



Enhancing Students' Tertiary Blended Learning Experience Through Embedding Digital Information Literacy

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ABSTRACT

This article argues that integrating practices of digital information literacy can support a learner-centred, developmental blended learning experience. It considers the consequences of blended learning delivery for teachers and students and how the affordances of such delivery might benefit digital information literacy development. Additionally, the article aims to contribute to a discussion about the design of blended learning for digital information literacy development in tertiary institutions.

Keywords: blended, learning, online, information, literacy

Introduction

New Zealand tertiary institutions increasingly offer a mix of face-to-face and online learning, often referred to as blended learning. With growing diversity in tertiary education and larger numbers of enrolled students in classes, online learning can open up new possibilities for enhancing students' learning. However, the way blended learning is designed impacts on how student learning can be supported in a course. Considered, well-designed learning opportunities that include literacy development are thus critical for engaging students and enhancing their blended learning experience (Bernard et al., 2009; Gunn, 2013).

Researchers point out that academic study requires continuous literacy growth (Strauss, Goodsir & Ferguson, 2011). Students or teachers may not always fully recognize how ongoing academic literacy development contributes to the tertiary study experience and student success (Feekery, 2013; Strauss et al., 2011). Fostering academic literacy appropriately in a blended context is as crucial a question as it has been in a face-to-face context (Feekery, 2013; Gunn, 2013). One approach is explicitly to teach digital information literacy by integrating it with the academic literacy practices in a course. Not only does this approach acknowledge the interwoven nature of content learning and literacy development, it responds to related academic literacy challenges – for example reading critically and synthesising information.

Tertiary graduates are expected to work independently with critical awareness in a digital workplace context (Bruce, 2004; Hughes, 2006; Hughes, Bruce & Edwards, 2007). Therefore, critical thinking and being autonomous are usually part of tertiary graduate attributes or of learning outcomes or just simply assumed. However, researchers have noted an imbalance between students' well-developed information technology skills and less pronounced critical approaches to information use (Bruce, 2004; Bruce, Edwards & Lupton, 2007; Hughes, 2006). Particularly in their first year of undergraduate study, many students will need to develop how to work independently at tertiary level (Feekery, 2013; Walton & Cleland, 2013). Integrating digital information literacy can provide a vehicle for students to develop other forms of academic literacy such as critical awareness and foster independent learning to enhance learners' blended study experience (Bruce, 2004; Feekery, 2013).

This article focuses on the potential for integrating digital information literacies in a mainstream blended learning environment at tertiary level. I argue that the embedding of digital information literacies is a developmental and student-focused approach that enhances the blended learning experience and responds to academic literacy challenges. The article discusses pedagogical issues for tertiary teachers to consider when designing blended learning with embedded digital information literacy and concludes with some steps required to achieve such a design.

A blended learning approach

New Zealand polytechnics and universities deliver more and more courses in mixed-mode (Bates, 2011) or through blended learning. Institutions might choose a Learning Management System (LMS) such as Blackboard or an open-source learning platform, for example Moodle, as an institutional platform to host their online component. Web-based applications such as blogs and wikis are now often integrated into the LMS or the learning platform. Blended learning can occur on campus, as part of classroom work, or off-campus. Its design includes face-to-face and online teacher-led elements as well as independent student work, now often conducted in the online space. As a starting point to blended learning design, a thoroughly reconceptualised teaching and learning relationship is vital (Garrison & Kanuka, 2004). Simply adding online resources to existing face-to-face courses is insufficient to incorporate the additional learning opportunities appropriately (Means, Toyama, Murphy, & Baki, 2013). Institutions and their staff

have to be mindful that blended learning courses therefore require a purposeful redesign to integrate face-to-face and new online learning opportunities in a meaningful way.

