

Uncovering Digital Literacy and Supporting the Implicit: A Case Study of Library-Faculty Collaboration

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UNCOVERING DIGITAL LITERACY AND SUPPORTING THE IMPLICIT: A CASE STUDY OF LIBRARY-FACULTY COLLABORATION

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Abstract

Digital literacy is increasingly seen as an important skill for 21st century university students. Alongside this, notions of 'digital natives' who intuitively or implicitly understand digital literacy persist, despite evidence to the contrary.

In order to better understand how digital literacy is expressed in course curriculum, and therefore provide more effective support to students, Deakin University Library worked with academic staff in the University's School of Medicine to uncover where digital literacy was assessed across the span of a Master of Optometry degree. This process also revealed to what extent the underpinning digital literacy skills and knowledge needed to complete the assessments were explicitly taught versus implicitly expected to be pre-existing, or to be able to be developed without undue burden.

From this process an optometry digital literacy toolkit was developed by the Library. The toolkit contained resources aimed at supporting students' development of the skills needed to complete the assessments. The toolkit is unique in that it addresses both the assessable items students are required to produce but also the skills and tools students need to have in order to produce them. Mapping the course against an accepted definition of digital literacy also gave a clearer understanding of the presence of digital literacy-focused assessments across the life of the course. This may have implications for course development.

This case study describes a Library-led collaboration with academic staff. It has particular focus on detailing a process of mapping a curriculum against a definition of digital literacy and the development of a complementary toolkit. These processes are likely readily transferable to other contexts.

Keywords

digital literacy; collaboration; academic library; optometry

Introduction

This article describes the process of a Library-led collaboration with academic staff at an Australian university. The collaboration centred on reframing an existing curriculum within an expanded definition of digital literacy. This included identifying where and how digital literacy was taught and assessed through that curriculum. From the resulting analysis a contextualised digital literacy toolkit was assembled in order to provide students with the support required to build the explicit and implicit skills and knowledge called on for successful completion of their learning assessments. Further to this, a framework of the digitally literate professional was developed. This linked the student experience to the lifelong learning expected in the profession. This collaboration resulted in closer bonds between the Library and faculty, and characterises academic librarians' increasing moves beyond traditional role boundaries into developing areas of need in the digital world.

Background: digital literacy and digital natives

Digital literacy is increasingly seen as an important skill for 21st century university students. A significant step in this direction was the European Commission's recognition of "digital competence"

as a key competency for lifelong learning and “successful life in a knowledge society” [European Commission, 2006]. Actions since then have reinforced the view that digital literacy is an essential skill for the future, at the very least from an employability perspective [Coldwell-Neilson, 2017]. Despite this, a consistent understanding of what digital literacy is seemingly remains out of reach due to the phrase being applied to a shifting blend of behaviours, knowledge and skills, all existing within the frame of digital technology [Coldwell-Neilson, Armitage, Wood-Bradley, Kelly, & Gentle, 2019]. This is perhaps due to the distance we are from Gilster’s original definition of digital literacy as simply “the ability to understand and use information in multiple formats from a wide range of sources when it is presented by computers” [Gilster, 1997].

Almost alongside Gilster’s defining work on digital literacy, the concept of ‘digital natives’ appeared in the literature. Understood to be a concept first expressed by Prensky, digital natives were identified as the generation born from approximately 1980 onwards, who allegedly grew up with the “toys and tools of the digital age”, and subsequently “think and process information” very differently from the previous generation [Prensky, 2001, p. 2]. Subsequently, arguments in support of this idea appeared [Rainie, 2006; Underwood, 2007], and the concept of digital natives as inherently effective users of digital technologies permeated throughout much of society, persisting to this day [Burch V & Smith, 2019; Herrero et al., 2019; Judd, 2018; List, 2019]. However, criticisms of the concept of digital natives occurred throughout this period [Bennett, Maton, & Kervin, 2008] and today there appears to be little evidence to support the theory [Judd, 2018].

Closer examination of the evidence supports a view that familiarity with digital tools does not correlate with an understanding of how and when to use them, particularly in relation to assessment tasks in formal educational settings [Ng, 2012; Šorgo, Bartol, Dolničar, & Boh Podgornik, 2017]. This is represented through students overestimating their capabilities [Porat, Blau, & Barak, 2018] and the related difficulty teachers face in ensuring their expectations of students take into account this mismatch [Prior, Mazanov, Meacheam, Heaslip, & Hanson, 2016]. It is also important to note that new university students likely receive inadequate information on digital literacy from their institutions [Coldwell-Neilson, 2017]. Combined, these factors create a complex space where it appears neither teacher nor student may possess a coherent understanding of expectations for the application of digital literacy to learning at university.

