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Navigating the Terrain:

Emerging Frontiers in Learning Spaces, Pedagogies, and Technologies

‘We didn't need to know about everything all at once’: Using UX to give students easy access to relevant assessment resources

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Tertiary student engagement with information and academic literacy online resources provided by centralized units is low. Although these resources are designed to prepare students for their assessments, they are often positioned peripherally to students’ learning environments. In attempting to position resources within students’ learning environments, our Library team conduct regular user experience (UX) testing of a course we have designed in our institution’s learning management system. Our two-year UX project has focused on the design and organization of resources that show students examples and guidance with how to do their assessments. Over two rounds of data collection and analysis, UX methods of usability testing, card sorting, low-fidelity wireframing, and high-fidelity prototyping helped identify student preferences for organising and accessing our resources. Findings indicate that students value the provision of relevant examples and guidance that show them what is expected in assessments and that they want direct access to that content as part of their courses. Implications for design include maximizing ease of use by positioning links to relevant examples and guidance in the assessment instructions and/or specific learning materials of courses, with the content being linked to positioned within a centralized repository in the same online learning environment.

Keywords: user experience, academic literacy, information literacy, learning design, assessment

Introduction

This paper reports findings from the second phase of a two-year user experience (UX) study aimed at improving the navigability and usability of discipline- and assessment-specific academic and information literacy resources that are designed by a small, centralized team for all students our institution. The first phase, conducted in 2023, focused on initial usability testing, card sorting, and low-fidelity wireframing to identify student preferences and usability issues (see Bassett et al., 2023). The second phase, carried out in 2024, built upon the insights gained from the first phase by conducting further usability testing and high-fidelity prototyping to make further refinements based on user feedback.

Typically, academic and information literacy resources are peripherally positioned on generic skills websites designed differently from students’ learning environments, mimicking traditional face-to-face provisions of voluntary workshops and individual appointments outside of students’ disciplinary contexts and additional to their regular coursework. Students tend to either be unaware of such resources or presume them to be irrelevant. Through the integration of UX principles in the design of assessment-specific literacy development resources, this research aims to contribute to student learning by making these resources easy for students to locate and use when they are engaged in their assessment work.

Literature review

In response to widening participation in tertiary education, institutions continue attempting to address variation among students’ existing knowledge and cultural capital (Younger et al., 2019), including provision of academic and information literacy teaching. From an applied linguistics perspective, students develop academic literacy through engagement with discipline-specific knowledge, which means it is best taught as part of students’ programs rather than separate from them (Wingate, 2018). This approach of *embedding* academic literacy development in the curriculum is also well-established in the teaching of information literacy

(Gunn et al., 2011). A key pedagogic step in embedding is the use of annotated examples (Wingate, 2018) to show students how to engage with and communicate knowledge. As well as being provided examples during classes, our 2023 UX findings indicate that students also expect to access such examples from their LMS courses (Bassett et al., 2023). This aligns with other research that shows students see the institutionally provided LMS as the one-stop shop for all their course materials (Henderson et al., 2017). However, the common approach among centralized units that provide literacy development has been to create generic academic skills websites that are positioned outside of students' usual learning environments, and those sites are not typically well used (Behrend, 2014). Rather, discipline-relevant literacy development resources can be included in LMS courses (Macnaught et al., 2022) along with other course content to better reflect how academic and information literacy develop within – rather than isolated from – disciplinary contexts.

