



## “Supporting Their Feeling That They can Actually Achieve Things”: A Design to Develop the Digital Literacies of First-year Students

Bettina Schwenger, Waipapa Taumata Rau University of Auckland

### Abstract

In recent years, online learning has become ubiquitous in tertiary and higher education institutions; yet many teachers are not sure how to design more blended approaches to enhance the learning process. This qualitative interdisciplinary research took place in two iterations of a first-semester undergraduate course in the Bachelor of Teaching (ECE) at a tertiary institution in Aotearoa New Zealand. Based on the experience of two teachers and their students, this paper explores online opportunities for a design to support students with developing digital literacies and, in particular, digital information literacy (DIL), for their ePortfolio assessment. The paper outlines the development process to highlight the steps required to meaningfully integrate technology features at course and curriculum levels.

Research instruments included questionnaires and focus groups with students, and interviews, conversations, and reflections with staff. The paper shows that the development process—based on preferred teaching strategies—resulted in an innovative plan to increase practice, reflection, and feedback opportunities, using online tools in the institution’s learning management system. The article identifies opportunities and challenges that will apply in other tertiary and higher education learning situations, including similar national and international contexts where educators can draw on the findings to apply in their own settings.

**Keywords:** digital literacies; digital information literacy; DIL; blended learning design; online teaching and learning; ePortfolio; online presence

### Introduction

This paper reports on one aspect of qualitative research that took place in two iterations of a first-semester undergraduate course in the Bachelor of Teaching (Early Childhood Education; hereafter ECE). It examines how the qualities of online learning could be harnessed for a design that encourages digital information literacy (DIL) development. The research question of the study that is relevant for this article is: *How can teachers approach blended learning design for undergraduate students to acquire DIL?*

Learning support staff had identified that students often presented with limited DIL at the institution’s learning centre when preparing their assessments. Many students seemed to struggle to use information appropriately to create entries for their ePortfolio. To better understand the issue and potential strategies, the researcher consulted and collaborated with library staff, Māori academics, and ECE colleagues. Patterns from previous and current student cohorts related to the ePortfolio assessment included issues such as inadequate information, a lack of evaluation skills and little understanding of the steps involved in information use. Despite the importance of DIL for tertiary students and the increase of blended approaches, there is limited research on how

teachers can design blended learning that integrates educational technology to bridge the gap between student skills and learning demands. The study was designed to address these gaps.

In Aotearoa New Zealand, educators who are engaged in curriculum and learning design need to incorporate indigenous ways of knowing and consider appropriate support for indigenous learners due to their commitment to Te Tiriti o Waitangi/The Treaty of Waitangi (Barnes, 2013). The Māori dimension of the ECE programme is based on values embodied in Te Tiriti o Waitangi and Te Whāriki (the Aotearoa early childhood curriculum) (Ministry of Education, 2017). The programme prioritises whanaungatanga (here understood as developing and maintaining relationships), a concept of the indigenous people of Aotearoa New Zealand, as part of its philosophy. Because relationships are regarded as fundamental to authentic learning and crucial success factors for Māori and non-Māori (Macfarlane & Derby, 2022), educators working at tertiary institutions need to create learning opportunities in which reciprocal and meaningful relationships can be fostered (Rātima et al., 2022).

Teacher A and Teacher B had both worked closely with the department's kaihautū (leader) to integrate te reo (Māori language) and Māori cultural practices in their classes; for example, they started sessions with a karakia (prayer) or waiata (traditional Māori song). Both teachers felt confident in using these face to face and wanted to explore how to incorporate culturally responsive practices to the online space, with a particular focus on fostering relationships. More work is required to integrate culturally inclusive practices in higher education and to promote Māori student equity (Rātima et al., 2022; Rood & Barbour, 2024). Finding ways to successfully navigate these subtleties in the design of learning environments is crucial for educators in Aotearoa New Zealand and is therefore part of the design consideration. Our project was designed to support the partnership and such practices at the institution where this research took place. This context is critical for understanding the pedagogical nuances of the present study.

## **Theoretical framing: Situating design and DIL in higher education**

### **Design for learning**

Teachers are at times unsure of how to support learning in online and blended environments in ways that reflect the course outcomes and that allow the type of learning required for students' study success. This is mirrored in the programme and course design issues reported by Ako Aotearoa and Synapsys (2018). These issues include choosing the appropriate technology or creating effective learning opportunities to achieve a particular outcome. To successfully harness the affordances or technical qualities of online learning, a course needs to be carefully developed and well structured (MacNeill & Beetham, 2022).