The context

Deakin University, an Australian university with a history in distance learning and an increasing modern-day profile in innovative online learning [Deakin University, 2019c], has responded to the challenge of digital literacy by making it one of its eight graduate learning outcomes (GLO’s), with Deakin University’s current definition of digital literacy headlined by the statement “using technologies to find, use and disseminate information” [Deakin University, 2019b]. Course designers at Deakin University are accordingly charged with graduating students who can demonstrate all eight GLO’s. To support them in the integration of the digital literacy GLO into their course, Deakin University developed a digital literacy framework for educational designers and instructors to make use of when considering course and unit learning outcomes [Deakin University, 2014]. This framework was based on work commissioned by, and in collaboration with, Deakin University Library.

In conjunction with other teaching and learning-focused areas, the Library plays a key role in digital literacy at Deakin University. The Library’s Client Services division performs this front-facing role through its interactions with students and academics. Two particular areas in Client Services are the Faculty Liaison Teams, who primarily work with students and academics in education and research support roles for each of Deakin University’s four Faculties, and the Learning and Teaching Team, who work with academics and the Faculty Liaison Teams in specialist roles, acting as educators to, and collaborators with, both groups.

In 2016, the Digital Literacy Learning Designer, a member of the Library’s Learning and Teaching Team, began working with Deakin University’s Digital Literacy Consultancy Group, an interest group made up of academic and non-academic staff formed to review the definition and provision of digital literacy at Deakin University. Over time, group discussion of digital literacy at Deakin University tended towards general dissatisfaction with the existing definition (“using technologies to find, use and disseminate information”) as inadequately representing all that digital literacy entails. In early 2017

this led to an opportunity to test an examination of a different definition of digital literacy, one that hewed closer to a more accurate and up-to-date portrayal of the skills and knowledge required to be digitally literate.

Mapping digital literacy to a curriculum

At the time, the definition the Digital Literacy Consultancy Group felt most positively about was the 2015 definition provided by the Joint Information Systems Committee (JISC), who defined digital literacy as “the capabilities which fit someone for living, learning and working in a digital society” [Joint Information Systems Committee, 2015]. This opportunity led to the involvement of the Digital Literacy Learning Designer and the Medical Librarian (a member of the Faculty of Health Liaison Team) in a project to map the six elements of the JISC definition of digital literacy against a single Deakin University course. The primary aim of this was to discover where that course addressed the JISC digital literacy elements, either explicitly or implicitly. The secondary aim was to understand where support might be needed and how it would be provided in order to help students develop the skills and knowledge expected of them as they progressed to becoming digitally literate graduates.

The course identified as suitable for this mapping was Deakin University's Master of Optometry degree, a three and a half-year, accelerated full-time course intended to graduate qualified optometrists [Deakin University, 2019a]. The course was chosen for its clear course structure which required all students to complete the same units with the exception of an introductory or advanced chemistry unit, which students would enrol in accordingly depending on whether they had prior experience studying chemistry. In addition, the Course Director was a member of the Digital Literacy Consultancy Group and a keen advocate for student improvement in this area due to course registration standards requiring entry-level optometrists to graduate with competencies in areas dependent on digital literacy, including self-auditing of optometric skills (which requires independent research and promotes lifelong learning), evidence-based practice (which consists of five steps based on the acquisition, appraisal and application of information [Hoffmann, Bennett, & Del Mar, 2017]), and the use of information resources from relevant organisations to enhance patient care (requiring searching, assessing, synthesising and disseminating information) [Kiely & Slater, 2015].

The six elements of the JISC definition of digital literacy used in the course mapping are:

- Information, data and media literacies
- Digital creation, problem solving and innovation
- Digital communication, collaboration and participation
- Digital learning and development
- Digital identity and wellbeing
- ICT proficiency (which is the foundation for the above five elements) [Joint Information Systems Committee, 2015]

The mapping process began by examining unit guides for each individual unit within the Master of Optometry course. These guides provided details of each unit's aim, learning outcomes, assessments, and where those learning outcomes and assessments addressed the digital literacy GLO. The Digital Literacy Learning Designer and the Medical Librarian reviewed individual assessment items, determining whether the item assessed any of the above six JISC elements of digital literacy. An assessment may have assessed the element explicitly, through clear reference to the digital literacy GLO or, in the judgement of the reviewers, implicitly, where there was no mention of the digital literacy GLO but the assessment description clearly relied on one or more of the above elements of digital literacy in order for it to be completed successfully.