Ideally, the integration of the face-to-face and the online component is informed by the affordances each learning component offers (Garrison & Kanuka, 2004). Connecting the two components is vital to avoid a collection of unrelated tools and contexts when a course is redesigned for blended learning. Moreover, through a review of the course design, teachers are in a position to choose the appropriate blended learning component for a particular learning outcome and learning activity (Garrison & Kanuka, 2004) and for students in the course concerned (New Zealand Council of Educational Research [NZCER], 2004). They can consider the affordances of face-to-face and online delivery and how these can best be used to support student engagement (Beetham, 2013; Means et al., 2013). An example of potential face-to-face learning includes work that benefits from personal interactions, such as in group work and discussions. Some opportunities of online learning are options that support ongoing group work or provide individual practice and immediate formative feedback for students. Garrison and Kanuka (2004) argue that, in these ways, blended learning can be more flexible in relation to where and how learning occurs, as well as providing new learning opportunities, including ways to address potential learning issues.

When learning issues occur, these are often perceived as deficits of individuals with insufficient competencies in relation to the course demands (Street, 1998; Lillis & Scott, 2007). Teachers do not necessarily understand their role as including active involvement in enhancing learners' academic literacy, as Lawrence (2002) notes. New Zealand research by Gunn (2013) confirms my own experience that teachers might regard it as somebody else's task to help students obtain, for example, the required literacy competencies for their chosen study. However, such a deficit framing does not acknowledge the implicit demands many blended learning courses contain and that all students might experience these demands as barriers to study success. One example of such an implicit demand is critical analysis. The general move towards more online, self-directed learning approaches in tertiary education implies that students need to search for and use digital information independently, critically, ethically and creatively (Lavoie, Rosman, & Sharma, 2011). In this context, critical analysis enables learners to select, experience, utilize and create digital information appropriately. Teachers might assume that critical thinking and autonomous work practices do not need to be taught explicitly and therefore not address these aspects (Feekery, 2013). However, researchers such as Feekery (2013) and Gunn (2013) have confirmed my experience that often further development of literacies that are specific to that discipline is required at tertiary level.

Good design is fundamental to supporting students' learning experience and is more important than the medium used, whether face-to-face or online (Bernard et al., 2009). Any blended learning design should be based on what has been identified as engaging and supporting for learners. Current approaches towards learning design reflect a range of perspectives in relation to which aspects can achieve this: firstly, aligning learning outcomes, activities and assessment (Biggs, 1999), secondly, considering how people learn and build knowledge (Beetham, 2013; Mayes and de Freitas, 2013) and thirdly, recognising the different preferences and resources, that learners bring to a task (Rogers, Graham, & Mayes, 2007). Aligning learning outcomes, activities and assessment is recognised as good tertiary learning design. However, further decisions about the nature of facilitation and activities, and assessment have to be based on what is known about the students' and their differences; in short, designed with the students in mind and the aim of supporting their knowledge construction in the context of their studies. In such a learner-centred approach, differences are regarded as a starting point to support diversity rather than an inconvenience or impediment (Beetham, 2013).

A learner-centred approach to learning design, as shown in Figure 1, considers who students are and their different preferences and resources (Beetham, 2013). If we design from a place of being aware of students' differences, then this awareness can influence design decisions and enhance blended learning (Bruce et al., 2007). According to Rogers et al. (2007), blended learning designers who are aware that their personal perception of life is "not the only view that exists and is valid" (p. 211), can reflect this in the design process. Another step, as Rogers et al. (2007) add, is to find out the differences in study demands and abilities of students and then support the learning related to the key differences through, for example, additional support needed for study success. Finally, teachers need to respond by reflecting these differences in the overall learning design of a course and in their planning of specific pedagogical practices, including facilitation. In effect, Rogers et al. (2007) suggest that designing blended learning requires self awareness and the ability to analyse learning requirements and students' capabilities in order to be able to address students' literacy needs. Information literacy researchers such as Bruce (2004) and Lavoie et al. (2011) thus emphasise that a shift to a learner-centred approach both aids and can be aided by digital information literacy development. One argument would be that intentionally developing digital information literacy allows teachers to respond to the learning levels of students rather than assume what learners should know or be able to do.