Online tools can enhance the learning process by providing a multi-modal approach to education. Furthermore, online tools can support flexible learning through technical qualities such as automated responses for formative feedback; for example, to enhance certain practices (Rapanta et al., 2020). Online learning with contextualised resources can offer interesting support for students' learning. By offering individualised learning opportunities, online environments can enhance outcomes for students with diverse backgrounds and learning preferences. This process includes identifying the course demands and students' existing skills, and then determining which differences are important to the relevant learning and how to deal effectively with learner variances (Beetham, 2019), such as by offering contextualised online resources to address such gaps. For example, students could be facing uncertainty in evaluating discipline-specific information—this has prompted educators to create an online resource, complete with automated feedback, to help them practice these skills.

However, a critical requirement is that teachers move beyond the technical aspects of how a tool functions to the “why”; that is, the rationale to use the tool to achieve a certain pedagogical strategy (Rapanta et al., 2020). Any design should focus on what students are doing to learn (Biggs & Tang, 2011) and therefore contain elements that acknowledge learning as an activity, learning as the construction of knowledge and meaning, and learning as a social practice (Mayes, 2019). For example, ECE learning tasks that step through a series of decisions give students opportunities to practice scenario-type activities. Theories about how people learn can therefore help address gaps between student abilities and course demands, supporting design for learning both face-to-face and online (Goodyear, 2015). For any learning design, teachers should consider the students, their resources and preferences, the type of learning required, and the learning outcomes (Bates, 2019; Goodyear, 2015; Rapanta et al., 2020; Shearer, 2021). It is equally important to consider strategies that foster the relationships among students, teachers, and content.

Relationships can be developed and maintained in various ways. One option—collaborative learning in a learning community—uses the notion of social constructivism whereby students engage in shared inquiry. An intentionally designed learning situation that offers opportunities for interactions can also help students to develop a sense of connection (Rapanta et al., 2020). Other ideas for supporting relationships online are based on the concept of online presence. Social presence might be produced by students collaboratively engaging in a project, but can also be achieved by other means, as Garner and Rouse (2016) found: “Teachers need to present a human face . . . using professional narrative, video, sharing of personal experiences and emotions to foster reciprocal relationships, which in turn will inspire deeper student engagement and improved learning outcomes” (p. 34). Timely feedback, face-to-face work, and combined face-to-face and online learning interactions in emails and discussion sites can help students to feel connected (Kahu, n.d.).

### **Digital information literacy**

Since Gilster (1997) originally defined “digital literacy”, the scope and use of the term has expanded considerably (Smith et al., 2020). Even Gilster extended the concept of literacy in digital contexts beyond mere technological skills. The broader literacy emphasises “mastering ideas, not keystrokes” (1997, p. 15). Since Gilster’s work, more nuanced understanding of digital literacies has emerged. These related literacies comprise abilities for effectively finding, evaluating, and using information referred to as “information literacies” (American Library Association, 2012).

Digital information literacy plays an integral part in developing study-specific knowledge and practices (Maybee et al., 2018) and is viewed as fundamental for learning (Løkse et al., 2017). Part of the rationale for focusing on students’ digital information literacy in this study is its connection to what Secker and Coonan (2013) describe as “high-level intellectual operations such as critical thinking, problem solving, question framing and independent learning” (p. xxi). Given the rise of artificial intelligence and the need to identify and evaluate fake information, these skills continue to be essential.

Employing adequate strategies for researching and using online information for learning is a standard demand in study and work tasks. Critically evaluating and synthesising ideas are essential skills for students’ success in both online and face-to-face learning. Digital information literacy is therefore regarded as a prerequisite for operating successfully in online environments (Bates, 2019). Learners are required, for example, to interpret and judge sources to produce new information for assignments. This ties in with the first-year DIL practices described by Gosling and Nix (2011):

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.

Students might need support with DIL for various reasons. They might be unacquainted with online formal academic studies (Khoo et al., 2012), or experience changed expectations and requirements in higher education, including digitally (Kirschner & De Bruyckere, 2017). One indicative example in the context of ECE, as reported by the ECE teachers, is that students underestimated the literacy demands of the degree and the practical work in placements. Assumptions about students' prior knowledge should be considered carefully.

## Research methodology

This project employs an educational design research (EDR) approach. The structured approach of EDR helps to generate research-based approaches for complex real-life learning issues in multiple iterations of systematic analysis, design, development, evaluation, and reflection. Insights from each phase are valuable and contribute to the overall goals of the study (McKenney & Reeves, 2019). It helps to generate research-based solutions for real-life, complex learning issues (Plomp, 2013). The research was conducted through a three-phase model (Fig. 1), informed by Plomp (2013), and McKenney and Reeves (2019). Issues and challenges were identified in the first (initial) phase. The design of the online resources was developed in the second (design) phase and then implemented and amended based on feedback. The third (final) phase focused on further amendments, evaluation, and contribution to design guidelines.

