



Discipline-specific
knowledge and
capabilities



Communication skills



Digital literacy



Critical thinking



Problem solving



Self-management



Teamwork



Global citizenship



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.



TABLE OF CONTENTS

WHAT IS DIGITAL LITERACY?	1
WHY ARE DIGITAL LITERACY SKILLS IMPORTANT FOR STUDENTS?	1
ASPECTS OF DIGITAL LITERACY TO CONSIDER	2
TEACHING DIGITAL LITERACY	2
ASSESSING DIGITAL LITERACY AND RUBRICS AT DEAKIN UNIVERSITY	4
• HOW TO ASSESS DIGITAL LITERACY	4
• GETTING ASSISTANCE	8
FURTHER READINGS AND OTHER RESOURCES	9
REFERENCES	11
DEVELOPMENT OF THE DIGITAL LITERACIES TEACHING RESOURCE	12







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 2012a) enhances our understanding of this learning outcome. Digital literacy 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'.¹ 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.

¹ (Deakin University 2013, 'Appendix 1', *Deakin Learning Futures AGENDA 2020: Stage 2: Assessment and Learning Design*, Deakin University, Victoria, March, pp. 1–55.).



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 prerequisite 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) requires students to make ‘clinical’ decisions informed by the most relevant, valid and robust evidence (Illic 2009). Deakin University’s Medical students are introduced to the fundamentals of Evidence-based Practice in the first year of their course where they are required to find and critique medical research outcomes. The teaching approach encompasses lectures and case-based tutorials in which students are presented with a scenario and questions, and asked to find evidence to support hypothetical decisions.

<http://deakin.libguides.com/ebp>

Problem-based learning (PBL) involves students in addressing real world problems. The curricula for Deakin University’s Nursing students includes authentic nursing problem based scenarios in clinical situations. Each PBL assessment involves students being provided the 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 *SEB121 Engineering Practice*, employ real world problems designed to assist first year students to develop skills in applying critical judgement in evaluating the quality, validity and reliability of source material. <http://deakin.libguides.com/content.php?pid=392794&sid=3299812>

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 (2012b) 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. Does the practice use the affordances (design aspect) of the digital technology? The focus of should be on what students are asked to do with a technology, rather than what the technology can do (Burden & Atkinson 2008).
3. Is the practice consistent with principles of good learning, teaching and assessment?
4. Is the practice consistent with effective evaluation procedures for the assurance of graduate outcomes?
5. Is the practice deeply integrated with discipline learning?
6. Does the practice involve authentic assessment in support of graduate employability in the discipline? Students need to be provided with opportunities to use their digital competences in authentic or real world contexts for the discipline or profession.
7. Is the practice sustainable? Can it be applied across teaching periods, to more than one context and be cost efficient?
8. Does the practice cater for a diverse student body? Good practice involves testing assumptions made about the knowledge, experience and preferences of learners, such as 'digital natives', and ensuring that disadvantaged groups are not further impeded by choices about the uses to which digital technologies are put.

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. These are represented in Table 1. Digital literacy potential performance criteria and assessment characteristics.





Table 1: Digital literacy potential performance criteria and assessment characteristics