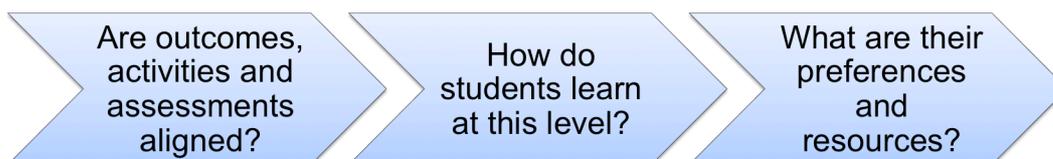


Figure 1: Learner-centred design sequence

Embedding digital information literacy

In New Zealand, tertiary literacy and numeracy has received increased attention since the 1996 International Adult Literacy Survey (IALS). Embedding literacy and numeracy development in programmes at the vocational certificate level of the New Zealand Qualification Framework is central to meeting the funding obligations of tertiary institutes. The integration of literacy development has influenced tertiary educational practices therefore significantly in recent years (Schwenger, 2010). Academic development work with lecturers has focused on developing existing learning and teaching practices – for example through raising awareness and introducing strategies to identify students' literacy in their discipline contexts (Schwenger, 2010). Another focus has been integrating the explicit instruction of literacy practices in New Zealand tertiary courses. Deliberate acts of teaching (Benseman, Sutton, & Lander, 2005) are particularly relevant in areas where student performances indicate gaps between existing skills and course learning demands (Tertiary Education Commission, 2008; Whatman, Potter & Boyd, 2011).

Growing teachers' understanding of digital information literacy has been critical as it impacts on the kind of experiences teachers design and facilitate. Research has shown that the way students experience digital information literacy, will influence their perceptions of its value and how they apply it (Bruce et al., 2007; Maybee, Bruce, Lupton, & Rebmann, 2013). Learners have to “seek, evaluate, use and create information effectively” (United Nations Educational, Scientific and Cultural Organisation [UNESCO], 2005). As part of their studies, learners are required, for example, to interpret and judge sources as well as produce information for assignments as part of their learning process. This ties in with the individual steps in the process of using information for learning: students need to be aware of key information resources, identify a need for information, plan and search for information from appropriate sources, critically evaluate and organise information (Gosling & Nix, 2011). As students engage more and more with online information in their learning, using information literacy in a digital context has become a normal tertiary study demand in New Zealand institutions (Gosling & Nix, 2011; Hegarty et al., 2010; Hughes, 2006). Through my work as Academic Developer at Unitec Institute of Technology, I am aware that digital information literacy development is equally important for students at higher levels of study.

As students progress through their studies in a qualification, the academic literacy demands grow. Therefore it is unrealistic to limit the embedding process to the first year of study in a qualification or to regard one particular course as responsible for dealing with students' learning challenges. Appropriate support at every level is essential for students to acquire literacy competencies and scaffold learning for success in study and employment (Tertiary Education Commission [TEC], 2008). Feekery (2013) argues convincingly that embedding across a qualification as part of a developmental, reflective learner-centred approach supports students to achieve their study goals and enhances their work readiness. As Gunn (2013) adds, embedding enables authentic learning, student engagement and motivation in diverse university learning contexts, especially as part of a blended learning design. In short, embedding digital information literacy can enrich students' study experience and support their achievement. Students at pre-degree, undergraduate and postgraduate level of learning in New Zealand can benefit from academic literacies development so as to acquire the required academic literacy competencies, including information literacy, as Whatman et al. (2011), Gunn et al. (2011) and Feekery (2013) found. Academic and digital information literacies are an integral part of the competencies that enable graduates to work with industry demands and lead a professional life in their industry, according to Bassett (2012) and Gunn, Hearne and Sibthorpe (2011). It follows that an embedded approach allows appropriate support and learning for students to acquire the necessary competencies they need during their studies and for future work.