The researcher identifies as Pākeha, and can be described as being an ally and supporter of change for Māori. Central to the research was the application of Cram's (2001) and Smith's (2012) kaupapa Māori researcher guidelines to achieve a culturally appropriate and safe research context for Māori and non-Māori alike. Examples of practices included treating participants with respect (for their dignity when building and maintaining relationships with staff), listening, and sharing knowledge as well as being cautious and reflective. The study received ethical approval from the Human Participants Ethics Committee of the university hosting this research. The students could "opt in" to contact the researcher. This approach comprised a non-probability sampling method; that is, convenience sampling was used due to the exploratory nature of the research. Non-participating students were not affected, because all students had access to additional resources and could benefit from them. Thirteen students and two teachers participated in the study. Students shared their thoughts through initial and final questionnaires and focus groups, while teachers did so through an initial questionnaire, reflective prompts, emails, and interviews. Interviews and focus groups were digitally recorded and transcribed.

An extensive literature review was undertaken in the first phase of the study. Multiple data sources (questionnaires, focus groups, interviews with library staff and educators, library and course websites, assessments, and other course documents) were used to gather information about educators' and students' understanding, aims, issues, and challenges. We identified the existing course design and resources. Based on those findings, the first two resources were conceptualised and developed as prototypes. A second design iteration then took place (second phase), with formative feedback. In the third phase, the design was fine-tuned and evaluated. In all phases, the feedback from Māori staff and colleagues was essential for development and refinement. Consulting, drafting, responding to feedback, and ongoing collaboration were substantial components of the study. The draft analysis was shared with colleagues for their feedback before the next steps were finalised.

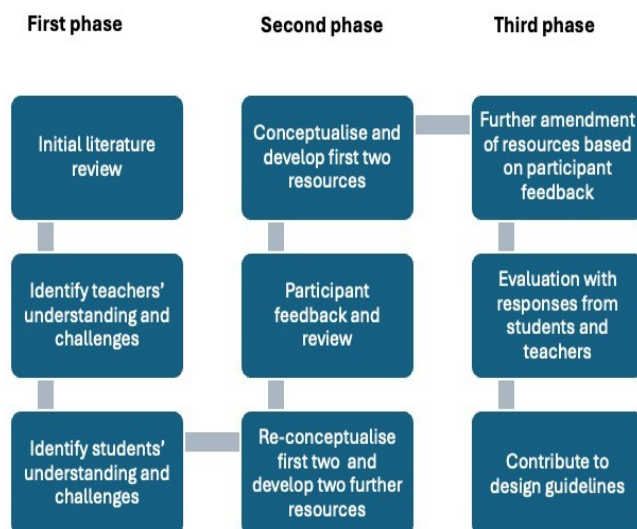


Figure 1 Three research phases

### Thematic analysis

An inductive approach, which was informed by related studies in the literature, was used to examine the experiences of the research participants (Bryman, 2016). The transcripts of the interviews and focus groups, emails, and notes from conversations were analysed in a manual open-coding approach (Saldaña, 2013) to identify key themes and patterns in participants’ responses. These were then arranged in a thematic map. There was an overlap between the stage of coding and identifying preliminary themes. Participants’ voices provided evidence for the development of themes and were indicators of the overall results, which then informed the design of the first iteration.

### Development process

Ongoing discussions with the teachers were central to the approach in each of the three phases. The conversations covered pedagogical practices for the entire course, but the research focused on designing for learning that would foster DIL to support students’ learning with the ePortfolio assessment. The teachers preferred to use the institution’s LMS for learning resources and activities, and avoided additional platforms. Students shared information through two student-led groups, but social media was not used for formal activities.

We initially discussed strategies for online collaboration with first-year students using forums to support relationships and develop DIL practices, but this was not pursued due to previous low engagement and concerns about plagiarism. Another option could have been for students to collaboratively create a document as an online activity (e.g., summaries of their experience or advice for new students regarding the ePortfolio.) But teachers felt students were not ready to contribute in similar ways in this particular course, and the number of campus sessions was limited. Several factors may have played a part in the teachers’ decision, including their previous experience, although design may have been an issue in earlier attempts.

Taking into consideration existing resources, the design intentions were set to create resources to provide practice, reflection, and feedback opportunities through online mechanisms. Some

students struggle to manage the growing flexibility and independence of studying online, so it was important that these resources helped to scaffold learning. By using screenshots, step-by-step instructions, and structured reflective elements to support self-assessment, the project offered comprehensive support online and face to face in this first-year course.