Although, the simple inclusion of literacy development resources in LMSs is not necessarily going to increase their use. Inconsistent design across different courses in an LMS confuses and frustrates students (Zanjani et al., 2016) as do courses that have poor ease of use, making it hard for students to navigate, get overviews of what is available, or locate specific content (Steindal et al., 2021). Indeed, navigation and presentation are significant influences on students' ease of use perceptions – as shown in the statistical data from 153 students used by Ashrafi et al. (2020) in their structural equation modelling of a proposed technology acceptance model and student expectations of LMS ease of use. As well as LMSs, students report negatively when having to use other institutionally provided platforms that are designed and organized differently from each other, complaining that this makes their assessment work more difficult (Selwyn, 2016). Problematic/absent design adds to students' cognitive load as a result of extraneous processing (Clark & Mayer, 2023) required when having to decode the organization (or lack thereof) of each online space while at the same time attempting to learn the actual content that is in focus. Furthermore, inconsistent design that does not necessarily have students in mind, compounded by sometimes overwhelming amounts of content that is not curated, can drive them to use their own online technologies outside of those that are institutionally provided (Liu, et al., 2023).

These negative experiences point to the need for LMS courses that are well-designed and responsive to student preferences for easy and direct access to literacy development resources (Bassett et al., 2023). A relevant design methodology is the interventionist, iterative, and collaborative approach of education design research (McKenny & Reeves, 2018), which emphasizes the importance of regular testing and refinement, allowing for continuous improvement based on user feedback. Such user-centred design (Krug, 2013) can enable the creation of online resources that are intuitive and that meet student expectations.

Methods

This study employed UX methods to establish how users experience the resources we have designed and the extent to which they are able to use them as intended (Massis, 2018). Our resources, which follow the principles of multi-media design (Clark & Mayer, 2023) and universal design for learning (Gordon et al., 2014), are organized as a course in our institution's LMS, Canvas, into which all students are enrolled. Ethics approval was granted for the recruitment of students for two rounds of user experience data collection, the first in 2023 and the second in 2024. The 2023 methods included usability testing, card sorting, and low-fidelity wireframing, while the 2024 methods involved further usability testing and high-fidelity prototyping. Our team's approach to online resource design is informed by the interventionist, iterative and collaborative characteristics of education design research (McKenny & Reeves, 2018) and user testing (Krug, 2013). This enabled us to use the 2024 data collection to further investigate findings and refine the 2023 design. Six unique students participated in the data collection in each year for a total of 12 participants overall. According to Krug (2013), as few as three users are sufficient when conducting multiple rounds of testing because it allows those doing the testing to prioritize the most significant issues to focus on and then address them ahead of further testing that can be done relatively quickly. Therefore, six students per data collection round were sufficient to reveal the major issues to address and investigate further. We wanted to recruit users who reflected our audience (Krug, 2013), so it was unnecessary to purposefully sample based on any demographic criteria because our content is available to our institution's entire cohort of over 26,000 students. In this

paper, the 2023 students are labelled as S1 to S6, and the 2024 students S7 to S12. We audio recorded all sessions, used screen capture software for the usability and prototyping activities, photographed students' card sorts, and took screenshots of their wireframes.

We described in detail the three methods of usability testing, card sorting, and low-fidelity wireframing in a previous paper (see Bassett et al., 2023). In summary, the 2023 sessions followed a semi-structured contextual interview format (UX Design Institute, 2023). The usability testing was a mixture of *get it testing* (to check the extent to which the purpose and organization of content is clear) and *key task testing* (scenarios to check the extent to which typical user tasks can be completed), with students prompted to think aloud (Nielsen et al., 2002). Closed card sorting (UX Design Institute, 2022b) enabled us to identify where among our institutionally provided online spaces students expected to find some specific services and content, including resources that showed them how to do their assessments (which are what our team provide). Low-fidelity wire framing (UX Design Institute, 2022c) helped us identify student preferences for which content (including examples) should be included in their course assessment pages and how that content should be organized.