A generic, decontextualised approach toward developing academic literacies, including digital information literacy, nonetheless tends to be used by tertiary institutions in New Zealand and Australia (Bassett, 2012; Strauss et al., 2011) through the offering of generic workshops for addressing literacy demands. Supporters of such an approach argue that it allows students to access help outside the classroom at a time convenient to them. Such workshops certainly offer a good option to address generic digital information literacy aspects. Nevertheless, concerns are raised that this may result in instruction on surface and structural features, without considering how deeper meaning is constructed in the discipline context (Feekery, 2013; Lea & Street, 2006). In effect, students have to transfer learning from a generic context to their study context. This might be more easily achieved for aspects such as searching for information at a basic level, however, the approach may present difficulties when students are expected to engage with more discipline specific digital information literacy practices – for example how to work with study specific databases or how information is presented in a particular study. Consequently, a decontextualised development approach could produce learning that is not transferred to meeting course demands and assessment requirements.

Embedding can be achieved in different ways and usually involves sharing the responsibility for students' digital information literacy development between the discipline expert who teaches the course and library specialists. One example of how to embed digital information literacy could be a face-to-face session with a library specialist and the additional provision of online learning to support and deepen the experience during the semester. When embedding digital information literacy, the roles of all parties involved in the process have to be considered carefully. Good relationships and clear communication between the librarian, the discipline experts and other academics enable successful collaboration (Gunn, 2013; Lavoie et al., 2011; Wrathall, 2013). Equally important is that relationships are maintained over time instead of established in a one-off meeting at semester start.

Buehl's work (2009) in developing reading comprehension and the approach promoted by the National Centre of Literacy and Numeracy for Adults at the University of Waikato has been helpful for supporting teachers in embedding academic literacy, including digital information literacy, into courses and qualifications. The combined framework is concerned with establishing the literacy related course demands, finding out about the students' capabilities and identifying appropriate strategies. As Bruce (2004) argues, teachers who are aware of who their students are and what engages them, are ideally positioned to design blended learning

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experiences that require students to reflect on their experience and then apply information literacy. For the purpose of embedding digital information literacy competencies, the framework includes:

- Recognise the demands – what are the course demands, the discipline practices and the related digital information literacy competencies?
- Recognise the learners – what digital information literacy competencies do students currently have?
- Recognise what to do – which strategies can support students to acquire the digital information literacy competencies they need for their study?

The embedding process supports a learner-centred pedagogy through a developmental approach towards learning rather than taking a deficit stance towards students and their learning. The integration of relevant information practices into the course curriculum offers a meaningful, situated way to work on digital information literacy and other related academic literacies such as critical awareness and independent learning. Furthermore, the approach helps students to transition into tertiary education more effectively and scaffolds their learning during their studies, as both content and academic literacy demands increase (Feekey, 2013). In short, if students develop digital information literacy within the curriculum, it can holistically support their learning in the different stages of study.

Designing blended learning with digital information literacy

Online learning researchers remind institutions and teachers that critical awareness and academic literacy competencies, such as finding and evaluating information, reading critically, comprehending, synthesising and writing academic text, are equally essential for students' success online as they are in face-to-face learning contexts (Bates, 2011, McLoughlin & Lee, 2011). The embedding process acknowledges how these literacy competencies are interwoven with, scaffold, and enhance students' learning of the content knowledge and processes (Bruce, 2004).

Based on the embedding framework (demands, learners, what to do), developed from Buehl's work, the questions below can contribute to a structured approach for designing blended learning that enhances students' tertiary learning experience. The questions reflect important decisions, on a more granular level, for designing learner-centred blended learning with embedded digital information literacy:

- What are the learning outcomes for your course?
- What are the digital information literacy practices that students require to succeed on a course that you design blended learning for? What are related academic literacy challenges?
- What do you know about your students, their abilities and their differences, particularly those that impact on their learning?
- Consider the affordances of the online and the face-to-face spaces. How can these be used to enhance the blended learning experience?
- Who can you collaborate with? For example, form an ongoing relationship with library and learning support staff from the beginning of the design process as they can significantly contribute to students' learning.
- How can you support this learning by considering theories of how people learn and by being aware of how students' differences impact on their learning?
- Reflect on how you design: what is your underpinning perspective on and approach towards designing learning?
- Have you designed adequate opportunities into the curriculum where students can experience and reflect on using digital information literacies in situations where they need to create knowledge?