In the first phase, we connected DIL development to assessment (Gosling & Nix, 2011) by identifying areas where students struggled with the ePortfolio. Findings from the students' questionnaires and focus groups indicated their difficulties with evaluating, analysing, and synthesising to create new information. Student feedback was used to create and subsequently fine-tune the resources. Findings about student needs and the resources were shared with the ECE team to support further development in other courses.

Based on the DIL actions required for first-year study (Gosling & Nix, 2011), the researcher (with feedback from the team) then created as a first resource the underpinning process called: How do I use information to develop an ePortfolio? Using the process as a foundation, the four customised resources were tailored to the course demands and were available to students on the course webpage. The resources offered students opportunities to apply, practice, and reflect on using DIL in situations where they are required to create new information.

These resources included:

1. Process—*How do I use information to develop an ePortfolio?* Students familiarise themselves with the visualised six-step process (Fig. 2), using integrated reflective questions (Fig. 3) to reflect on their work in their writing for the ePortfolio.
2. Scenario (Fig. 4)—Students apply the six-step process and receive automated feedback on decisions they made in relation to ECE situations. They reflect on DIL practices in an ECE situation to create an entry.
3. Quiz—formative feedback helps to practice DIL for the ePortfolio.
4. The fourth resource is the six-step process with reflective pop-up questions.

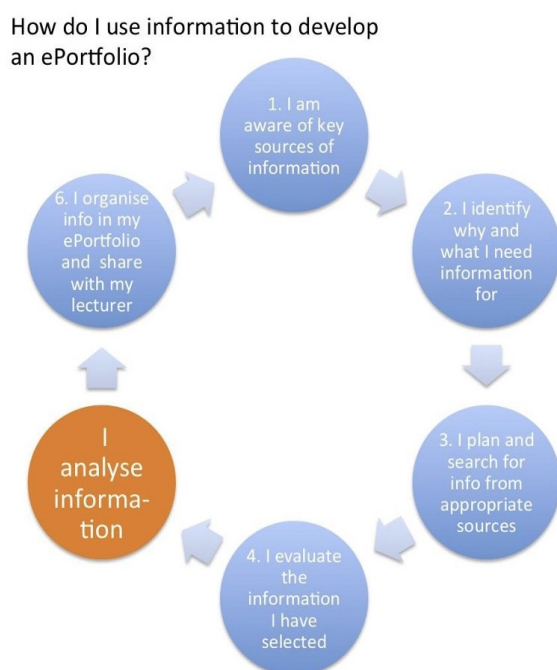


Figure 2 Resource 1: The process

### How do I interpret and analyse the information I have found?

- How does the information I have found inform the situation in my reflection?
- Do I need to find other information?
- Do I need to include additional information from any of my sources?
- Have I used/synthesised the main ideas that I have identified in the literature to show my own understanding?

Figure 3 Reflective questions for students to consider for step 5 (“I analyse information”) in the process “How do I use information to develop an ePortfolio?”

### Laura's situation



Laura works with a group of four year olds. The children are exploring different colour combinations and textures when two of them start to argue about sharing the used equipment.

Laura tries to help the children sort out the situation but the children do not listen and continue to get upset.

She reflects on what happened and decides to use this situation for a reflection in her ePortfolio.

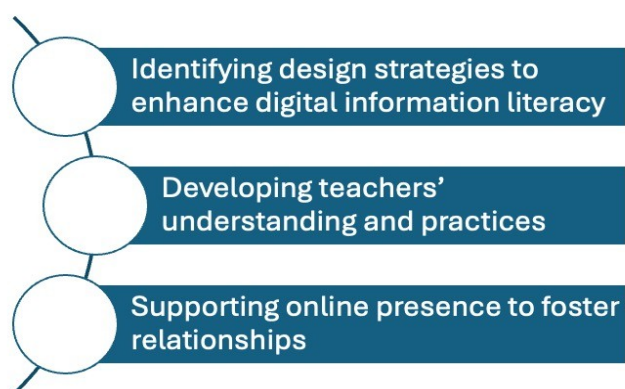
What information does Laura need for her reflection?

Figure 4 Resource 2: First step (of six) of the scenario

## Results and discussion

This section synthesises how existing research, contextual factors, design considerations and intentions, and teachers’ personal philosophies informed the design process. It also includes actionable strategies. As outlined earlier, the study aimed to contribute to a better understanding of a design that harnesses the qualities of online learning to support DIL.

Figure 5 shows themes that emerged in this study, namely: identifying design strategies to enhance digital information literacy, developing teachers’ understanding and practices, and supporting online presence to foster relationships. These themes overlap and intersect.