In 2024, usability testing was conducted in the same manner as 2023, with the focus on testing changes made in response to issues identified in 2023. The other UX method employed in 2024 was high-fidelity prototyping (UX Design Institute, 2022a). Based on the students' preferences for assessment page content and organization revealed by the 2023 wireframes, we created three prototype versions of a hypothetical assessment in a first-year undergraduate course. Although our resources include a diverse multi-modal range of assessment genres, we purposefully selected a traditional essay because it was likely that all participants would be familiar with it. Our intention here was to maximise the attention students could give to the design of the page, rather than getting distracted by the actual task itself. To ensure that all three versions closely resembled the students' real assessment pages, we used our institution's Canvas assessment page template. All three versions included the same assessment instructions, marking criteria, and due date. The point of difference across the three versions was the way in which examples of how to do elements of the assessment were included. In version one, links to our content were included as part of the assessment instructions (e.g., the phrase *appropriate academic sources* contained an embedded link to a page about how to evaluate sources of information for credibility, reliability, etc.). In version two, links were included in the marking criteria instead of the instructions. In version three, examples were included in the assessment page itself rather than being linked to. Prior to starting the prototyping activity, students were not told about any page elements. When looking at version one, if students did not mention the links independently, we asked about them overtly. When looking at versions two and three, we did not tell the students about any of the differences, only mentioning them if the students did not do so independently. As students interacted with the different versions, we asked them about which they preferred and why.

Recordings of all twelve sessions were transcribed. Each researcher coded independently, with queries resolved periodically ahead of agreeing on a set of codes that were categorized, and from which themes were identified (Charmaz, 2006). Visual content analysis was conducted on the 2023 assessment page wireframes to ascertain the positioning of elements and the relationships between them (Rose, 2016). Videos of screen activity, screenshots of wireframes and photographs of card sorts were matched to relevant quotes in the transcripts. As the 2024 coding progressed, comparisons were sought and identified with the 2023 codes.

Findings

Across the 2023 and 2024 data, the students were clear that they wanted to have examples of how to do their assessments, and they expected those examples to be provided in their courses. If the examples were not in their courses, they also searched for them outside of institutionally provided online spaces. All 2023 students included examples as an element in their assessment page wireframes. Furthermore, across 2023 and 2024, students explained that they valued examples because they could better understand what their lecturers' expectations were as well as identify how they might respond to tasks. An indicative sample of what students

thought are S4's statement that examples 'tell you this is what you should be aiming for and gives you examples for… me to relate to,' and S8's description:

> In some courses they give a template or a sample or guideline… so I'll usually try to look for it because most of the assessments, I've never really done them before, so it's kind of hard to... you have this feeling that you might type something wrongly or the format's different from what the lecturers would grade on, so I would usually search for them.

Our findings indicate that students look for content related to their learning and assessments in their courses, and that if they do not find the examples there, the next step is to search online rather than looking in any other institutionally provided online spaces. Four of the 2023 students usually looked in Canvas for examples, while all six of the 2024 students looked in their courses (either by looking in Canvas or asking their lecturers). In addition, most of the students in 2023 and 2024 also looked for examples outside of the online spaces provided at our institution – S7's statement that 'sometimes I just go online and see what Google has for me' is representative of what students described as their usual process. This was further clarified when we observed that 11 of the students did not mention looking for examples in any other institutionally provided online spaces apart from Canvas. The exception was S3, who had looked on our Library website for examples, but after not finding anything relevant, used Google Scholar. Therefore, it appears that our team need to position our content in Canvas if students are ever to find it.

The need for us to position our content in the same place as the students' other learning materials was also evident in students' experiences of browsing our content. Students did not want to browse it in a discovery-based way; instead, they wanted direct access to specific content that was relevant to their assessments. As evidenced in the following representative quote, students saw the value of the content but only wanted to engage with what was of immediate relevance:

> It's too much info dump at the moment… you have to be very used to the system for you to keep on coming back and remember, 'Yeah, okay, this is how you limit your research, open articles with full text links and everything.' It's a bit of a huge thing that you have to learn over a period of time, but it's not something that you're going to get at the first go itself... It's very informative, very valuable,… but… not everyone is going to be like 'Oh, yeah, I need to learn how to get into this because that is more of a… priority… than what I'm doing right now.' (S9)

The student's description of this content as an 'info dump' and 'a huge thing… to learn over a period time' that students would not prioritize over 'what I'm doing right now' indicates that students do not want to browse through our literacy content because that is not their focus. Other students also expressed these expectations of specificity and relevance: 'for someone who's looking for specific information, they might get into some confusion. They would have to spend a long time trying to get if there's only one part that they don't know' (S8); and 'I think I saw it [one of our pages] on my friend's laptop, but I didn't really look at it because… I already did my assignment… so I didn't think I needed it' (S7).

