriculum and learning activities in the Engineering curricula employ real world problems designed to assist students to develop skills in applying critical judgement in evaluating the quality, validity and reliability of source material.

<http://www.deakin.edu.au/library/teach/digital-literacy/learning-activities-and-assessment-tasks>

The professions require their practitioners to source the latest and most accurate information to inform their work.

Digital literacy is closely aligned with several other Deakin Graduate Learning Outcomes, including:

- CLO1 Discipline-specific knowledge and capabilities
- CLO2 Communication
- CLO4 Critical thinking
- CLO5 Problem solving
- CLO8 Global citizenship

These learning outcomes can be developed and assessed through an integrated approach within a program of inquiry-based learning.

Having established the elements of digital literacy: What constitutes good practice in evidencing digital literacy? Hagel (2015b) identifies eight, interrelated criteria of good practice in the development, assessment and evaluation of discipline-specific, digital literacy integrated in course curricula underpinned by sound educational principles.

1. Does the practice address digital literacy?
2. Is the practice consistent with principles of good learning, teaching and assessment?
3. Is the practice integrated with discipline learning?
4. Does the practice involve authentic assessment in support of graduate employability in the discipline?
5. Does the practice use the affordances of the digital technology?
6. Does the practice cater for a diverse student body?
7. Is the practice consistent with effective evaluation procedures for the assurance of graduate outcomes?
8. Is the practice sustainable?

What it means to be literate is socially-situated: within a university there are various disciplinary and professional practices that influence how people engage in making meaning of texts. The key is to adopt the practices that best influence students' development as professional, responsible and engaged graduates in their desired profession or career.

Universal Design for Learning (UDL) guidelines can ensure digital literacy activities and assessment tasks are developed in line with inclusive pedagogy to stimulate social diversity, difference and academic engagement in students. The three principles of UDL provide:

- multiple means for representation
- multiple means for expression and action
- multiple means for engagement

As an educational framework, UDL acknowledges that learner variability is the norm and that students will arrive at a learning situation with unique differences and approaches (CAST 2012; The National Center on UDL 2012).

For instance, e-readers offer both audio and visual text for learning. The goal of UDL is to stress the best possible design, resulting in little or no need for assistive technologies or individual accommodations.

ASSESSING DIGITAL LITERACY AND RUBRICS AT DEAKIN UNIVERSITY

The Deakin Learning Futures (DLF) Course Enhancement Program Sandpits Stage 2.2 document Appendix 1 'Course Learning Outcomes Standards Templates for AQF Level 7 Bachelor Degree Courses' highlights the key elements of each Graduate Learning Outcome (GLO).

For GLO 3: Digital Literacy there are eight potential performance criteria and for each criteria, associated minimum standards. The criteria and standards build our operational understanding of Digital Literacy. The criteria include: digital proficiency; determining the extent of information needed; accessing required information; sources and evidence; evaluating information critically; using information effectively to accomplish a specific purpose; accessing and using information ethically and legally; and digital communication.

It's important to note that six of these criteria are defined without reference to format or technology, no reference to digital. These six criteria will be familiar – they underpin the well-established capabilities of information literacy.

How to assess digital literacy

As mentioned, eight potential performance criteria have been identified by DLF which incorporate AQF graduate learning outcome requirements. Together, these criteria offer a comprehensive approach to developing digital literacy across a course.

Digital literacy: Learning activities and assessment tasks.

The following examples illustrate the collaborations between liaison librarians and academics in developing learning activities that evidence elements of the Digital Literacy Framework 'Find', 'Use' and 'Disseminate' and are aligned to Unit assessment tasks. More detailed information on the collaborations with Faculties may be found at the following website

<http://www.deakin.edu.au/library/teach/digital-literacy/learning-activities-and-assessment-tasks>

Course teams use the Framework to inform the development of assessment tasks and create engaging learning activities that enable students to demonstrate achievement of key digital literacy skills and knowledge. In line with sustainable practice, assessment tasks and activities can be adapted and applied across other units and courses, trimesters and modes of study.

For example, in 2013 liaison librarians collaborated with academic staff from the School of Education, academic staff from the Schools of Information Technology and of Engineering, and also staff from Deakin Learning Futures, in developing an innovative digital literacy assessment task and associated learning activities. The program was designed to assist the 300+ students in the first year unit *Communicating Science* to develop their abilities to make sound judgments about the quality, accuracy and reliability of digital information sources. Assessment requirements were aligned with relevant proficiencies outlined in the Framework and also involved group work, peer review and assessment, which was evidenced in the creation of their video presentations.

The assessment task was incorporated into curricula in 2014 and the outcomes of the assessment were extremely positive with the vast majority of groups achieving credit or above for the task, and the learning activity building students' confidence in critically appraising information source credibility. The learning activity has since been successfully adapted to additional courses and units across other faculties, including first year *Creative Writing* and first year unit *Introduction to University Study*.