**Figure 5** Themes in the study

### **Theme 1: Identifying design strategies to enhance DIL**

Mayes (2019) emphasises the importance of first identifying the types of learning in a course, and to then design accordingly. The teachers shared that students in this course learn by working with situational demands in their ECE setting, by applying learning in practice, and by reflecting on the achieved outcomes. Other learning happened through discussions in the classroom, by unpacking concepts and ideas, and exploring how these apply in ECE situations. The design added options for learning through repeated practice and feedback as students apply the DIL practices to succeed in their assessment and in their ECE work.

Both teachers appreciated an inquiry-learning approach and reported engaging students in contextualised activities in the classroom but were unsure how to transfer the approach to an online mode. To offer more flexible learning, the online resources were designed to complement the strategies reported by the teachers.

These DIL resources offered reflective questions and prompts to scaffold self-assessment and to encourage students to practise independently. Practice opportunities and automated responses for “feedback during learning” are regarded as “the most powerful enhancement to learning” (Biggs & Tang, 2011, p. 97). Such strategies have been shown to support the learning of Māori and non-Māori students (Curtis et al., 2011; Green et al, 2023; Frielick & Sciascia, 2016; Schwenger, 2019). Although Moodle analytic reports showed that the resources were not used as extensively as was hoped, students and teachers confirmed that the online resources helped them to prepare assessment tasks. This indicates that the resources provided some scaffolding—as suggested by Curtis et al. (2011)—and that formative feedback can support DIL development.

The teachers possibly started to feel overwhelmed with the tasks associated with online learning which requires more upfront planning and work. Monitoring participation and checking in (Rātima et al., 2022) would have been possible through reports; however, the teachers found learning analytics were not user-friendly and so did not use them. However, it became clear that integrating online resources for DIL development aligned with assessment demands can offer new learning opportunities in a first-year undergraduate course and these could be developed throughout the programme. Before the study, such online features were underused on a mostly static course site. There is potential for more interactive online learning experiences.

## **Theme 2: Developing teachers' understanding and practices**

Both teachers emphasised that face-to-face interaction was essential to establish and foster relationships with and between students. When asked in the initial questionnaire what Māori pedagogical concepts meant for them in an online situation and how collaborative practices could be used, Teacher B emphasised the importance of face-to-face work: “Students need to come together as a class first and get to know each other”. Teacher B explained that the students are initially in “a room with strangers” and a session with iMovie helps to build connections with whanaungatanga: “[They] see the benefit when they work together on an iMovie of the course learning outcomes in their first class.” She added: “Lots of sharing and mini failing together. Lots of ako (reciprocal learning and teaching relationships) as we learn together. iMovie is later used to learn how to upload to Mahara (ePortfolio).” Collaborative work is recognised as way to strengthen relationships (Macfarlane & Derby, 2022; Rātima et al., 2022). The behaviour described by the teacher could be regarded as students learning actively and collaboratively.

Throughout the research, the teachers and the researcher continued to discuss how the online resources might be used. Students could practice individually, and the course teacher reported using the resources in the classroom with students working in small groups. Suggestions for fostering relationships online included strengthening online presence through regular prompts with questions and resources for students, and creating resources such as “think-alouds” or short videos that explain how required concepts can be applied. Teacher B was keen to increase the online postings to students on Facebook. The researcher suggested a video or audio recording on how to structure a reflection to accompany a written example and explanation of the process on Moodle. Time pressure and conflicting priorities were likely to have stopped the immediate development of such resources, although the researcher offered to create them. However, Teacher A published a video about writing a reflection in Semester 2.

In the final interview, Teacher A emphasised it had been beneficial that students could personalise their learning, with a range of online resources available to choose from. The following quotes illustrate Teacher A's views of this as part of the Māori pedagogical approach:

In terms of what I want to do next year, is to start looking at ways to differentiate as much as possible in terms of what is being offered to students. So, it's not completely individualised but it's a range of different things that are available. And I think your work is an example of that; not all the students might use one, but they might use something else. It just depends on how students like to work.

. . . And just show them that you don't have to do it all, that you pick what suits you as a learner. I see that as being a part of the Māori pedagogical approach as well, or the bicultural approach. We are actually looking at them as individuals and supporting their mana, their spiritual power, wherever possible, supporting their feeling that they can actually achieve things.

As a consequence of the redesign, both teachers investigated and trialled teaching and learning practices that were new to them. To achieve shifts in understanding and practices that enhance teachers' practices, they will, like the students, benefit from having time to experiment, reflect, and discuss practices; for example, in learning networks and other means of professional development.

## **Theme 3: Supporting online presence to foster relationships**

Both teachers felt that using Moodle, the learning management system (LMS) was not the most effective way to support online relationships in this course, possibly because it is a first-year work experience course with limited on-campus sessions. They believed student-led social media groups worked better, probably because access is easier. A potential strategy could be to combine

student-led groups with LMS activities, blending students' social media use with teacher strategies and LMS features.