This combination of limited student awareness about academic and information literacy content *and* student expectations for such content to be specific and relevant to them manifested in students' impressions of having direct access to such content as part of their courses. Firstly, a link from the weekly materials of a first-year Business course to our content on reflective writing enabled one of the 2024 students to engage with content that was relevant to them when they needed it:

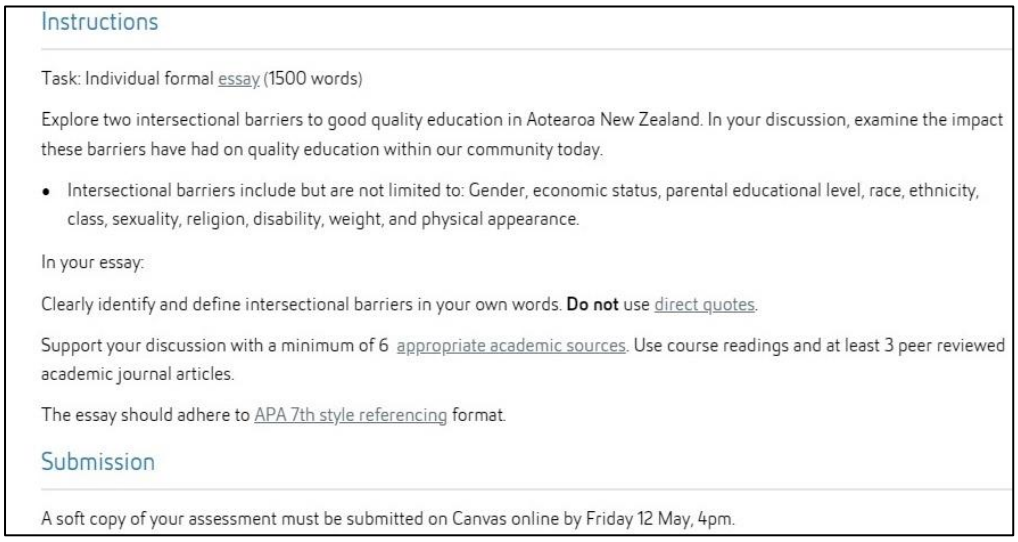
> S12: It's all broken down into different bits... this is what made it useful for staff to be able to point us to a very particular section. It's like… the reflective writing. We only needed to know about the particular bit that we needed to know about it. We didn't need to know about everything all at once.
> Craig: Right, and that was the strength of what you said, was linking in a sense...
> S12: Absolutely.

Collaboration between the course leader and our team to design a reflective writing resource for first-year Business students had resulted in the creation of a page that was linked to from that course as part of the week two learning activities. This was designed in preparation for an assessment that required students to use the Describe, Interpret, Evaluate, Plan (DIEP) model of reflection (Ichii et al., 2019). Given that recruitment for this UX research was open to all students at our institution, it was serendipitous that S12 volunteered and shared this positive experience with us; in particular, they valued the ease of access to content via a relevant page in their course coupled with the specificity and relevance of that content to their assessment:

> S12: I've been through some of this as well… we were directed to these sections…
> Craig: Was it relatively easy to find?
> S12: Yeah. Oh, yes. Well, I didn't have to. They'd linked straight to the bits they wanted us to read and look at before we did our first assignment...
> Craig: Linked from?
> S12: It was in the initial modules. Often in the bullet point stuff at the top, there was like 'pay attention before you do this assignment'… one of our assignments was reflective writing… there's a few different ways given on the Library website, but they linked to the very specific one they wanted us to use.