AIX160 Introduction to University Study has been developed and delivered by a cross-divisional Deakin team employing Universal Design for Learning principles. In 2016 the Library led presentations and seminars designed to assist students to facilitate finding and evaluating information from a variety of sources, affirming the understanding that information credibility in part relies on being 'fit for purpose'. In the seminar on evaluating information student centered activities focused on examining a range of web sites for credibility and delivering findings back to the seminar group. This consolidated the learning outcome of developing skills to assess and corroborate sources for accuracy and reliability. Team teaching with the unit chair and Academic Skills staff ensured students undertaking this unit, drawn from across faculties, are well equipped to succeed during their undergraduate degree.

In 2016 Liaison Librarians also worked closely with the Faculty of Business and Law to develop an online and interactive Introduction to Digital Literacy module. The scenario based module guides students through tasks that require finding, using and sharing information, gradually building their skills and abilities to become sophisticated consumers and producers of information. All students undertaking a Bachelor of Commerce at Deakin University are required to complete the module.

The following websites and documents outline a variety of digital literacy assessment tools and instruments that can assist when considering how best to assess and evidence students' achievement of digital literacy.

Rubric Assessment of Information Literacy Skills (RAILS): funded by the Institute for Museum and Library Services to facilitate the assessment of digital literacy, information literacy, and critical thinking skills provides example rubrics, training materials, readings and a discussion forum.

<http://www.railsontrack.info/about.aspx>

Effective assessment in the digital age by JISC provides further information about effective design of technology-enabled assessment and feedback practices.

<https://www.dkit.ie/system/files/JISC%20Effective%20Assessment%20in%20a%20digital%20age.pdf>

Research skills development framework (RSD): developed by the University of Adelaide and designed as a structure to provide support in the development of research skill teaching and assessment.

<http://www.adelaide.edu.au/rsd/>

Fresno Tool: developed to provide a validated, reliable assessment tool for skills in evidence-based practice. Useful information to establish a base level of skill.

<http://www.bmj.com/content/suppl/2003/02/10/326.7384.319.DC1>

Assessing student learning by EdTechTeacher provides links to many rubrics to measure student learning. It may be useful for developing your own assessment rubric.

<http://edtechteacher.org/index.php/teaching-technology/assessment-rubrics>

Getting assistance

There are a wide range of valuable educational materials, services and expertise within Faculties, Deakin Learning Futures, the Library, Deakin Student Life, Equity and Diversity and other support areas who can assist you in developing curriculum and learning activities to support your students' development of digital literacy.

University Library

<http://www.deakin.edu.au/library/about/liaison-librarians.php>

Liaison librarians contribute expertise on digital literacy to the ongoing enhancement of courses across all Faculties, in collaboration with course teams, and staff from Deakin Learning Futures, Deakin Student Life and Equity and Diversity.

- Liaison Librarians and Learning and Teaching Librarians form part of broader University collaborative teams working to build depth of knowledge of digital literacy and to increase the capabilities of course teams to describe, map, assess and evidence digital literacy.
- We advocate and advise on appropriate models of digital literacy assessment and learning activities that can be contextualised within courses and embedded in curricula.
- We assist students to develop digital literacy by working with course teams to integrate within CloudDeakin units and, increasingly, CloudDeakin course sites or hubs:
 - scholarly information resources and discovery services
 - online learning materials
 - innovative assessment and engaging learning activities
 - Library support and assistance

Equity and Diversity

Equity and Diversity can assist faculties on how to frame a course with UDL principles.

The Universal Design for Learning guidelines can ensure digital literacy activities and assessment tasks are developed in line with inclusive teaching practice.

There are helpful UDL tools and research-based strategies that support staff in reflecting upon ‘what they teach,’ ‘how they teach,’ and ‘how they assess’ student learning in light of the selected Deakin Graduate Learning Outcomes (GLOs). Staff can then develop and implement UDL changes associated with the selected Course and Graduate Learning Outcomes.

Deakin Learning Futures (DLF)

Experts in the development of authentic assessment of digital literacy, along with cloud concepts and learning materials can contribute to your curriculum and learning resources. DLF provide capacity building activities to support staff in this area. Also, the Course Enhancement process provides a supported opportunity to embed this literacy into course review and assessment redesign.

Deakin Student Life

Study skills: language and learning for study success

<http://www.deakin.edu.au/current-students/study-support/study-skills/index.php>

Language and Learning Advisors can support critical thinking skills at research and writing stages, including how to evaluate texts and integrate the ideas of others; create discipline or course based resources that highlight the linguistic features of critical analysis, for example compare and contrast, strong versus weak arguments in a discipline and how it is achieved.

Careers

<http://www.deakin.edu.au/current-students/services/careers/index.php>

Provide a professional perspective on students’ digital footprint and personal branding.