After opting out of collaborative online activities, the teachers explored other ways to foster relationships by explicitly maintaining their online presence. They used email interaction, timely feedback, and shared relevant literature links to enhance their teaching presence and to connect with students. Although these practices are often considered fundamental, teachers may not recognise their importance in online education if used deliberately (Garner & Rouse, 2016; Muir et al., 2022; Rapanta et al., 2020).

Suggestions included techniques such as recording a “think-aloud” on how to write a reflective comment, and posting more online prompts for students on Facebook. Other ideas trialled by Garner and Rouse (2016) were also considered—such as including appropriate feedback, and the intentional integration of combined online and face-to-face learning as important for students to feel supported in their learning. Although it was difficult to identify how these ideas were used by the teachers, Teacher A created video clips about writing a reflective comment for the ePortfolio in the next semester and Teacher B reported sharing more online information and ideas for ECE teaching with students on Facebook. Additionally, Teacher B posted te reo terminology, waiata (traditional songs) and karakia (prayer) on the course website.

Promoting participation and fostering relationships with students are crucial for enhancing the experience of Māori students in higher education (Rood & Barbour, 2024; Stucki, 2012). First-semester students might benefit from digitally connecting via teacher postings and email early in their courses. The first year of study might require some extra effort, such as taking a slower approach to collaborative learning online. As part of a suggested progression, the first-year courses could slowly scaffold students to work together online; for example, by contributing to shared documents and other collaborative online tasks.

These findings suggest that the teachers valued face-to-face work with students highly—it was seen to be effective in supporting relationships with their students. With this DIL research study, they started to gradually explore ways to foster online presence. The teachers experienced time constraints and pressure through ongoing institutional restructure. These constraints might have prevented a more active uptake of online strategies for encouraging relationships online. Further research is needed to explore how culturally responsive and equitable online learning experience can be increased in a first-year course design.

## Summary of feedback

Formative and summative feedback about the design and the resources received from students and teachers indicate that the teachers appreciated the explicit nature of the resources and felt that connecting development with the assessment supported students' assessment success. The teachers agreed that the resource design addressed the identified needs. Both also confirmed that they appreciated the online qualities of the resources on an otherwise mostly static course site, but they were unsure whether any one quality had been more useful for students than others. More research is needed to identify how a particular quality (such as automated feedback) can support the learning of both Māori and non-Māori students.

The teachers reported anecdotal feedback from six first-semester students who found the tools helpful for preparing their ePortfolios. Feedback given on ePortfolio assessments to students at the end of Semester 1 reflected a positive development in the use of literature in the ePortfolios. Teacher A reported that the literature used by students in their assignments in Semester 1 was of better quality overall. Feedback from seven students in Semester 2 indicated that the resources had been useful for their independent study, and for developing the ePortfolio. The teachers

confirmed (explicitly and multiple times) that they valued the integrated online resources for their teaching and for students' individual practice. Both teachers reported that DIL, including the introduction of the online resources, was more explicitly discussed in the classroom, and this might have made students more aware of the importance of finding quality research literature and information.

## Conclusion

This study reports the process of developing a blended design that can strengthen the pedagogical and relational development of the online space in an undergraduate course. The article offers actionable suggestions for a design that leverages online qualities and highlights the need to allocate resources and support, focusing on the intersection of technologies and deliberate design, to better leverage online learning's potential.

The study underscores some of the opportunities and challenges in online learning. Supporting Māori student equity in mainstream tertiary programmes through culturally inclusive practices is an ongoing development with expanding online teaching and learning (Rood & Barbour, 2024). The results of this study offer useful lines of inquiry and analysis in relation to developing a more inclusive online learning space in higher education. Based on the premise that effective teaching practices and quality learning experiences are vital to engage Māori and non-Māori students, the findings of the current study suggest strategies to support students' engagement (Muir et al., 2022; Rapanta et al., 2020; Rātima et al., 2022). Purposefully designed online resources that are aligned with learning outcomes can enhance learning (including assessment) by developing DIL, which supports broader digital literacies that are essential for students' academic and professional success.

The analysis suggests that to support DIL development, students benefit from a design that leverages online qualities (e.g., interaction, feedback, and reflection), integrates contextualised learning, reflects assessment demands, incorporates culturally responsive practices, and offers diverse learning options. Developing such an approach through a programmatic design process across qualifications and teaching teams is recommended.

## Acknowledgements

The author has no actual or perceived conflicts of interest, and has not received any funding for this manuscript beyond resourcing for academic time at their respective university.