DIGITAL LITERACY POTENTIAL PERFORMANCE CRITERIA (developed by Deakin Learning Futures)	RESOURCES	EXAMPLES IN CURRENT DEAKIN COURSES / UNITS
<p>Digital proficiency:</p> <p>Appropriate, efficient and effective use of technology. Selection and use of contemporary technologies to access, organise, share and communicate information.</p>	<p>Lynn Riddell and Susie Macfarlane</p> <p>School of Exercise and Nutrition Sciences, Liaison Librarians</p> <p>Learning@Deakin</p> <p>Topical discussions via the Deakin Yammer community</p>	<p>School of Exercise and Nutrition Sciences – Staff capacity building project ‘Assembling your digital toolkit’.</p> <p>Contacts – Susie Macfarlane and Lynn Riddell</p>
<p>Determining extent of information needed:</p> <p>Effectively defining the scope of a research inquiry; identification of key concepts and selection of relevant sources. Students analyse and deconstruct a research topic identifying key concepts and ideas and planning their search and discovery approach.</p>	<p>Essay success (PDF)</p> <p>Library search planner</p> <p>Library videos and tutorials on effective search techniques.</p>	<p>HSW219 Self and Society</p> <p>Contact – Linlin Zhao</p> <p>SRA215 Utopian Ideals in the Modern World</p> <p>Contact – Josephine le Clerc</p>
<p>Accessing required information:</p> <p>Effectively accessing appropriate and relevant sources using well-designed search strategies? Students access quality sources and demonstrate evidence of the use of these resources in their assessment tasks.</p>	<p>Discipline-specific Library Resource Guides embedded in CloudDeakin unit sites</p>	<p>ALC101 Contemporary Communication: Making Sense of Text, Image and Meaning</p> <p>Contact – Marina Minns</p>
<p>Sources and evidence:</p> <p>Using quality, credible and relevant sources to support and develop ideas. Assessment tasks require students to demonstrate evidence of their ability to select the most appropriate and relevant sources of information important to their discipline or area of research.</p>	<p>Library extensive collection, including ebooks, journals and databases</p> <p>Library resources, videos and tutorials</p>	<p>HME201 Medicine 2A</p> <p>Contact – Fiona Russell</p>
<p>Evaluating information critically:</p> <p>Discriminating between opinion and information substantiated by evidence; identifying and rectifying logical fallacies and errors. Students apply critical judgement when evaluating wide-ranging information sources for currency, reliability, authority, perspective.</p>	<p>Critical analysis</p> <p>Graduate Learning Outcome resources on Critical thinking</p>	<p>SEB121 Engineering Practice</p> <p>Contact – Chris Rawson</p>
<p>Using information effectively to accomplish a specific purpose:</p> <p>Effectively communicate manage and synthesise information from a broad range of sources, establishing effective information management processes and skills to organise and communicate information using information curation tools.</p>	<p>Cloud based tools including Zotero and citeulike</p> <p>EndNote</p> <p>Scoop.it</p> <p>Storify</p> <p>Pearltrees</p>	<p>ASL219/319 Drugs, Crime and Society</p> <p>Contact – Marion Churkovich</p> <p>ePortfolio projects</p> <p>School of Education</p> <p>School of Exercise and Nutrition Sciences</p> <p>School of Nursing</p>



<p>Accessing and using information ethically and legally:</p> <p>Know, respect and comply with ethical and legal aspects of using published and unpublished information use according to access terms of use in open and restricted licenses. Students correctly acknowledge the work of other authors, respect privacy and confidentiality and freedom of information.</p>	<p>Licensing and copyright</p> <p>Referencing and avoiding plagiarism</p>	<p>MLL110 Legal Principles and Skills</p> <p>Contact – Helen Wood</p>
<p>Digital communication:</p> <p>Appropriate, efficient and effective use of technologies to communicate information clearly and coherently. Assessment may include participation in online discussions, contributing via social media, industry Tweet ups, professional, industry and open forums.</p> <p>Students develop their ‘digital footprint’ appropriately managing personal and professional online identities.</p> <p>Online collaboration and teamwork are key aspects of communication.</p>	<p>Lynn Riddell and Susie Macfarlane</p> <p>School of Exercise and Nutrition Sciences, Liaison Librarians</p> <p>Deakin Jobshop</p> <p>Graduate Learning Outcome resources on Communication</p> <p>Graduate Learning Outcome resources on Teamwork</p> <p>Mediawiki</p>	<p>School of Exercise and Nutrition Sciences – Staff capacity building project ‘Assembling your digital toolkit’.</p> <p>Contacts – Susie Macfarlane and Lynn Riddell</p> <p>MMP111 Introduction to Property</p> <p>Contact – Sharon Chua</p> <p>Jobshop support for career management and employability using social media – cloud concepts available later in 2013</p>

Furthermore, the Association of College and Research Libraries’ Information Literacy Competency Standards for Higher Education (ACRL 2000) provides an invaluable framework of standards, performance indicators and outcomes, which align with many of the performance criteria in Table 1. Liaison Librarians can assist in identifying those standards which align with digital literacy course learning outcomes and which can inform the development of suitable activities and assessment tasks. An ACRL review task force is currently undertaking a major project to ensure the standards are revised or rescinded as needed, to continue to be relevant in the digital environment (ACRL 2012).