In a blended context, the embedding process can support students' digital information literacy in several ways: firstly, by integrating explicit digital information literacy development aligned with content and assessment (Feekey, 2013) and secondly, through utilising the affordances of online learning as part of the blended learning experience (Gunn, 2013). In effect, such an approach can empower students through guidance in decisions about their general digital tool use as part of their blended learning experience (Beetham, 2013).

I have chosen students' assessment work with e-portfolios to exemplify how deliberate acts of teaching can address specific aspects of digital information literacy and of related academic literacy in students' blended learning. After identifying students' abilities in relation to the course demands, teachers, if possible in partnership with library staff, decide on the specific activities that are crucial for the assessment and where students would benefit from further unpacking. This can include stepping students face-to-face through the process of utilising information, with online practice opportunities and resources. Some examples of explicit teaching for a reflective e-portfolio can include applying the reflective process face-to-face by discussing exemplars of how to write in a reflective manner, what kind of information would be expected in an entry or how to structure it. Other examples include strategies for collecting information, reading critically, analysing and synthesising to create new findings. Equally important would be teaching appropriate referencing as required. I have found in my work that explicit instruction in any of the areas mentioned supports students in e-portfolio assessment at their level of learning.

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The integration work that has been undertaken at the Open University in the United Kingdom is another example of designing blended learning digital information literacy. Demands of standard-setting bodies and the university level learning frameworks have been used to decide which information literacy practices students need to work with at specific level to support their learning (Gosling & Nix, 2011). This approach can support content learning as study demands increase. At each level of study, different digital information literacy practices are usually required for learning, including assessment. An example of practices in the first year of undergraduate study is building an awareness of a wider range of search options, instead of using Google for all study related searches (Gosling & Nix, 2011). In the three-year degree of Social Work at the Open University, students learn the different steps of working with information differentiated by year of study (Figure 2). Online capabilities are utilised to support students learning, for example, with quizzes available for formative feedback and assessment (Gosling & Nix, 2011). The degree has been designed in a way that recognises the demands of industry and university as well as supports students' preferences by using affordances of the online space.

	Year 1: for a specific purpose	Year 2: in the context of specific tasks	Year 3: in complex contexts
Information literacy development through degree	Develop competencies e.g. specific subject search; predefined list of resources; apply given criteria to given criteria	Apply competencies e.g. choice of topics; select resources from list; apply criteria to own resources	Critically evaluate e.g. own topic; select own resources; develop own criteria for evaluation

Figure 2: Information literacy development through degree (adapted from Gosling & Nix, 2011)

The literature confirms my experience that the embedding of digital information literacy can support a learner-centred approach to blended learning design (Maya & de Freitas, 2013). Such an approach explicitly addresses literacy related course demands in tandem with the discipline's content knowledge (Gosling & Nix, 2011; Walton & Cleland, 2013). As students enter tertiary education to learn and achieve a qualification, design that supports students' acquisition of digital information literacy is not an end in itself but a way to enhance learners' tertiary blended experience of their studies.

Conclusion

The article argues that the embedding of digital information literacy development provides a valuable option for enhancing the blended learning experience in New Zealand mainstream education. Not only does such an approach address students' potential learning challenges related to digital information literacy; it also offers opportunities to foster independent learning and help to grow critical awareness as needed in studies and future work. Some of the implications of this approach include that ongoing professional development needs to be made readily available to teachers, for example on course design that integrates digital information literacy and on identifying literacy demands in their courses. Further research is needed to examine how blended learning can be designed to help the diverse range of learners in New Zealand mainstream education acquire and use digital information literacy competencies as part of their studies more effectively.

Biography

Bettina Schwenger is a Senior Lecturer and Academic Advisor at Te Puna Ako, the Centre for Learning and Teaching at Unitec Institute of Technology. She supports colleagues in exploring how integrating digital academic/tertiary literacy can foster learner-centred, developmental blended learning and teaching.

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