## References

- Ako Aotearoa & Synapsys (2018). *Technology in learning: Benchmarking and developing sector capability*. Ako Aotearoa.
- American Library Association. (2012). *Digital literacy*. <https://literacy.ala.org/digital-literacy/>
- Barnes, A. (2013). *What can Pākehā learn from engaging in kaupapa Māori educational research?* Working paper. New Zealand Council of Educational Research, Te Wāhanga.
- Bates, A. T. (2019). *Building an effective learning environment: Teaching in a digital age* (2nd ed.). <https://teachonline.ca/teaching-in-a-digital-age/teaching-in-a-digital-age-second-edition>
- Beetham, H. (2019). Learning activities and activity systems. In H. Beetham & R. Sharpe (Eds.), *Rethinking pedagogy for a digital age: Designing for 21st century learning* (3rd ed., pp. 32–48). Routledge.

- Biggs, J., & Tang, C. (2011). *Teaching for quality learning at university: What the student does* (4th ed.). McGraw-Hill, Society for Research into Higher Education, & Open University Press.
- Bryman, A. (2021). *Social research methods* (6th ed.). Oxford University Press.
- Cram, F. (2001). Rangahau Māori: Tona tika, tona pono: The validity and integrity of Māori research. In M. Tolich (Ed.), *Research ethics in Aotearoa New Zealand: Concepts, practice, critique* (pp. 35–52). Longman.
- Curtis, E., Townsend, S., Rakena, T., Brown, D., Sauni, P., Smith, A., Luatua, F., Reynolds, G., & Johnson, O. (2011). Teaching for student success: Promising practices in university teaching. *Pacific-Asian Education Journal*, 23(1), 71–89.
- Frielick, S. & Sciascia, D. (2016). *He whare ako, he whare hangarau: A house of learning, a house of technologies*. (Report). <https://ako.ac.nz/assets/Knowledge-centre/NPF-14-006-Learners-and-mobile-devices/EXECUTIVE-SUMMARY-Learners-and-Mobile-Devices-A-Framework-for-Enhanced-Learning-and-Institutional-Change.pdf>
- Garner, R., & Rouse, E. (2016). Social presence: Connecting pre-service teachers as learners using a blended learning model. *Student Success*, 7(1), 25–36. <https://doi.org/doi:10.5204/ssj.v7i1.299>
- Gilster, P. (1997). *Digital literacy*. Wiley.
- Goodyear, P. (2015). Teaching as design. *HERDSA Review of Higher Education*, 2, 27–50. [www.herdsa.org.au/herdsa-review-higher-education-vol-2/27-50](http://www.herdsa.org.au/herdsa-review-higher-education-vol-2/27-50)
- Gosling, C., & Nix, I. (2011). Supported open learning: Developing an integrated information literacy strategy online. In T. Mackey & T. Jacobson (Eds.), *Teaching information literacy online* (pp. 91–108). Neal-Schuman.
- Green, J. K., Ruwhiu, P., Carvalho, L., & Sheridan, N. F. (2023). Indigenous learning practices: Creating reflective spaces for growth and transformation. In T. Jaffer, S. C. Govender, & L. Czerniewicz (Eds.), *Learning design voices* (pp. 97–118). Edtechbooks.
- Kahu, E. (n.d.). *The importance of whanaungatanga: Building relationships with first-year online students*. [https://www.tec.govt.nz/assets/Publications-and-others/The-importance-of-Whanaungatanga-online\\_Massey-Uni.pdf](https://www.tec.govt.nz/assets/Publications-and-others/The-importance-of-Whanaungatanga-online_Massey-Uni.pdf)
- Khoo, E., Johnson, M., & Zahra, A. (2012). I learnt a whole lot more than churning out an essay: Using online tools to support critical collaborative inquiry in a blended learning environment. *Journal of Open, Flexible and Distance Learning*, 16(1), 127–140. <https://doi.org/10.61468/jofdl.v16i1.94>
- Kirschner, P., & De Bruyckere, P. (2017). *The myths of the digital native and the multitasker*. <https://doi.org/10.1016/j.tate.2017.06.001>
- Løkse, M., Låg, T., Solberg, M., Andreassen, H. N., & Stenersen, M. (2017). *Teaching information literacy in higher education*. Chandos. <https://doi.org/10.1016/B978-0-08-100921-5.00002-3>
- Macfarlane, S., & Derby, M. (2022). Whanaungatanga: Relationships. In T. M. Rātima, J. P. Smith, A. H. Macfarlane, N. M. Riki, K-L. Jones, & L. K. Davies (Eds.), *Ngā hau e whā o*