While the analysis of unit guides and assessment information in conjunction with the JISC digital literacy elements was conducted by Library staff, regular check-ins were held with Optometry academic staff, including the course director, in order to clarify, report and project the next stages of the activity. An important aspect of this was confirming that the non-academic staff reviewing the unit evidence were interpreting it correctly and that the course-wide picture of digital literacy matched the understanding of the academics concerned.

The findings from the mapping process led themselves to subsequent contextualised application of Sharpe and Beetham's [2010] developmental model to the idea of a digitally literate optometrist. This

resulted in the reviewers working with academics to develop a series of affirmative statements representing stages of digital literacy across the period of the course (e.g.: “I argue for a perspective using appropriate claims backed by evidence”), a useful outcome for the examination of the course and reflection on the presence of digital literacy within.

The development of the framework was another example of library-faculty collaboration in this project. The framework could not have been created in isolation by either Library or Optometry academic staff, as both depended on each other to understand how assessments addressed different elements and how statements could be contextualised to optometric practice. Further details of the mapping process and the creation of the framework for a digitally literate optometrist can be found in Coldwell-Neilson et al. [2019].

Because the mapping reviewed the entire course, an overview of where and how digital literacy was taught and assessed was created. This overview found that the vast majority of digital literacy-related assessments had these characteristics:

- They were delivered in the form of written reports
- They occurred within the first two years of the degree
- They focused on the information, data and media literacy element of the JISC definition

Examination of which elements were addressed showed clear alignment with the current Deakin University definition of digital literacy but revealed aspects of the JISC elements that were markedly underserved. In particular, digital identity and wellbeing and digital learning and development were barely present in assessment across the course. Given this understanding of where the degree sits in relation to the JISC elements of digital literacy, and the heavy skewing of digital literacy-related assessments to the first half of the degree, the course team may wish to consider whether assessment remains adequate or whether the balance needs to shift in response to a renewed understanding of what digital literacy is. In addition, given that similar assessment types appeared in both the first and final years of the course (e.g.: poster presentations, literature reviews), this is an opportunity to consider what scaffolding or support is in place to facilitate students’ ability to succeed in these similar assessment types in year one (i.e.: Bachelor level) versus final year (i.e.: Master level). This formed the second part of this project: the delivery of support to help students become digitally literate graduate optometrists.

Using the mapping to create a contextualised digital literacy toolkit

The initial mapping stage of this project provided insight into assessment, and which digital literacy skills and knowledge underpinned different assessment tasks. The project team then determined that in order to facilitate these skills and knowledge, a Digital Literacy Toolkit would be created. The Toolkit was intended to not only address elements of digital literacy, refined as skills or knowledge, but also to contextualise these within an optometry setting. This was done with the purpose of making the content more immediately relevant for the students and easier for teaching staff to incorporate into their practice.

The initial version of the toolkit addressed digital literacy skill and knowledge areas via seven components identified as most applicable and communicable through the toolkit medium. Table 1 below lists these, including their original JISC element(s), the related, optometry-contextualised, component of the toolkit, and an example assessment type related to that element and component.

Table 1 Components of the Optometry Digital Literacy Toolkit

JISC element(s)	Corresponding Toolkit component	Example assessment
Information, data and media literacies; ICT proficiency	Evidence-based practice	Summarise the scientific literature on a given topic
Information, data and media literacies; ICT proficiency	EndNote	Report on the assessment and management of an ocular pathology
Digital creation, problem solving and innovation; ICT proficiency; Digital identity and wellbeing	Visual communication	Create an educational poster

JISC element(s)	Corresponding Toolkit component	Example assessment
Digital creation, problem solving and innovation; ICT proficiency; Digital identity and wellbeing	Video creation	Create a case history communication video
Information, data and media literacies; ICT proficiency	Business intelligence	Create a business plan for a new optometry business
Digital communication, collaboration and participation	Online collaboration	Contribution to, and moderation of, an online discussion forum
Information, data and media literacies	Data management	Collect, analyse and interpret research data

The second, current version of the toolkit includes the above plus two additional components: an introduction to digital literacy and a component on reflective writing; the latter relates to the digital learning element of the JISC definition. Throughout the process of creating the toolkit, relevant academic staff were consulted for feedback on the toolkit content and its application to their unit(s) within the Optometry degree. Library and academic staff communication over this period touched on understanding of assessments and what was expected of students, whether there was explicit support in the unit(s) for the underpinning skills identified as required for the assessment (e.g.: literature searching skills, EndNote competence), what form of Toolkit item would be beneficial to students, and where academics commonly saw students struggle in specific digital literacy-related assessments. This understanding was then represented in the creation of the contextualised Toolkit components.