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.

Research on Digital Literacy assessment: Steve Covello’s site includes a sample of instruments available for use with high school students, higher education students, and with pre- and in-service teachers

<http://apescience.com/id/fulltext/research-on-digital-literacy-assessment-instruments>

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 http://www.jisc.ac.uk/media/documents/programmes/elearning/digiassass_eada.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/liason-librarians.php>

Liaison librarians are available to work with you to

- ensure your students develop effective digital literacy skills utilising technologies to find, evaluate and disseminate quality information supporting their learning
- provide training in the use of the latest information discovery and information management tools including EndNote, Zotero, social media and more
- show you how to incorporate more digital media in CloudDeakin units by locating and embedding quality video and images and linking to databases, e-books, journal articles and e-readings.

Equity and Diversity

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

Equity and Diversity can assist faculties on how to frame a course with UDL principles. 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 24 May 2013. <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 24 May 2013. <http://www.net.educause.edu/ir/library/pdf/EQM0621.pdf>

Lakkala, M, Ilomäki, 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 24 May 2013. 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.

Leeds Metropolitan University 2011, *Embedding digital literacy as a graduate attribute at Leeds Metropolitan University: Refocusing the undergraduate curriculum*, Centre for Learning and Teaching, Leeds Metropolitan University, United Kingdom, vol. 2, December, pp. 1–12, retrieved 24 May 2013. http://www.leedsmet.ac.uk/staff/files/UG_Embedding_Digital_Literacy.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, RA 2011, 'Inquiry-based learning in higher education: principal forms, educational objectives, and disciplinary variations?', *Studies in Higher Education*, vol. 36, pp. 1–20, retrieved 24 May 2013. <http://ezproxy.deakin.edu.au/login?url=http://dx.doi.org/10.1080/03075079.2011.616584>
- 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 24 May 2013. <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 24 May 2013. <http://www.ala.org/acrl/aboutacrl/directoryofleadership/taskforces/acr-tfilsche>
- Bawden, D 2008, 'Origins and concepts of digital literacy', in C Lankshear & M Knobel (eds), *Digital literacies: concepts, policies and practices*, Peter Lang Publishing, 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. <http://ezproxy.deakin.edu.au/login?url=http://dx.doi.org/10.1177/016555150809578>
- Deakin University 2013, 'Appendix 1', *Deakin Learning Futures AGENDA 2020: Stage 2: Assessment and Learning Design*, Deakin University, Victoria, March, pp. 1–55.
- Gilster, P 1997, *Digital literacy*, John Wiley, New York.
- Hagel, P 2012a, 'Towards an understanding of 'Digital Literacy(ies)', Unpublished report, Deakin University Library, Victoria.
- Hagel, P 2012b, 'Establishing what is good practice in digital literacy development, assessment and evaluation for graduate employability', Unpublished report, Deakin University Library, Victoria.
- Ilic, D 2009, 'Assessing competency in evidence based practice: strengths and limitations of current tools in practice', *BMC Medical Education*, no. 9, p. 53, retrieved 24 May 2013. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2728711/>
- UK Centre for Legal Education 2010, *What is a portfolio and what is portfolio-based learning?*, The higher Education Academy, retrieved 24 May 2013. <http://www.ukcle.ac.uk/resources/personal-development-planning/portfolios/one/>
- CAST 2012, *Universal design for learning guidelines*, National Center on Universal Design for Learning, Center for Applied Special Technology (CAST), retrieved 24 May 2013. http://www.udlcenter.org/sites/udlcenter.org/files/updateguidelines2_0.pdf



DEVELOPMENT OF THE DIGITAL LITERACIES TEACHING RESOURCE

This resource was prepared by: Sue Owen, Associate University Librarian

Dr Pauline Hagel, former Associate Head of School, Teaching and Learning, School of Management and Marketing, Faculty of Business & Law

Bernie Lingham, Manager Faculty Library Services, Science Engineering and Built Environment

Daisy Tyson, Manager Faculty Library Services, Arts and Education

Graphic Design work by Johnny Terziovski.

The series of Teaching Resources was edited by Dr. Teresa De Fazio, Deakin Learning Futures with the assistance of Assoc. Prof. Kylie O'Brien and Anna Grbin.