FURTHER READINGS AND OTHER RESOURCES

- Ala-Mutka, K, Punie, Y & Redecker, C 2008, Digital competence for lifelong learning, Policy Brief, JRC Technical Notes, European Communities, European Commission, Spain, retrieved 4 January 2016
<http://ftp.jrc.es/EURdoc/JRC48708.TN.pdf>
- Ghaith, G 2010, 'An exploratory study of the achievement of the twenty-first century skills in higher education', *Education & Training*, vol. 52, no. 6/7, pp. 489–98.
- Jones-Kavalier, BR & Flannigan, SL 2006, 'Connecting the digital dots: literacy of the 21st century', *Educause Quarterly*, no. 2, January, pp. 8–10, retrieved 4 January 2016
<https://net.educause.edu/ir/library/pdf/eqm0621.pdf>
- Lakkala, M, Iilomäki, L & Kantosalo, A 2011, 'Which areas of digital competence are important for a teacher?', What is digital Competence?, EUN Partnership, AISBL, University of Helsinki, Finland, March, retrieved 4 January 2016
http://linked.eun.org/c/document_library/get_file?p_l_id=22345&folderId=23768&name=DLFE-742.pdf
- Lea, MR & Jones, S 2011, 'Digital literacies in higher education: exploring textual and technological practice', *Studies in Higher Education*, vol. 36, no. 4, pp. 377–93.
- Smith, S & Thomson, S 2011 Embedding digital literacy at Leeds metropolitan University, Centre for Learning and Teaching, Leeds Metropolitan University, United Kingdom, retrieved 4 January 2016
http://www.eshare.edgehill.ac.uk/1766/1/Day_2_Session_5_We%27ve_Made_an_eBook_-_text.pdf
- Nelson, KM, Courier, M & Joseph, GW 2011, 'Teaching tip: an investigation of digital literacy needs of students', *Journal of Computer Assisted Learning*, vol. 28, no. 6, pp. 547–56.
- Sefton-Green, J, Nixon, H & Erstad, O 2009, 'Reviewing approaches and perspectives on “digital literacy”', *Pedagogies: An International Journal*, vol. 4, no. 3, pp. 107–25.

References

- Aditomo, A, Goodyear, P, Bliuc, A & Ellis, R 2011, 'Inquiry-based learning in higher education: principal forms, educational objectives, and disciplinary variations?', *Studies in Higher Education*, no. 36, pp. 1-20.
- American Library Association 2000, Information literacy competency standards for Higher Education, The Association of College and Research Libraries, American Library Association, Chicago, Illinois, January, retrieved 4 January 2016
<http://www.ala.org/acrl/sites/ala.org.acrl/files/content/standards/standards.pdf>
- ACRL 2012, ACRL Information literacy competency standards for Higher Education task force, retrieved 4 January 2016
<http://www.ala.org/acrl/aboutacrl/directoryofleadership/taskforces/acr-tfilsche>
- AQF 2011, Australian Qualifications Framework, AQF, First Edition, retrieved 4 January 2016,
<http://www.aqf.edu.au/>
- Bawden, D 2008, 'Origins and concepts of digital literacy' in C Lankshear & M Knobel (Eds.) *Digital Literacies: Concepts, Policies and Practices*. Peter Lang Publishing, Inc., New York, pp. 17-32.
- Bawden, D & Robinson, L 2009, 'The dark side of information: overload, anxiety and other paradoxes and pathologies', *Journal of Information Science*, vol. 35, no. 2, pp. 108-191.

CAST 2012, Universal design for learning guidelines, National Center on Universal Design for Learning, Center for Applied Special Technology (CAST), , retrieved 4 January 2016
http://www.udlcenter.org/sites/udlcenter.org/files/updateguidelines2_0.pdf

Deakin University 2013, 'Appendix 1', Deakin Learning Futures AGENDA 2020: Stage 2: Assessment and Learning Design, Deakin University, Victoria, March, pp. 1–5, retrieved 4 January 2016
https://www.deakin.edu.au/_data/assets/pdf_file/0019/22276/clo-standards-aqf7-bachelor.pdf

Gilster, P 1997, *Digital literacy*, John Wiley, New York.

Hagel, P 2015a, Towards an understanding of 'Digital Literacy(ies)', *discourse: Deakin University Library research and practice*, no. 1, Geelong, Deakin University Library, retrieved 4 January 2016
<http://dro.deakin.edu.au/view/DU:30073198>

Hagel, P 2015b, What is good practice in the development, assessment and evaluation of digital literacy for graduate employability?, *discourse: Deakin University Library research and practice*, no. 2, Geelong, Deakin University, retrieved 4 January 2016 Library. <http://hdl.handle.net/10536/DRO/DU:30073199>

Ilic, D 2009, 'Assessing competency in evidence based practice: strengths and limitations of current tools in practice', *BMC Medical Education*, vol. 9, p. 53, retrieved 4 January 2016
<http://www.biomedcentral.com/1472-6920/9/53>



LIBRARY

GEELONG WATERFRONT CAMPUS

1 Gheringhap Street
Geelong Victoria

GEELONG WAURN PONDS CAMPUS

Pigdons Road
Waurnd Ponds Victoria

MELBOURNE BURWOOD CAMPUS

221 Burwood Highway
Burwood Victoria

WARRNAMBOOL CAMPUS

Princes Highway
Warrnambool Victoria

deakin.edu.au/library