The Toolkit was created by Library staff using the LibGuides platform from Springshare. LibGuides was selected for its ease of use, familiarity and flexibility. However, as students most typically interact with their teachers and obtain assessment information through their unit sites hosted on Deakin University's learning management system (LMS), there was concern that students would not be aware of the Toolkit or would not be inclined to use it if it was 'too far away', digitally speaking – in other words, if it was outside of the spaces they normally 'inhabit' when seeking information about their assessments. This was overcome through the use of Learning Tools Interoperability (LTI) standard integration with the LMS and LibGuides. The LTI integration meant that LibGuides content appeared as embedded within unit sites, creating a more natural flow from unit site learning resources and assessment information to support material directly connected to the assessment; i.e.: the relevant component(s) of the Toolkit. Furthermore, integrating the Toolkit components into the unit site in this way allowed for academics to utilise analytics data in order to see which resources were being used by students from within the unit site. This solution satisfied both academic and Library staff.

Outcomes from the mapping and toolkit creation

Library staff found the mapping process an effective method of becoming very familiar with a course from a Library-relevant perspective. This mapping process has since been applied by the Library's Faculty of Health Liaison Team to other courses with Deakin University's Faculty of Health, leading to the development of digital literacy learning modules and other learning objects. The creation of a process that is replicable and evidence-based is a key outcome of the project, and represents an example of the utility of research through design as a methodology for advancing librarianship [Clarke, 2018].

While a delayed launch of the Toolkit has meant that student feedback on its application is limited, initial results from academics indicate the process of integrating the Toolkit into unit sites was "seamless" and that students have found it useful. The mapping process resulted in the forming of closer ties with the academics connected to the Optometry degree and a stronger sense of trust and expertise residing within the Library. This bodes well for future opportunities, and is an illustration of the principle of academic libraries developing stronger, newer types of relationships across their institutions in order to promote their relevance [Delaney & Bates, 2014].

Limitations and future research directions

Given more resources, it may have been desirable to go deeper in the mapping process by conducting interviews with unit chairs in order to draw out further insight into their units. This assumes there is relevant information that isn't available via the unit sites, which may be the case and would be an area for future research. A related improvement to the mapping process could have been the direct examination of examples of submitted assessments for insight into where students struggled to address marking criteria.

Another missing voice from the analysis and creation of artefacts is obviously that of the student. Again, given more resources it is likely interviews with students would have revealed deeper insight into their understandings, approaches to assessments, and resulting frustrations, and is another area for future research.

Linked with this, a limitation of this study is the lack of pre-intervention measures of students' digital literacy skills and knowledge in order to more evaluate the effectiveness of the Toolkit for creating positive change in these areas.

A further limitation of the application of this process to other courses is the clear profession-focused outcome of the course; students of the Master of Optometry overwhelmingly become optometrists whereas broader courses without a narrow vocational outcome may face increased challenges in contextualising the elements of digital literacy in toolkit form in such a manner that they are relevant to the entire course cohort.

Finally, while the use of LTI to integrate LibGuides content into the LMS was successful, there may be a case to make for the 'native' creation and hosting of the Toolkit content directly on the LMS.

Conclusion

As discussed at the outset, digital literacy continues to be a fluid concept within higher education. Perhaps this is the nature of a rapidly changing environment in which case the need for universities to regularly rethink their approach to it is unsurprising. This case study intended to provide detail of an approach to conceptualising digital literacy within study for a particular profession. In this regard it is a further pilot case study for understanding how digital literacy can be contextualised and communicated through curriculum in Australian higher education, with the intention of assisting students at the time they need it while also establishing lifelong, industry-demanded skills and knowledge [Ngo, Tyrell, Volkov, & Bridson, 2018]. From here, avenues for more ambitious attempts to understand digital literacy from all perspectives continue to appear. By ambitiously stepping into this area of need, libraries affirm their relevance as stewards and translators of the knowledge required for a connected, digital world.

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