- Tāwhirimātea: Culturally responsive teaching and learning for the tertiary sector*. Canterbury University Press. <http://dx.doi.org/10.26021/11870>
- MacNeill, S., & Beetham, H. (2022). *Approaches to curriculum and learning design across UK higher education*. JISC. <https://repository.jisc.ac.uk/8967/1/approaches-to-curriculum-and-learning-design-across-uk-higher-education-report.pdf>
- Maybee, C., Bruce, C., Lupton, M., & Pang, M. F. (2018). Informed learning design: Teaching and learning through engagement with information. *Higher Education Research & Development* 38(3), 579–593. <https://doi.org/10.1080/07294360.2018.1545748>
- Mayes, T. (2019). Learning theory and the new science of learning. In H. Beetham & R. Sharpe (Eds.), *Rethinking pedagogy for a digital age: Designing for 21st century learning* (3rd ed., pp. 17–31). Routledge.
- McKenney, S., & Reeves, T. (2019). *Conducting educational design research* (2nd ed.). Routledge.
- Ministry of Education. (2017). *Te whāriki: He whāriki mātauranga mō ngā mokopuna o Aotearoa early childhood curriculum*. <https://tewhariki.tahurangi.education.govt.nz/te-whariki-online/our-curriculum/te-wh-riki/te-wh-riki-early-childhood-curriculum-document/5637184332.p>
- Muir, T., Livy, S., Murphy, C., & Trimble, A. (2022). Making the transition from on-campus to online learning: Pre-service teachers' experiences of online learning as a result of COVID-19. *Journal of University Teaching & Learning Practice*, 19(5). <https://doi.org/10.53761/1.19.5.3>
- Plomp, T. (2013). Educational design research: An introduction. In T. Plomp & N. Nieveen (Eds.), *Educational design research* (pp. 10–51). SLO Netherlands Institute of Curriculum Development.
- Rapanta, C., Botturi, L., Goodyear, P., Guàrdia, L., & Koole, M. (2020). Online university teaching during and after the COVID-19 crisis: Refocusing teacher presence and learning activity. *Postdigital Science and Education* 2(3), 923–945. <https://doi.org/10.1007/s42438-020-00155-y>
- Rātima, M. P., Smith, J. P., Macfarlane, A. H., Riki, N. M., Jones, K-L., & Davies, L. K. (Eds.). (2022). *Ngā hau e whā o Tāwhirimātea: Culturally responsive teaching and learning for the tertiary sector*. Canterbury University Press. <http://dx.doi.org/10.26021/11870>
- Rood, C., & Barbour, M. (2024). Virtual learning for Māori students: Examining culturally responsive pedagogies and equity. *Journal of Open, Flexible and Distance Learning*, 28(1), 8–27. <https://doi.org/10.61468/jofdl.v28i1.643>
- Saldaña, J. (2013). *The coding manual for qualitative researchers*. Sage.
- Schwenger, B. (2019). *Navigating new terrain: Designing blended learning to develop digital literacies for students in a tertiary institution* [Doctoral dissertation, University of Auckland]. <http://hdl.handle.net/2292/49253>
- Secker, J., & Coonan, E. (2013). Introduction. In J. Secker & E. Coonan (Eds.), *Rethinking information literacy: A practical framework for supporting learning* (pp. xv–xxx). Facet.
- Shearer, R. (2021). Why do our theories matter? *Journal of Open, Flexible and Distance Learning* 25 (1), 4–12. <https://doi.org/10.61468/jofdl.v25i1.481>

Smith, E. E., Kahlke, R., & Judd, T. (2020). Not just digital natives: Integrating technologies in professional education contexts. *Australasian Journal of Educational Technology* 36(3), 1–14. <https://doi.org/10.14742/ajet.5689>

Smith, L. T. (2012). *Decolonizing methodologies: Research and indigenous peoples* (2nd ed.). Zed Books.

Stucki, P. (2012). A Maori pedagogy: Weaving the strands together. *Kairaranga*, 13(1), 7–15. <https://files.eric.ed.gov/fulltext/EJ976653.pdf>

## Biographical notes

**Bettina Schwenger**

[Bettina.schwenger@auckland.ac.nz](mailto:Bettina.schwenger@auckland.ac.nz)

Dr Bettina Schwenger is a lecturer and curriculum development manager in the Faculty of Arts and Education at Waipapa Taumata Rau, the University of Auckland. Her current research investigates points at which contemporary learning and teaching issues intersect: curriculum design, the development of AI and digital literacies, independent learning, programmatic assessment, and the embedding of Māori principles in higher education.

Schwenger, B. (2024). “Supporting their feeling that they can actually achieve things”: A design to develop the digital literacies of first-year students. *Journal of Open, Flexible and Distance Learning*, 28(2), [49–62.]. 10.61468/jofdl.v28i2.689



This work is licensed under a [Creative Commons Attribution-NonCommercial-NoDerivs 3.0 Unported License](https://creativecommons.org/licenses/by-nc-nd/3.0/).