Secondly, the positive value S12 placed on having easy access to specific and relevant examples related to their assessment was also apparent when we showed the 2024 students the assessment page prototypes. The students all wanted to have links to guidance and examples related to their assessments from within their assessment pages. This was because they were helpful for clarifying expectations and terminology: 'helpful in the manner that I'm writing a report or an essay, and it takes me to the relevant resource where it shows me how to work on it' (S9); 'helpful because obviously giving some sort of guidance is always helpful' (S8); 'It's good, actually help… actually it doesn't in my one [their course]… but it would be good to actually have it there, the links, so it would be easier for us to know what does that [direct quotes] mean' (S7).

Regarding the specifics of how example content should be included in assessment pages, the 2024 students preferred links to be included close to, but not before, the assessment instructions. They did not want links to be included in the marking criteria, and if example content was included in an assessment page, students were concerned about getting distracted from the assessment task itself. Shown in Figure 1, prototype one included links with the assessment instructions, which the students preferred because of their salience: 'The first thing a student will read will be… the instructions… this is what we need to do… this is the first page that we're going to look at' (S7); and 'it's something that you cannot miss out on' (S8).



Instructions

Task: Individual formal essay (1500 words)

Explore two intersectional barriers to good quality education in Aotearoa New Zealand. In your discussion, examine the impact these barriers have had on quality education within our community today.

- Intersectional barriers include but are not limited to: Gender, economic status, parental educational level, race, ethnicity, class, sexuality, religion, disability, weight, and physical appearance.

In your essay:

Clearly identify and define intersectional barriers in your own words. **Do not** use direct quotes.

Support your discussion with a minimum of 6 appropriate academic sources. Use course readings and at least 3 peer reviewed academic journal articles.

The essay should adhere to APA 7th style referencing format.

Submission

A soft copy of your assessment must be submitted on Canvas online by Friday 12 May, 4pm.

Figure 1. Assessment page prototype one including links with assessment instructions

It was also apparent that links needed to be positioned after the instructions. As shown in Figure 1, the first link was to a page that included example essay paragraphs. On first viewing prototype one, S8 was confused, and it took them some time to notice the assessment instructions after clicking on the *essay* link:

> I think should be better if it's not here because people tend to want to know more about the topic because, in an assignment – what you're writing about – it's more of the information that they will want to know first. And seeing this, like how I did, it could throw [someone] off and then go to a different website that shows how you write the essay, not the information you're looking for.

To avoid such potential confusion, it seemed sensible to conclude that links to examples and guidance should not be included before the instructions. This aligned with the 2023 wireframing data, which clearly showed that students expected assessment instructions to be positioned first.

The salience achieved by including links with the assessment instructions contrasted with students' experiences of prototype two, where the links were instead included further down the page in the marking criteria. None wanted links included there, and four of the six students did not notice them independently. One common reason the students gave was that they did not usually read the marking criteria in detail: 'half the time, you don't read through that section explicitly' (S12); and 'having them down there, yeah, you don't notice them. Only if you're reading this in depth, which not many people, I don't think, would do' (S10). S12 also explained this issue from the perspective of someone with Attention Deficit Hyperactive Disorder (ADHD):

> Putting the links into the more detailed section [marking criteria]… it almost hides them. As an ADHD person, I'm an avid reader, but many people with ADHD are not, and they'll read the initial stuff if it looks like it's short enough, but as soon as something looks heavy, they'll go 'No, I'll never read that ever.'

This clarified our 2023 finding that all students positioned examples close to assessment instructions and marking criteria. The 2024 prototyping data indicates that the example content is best positioned between them. For S10, 'having the links up the top makes it clear that there are links there that you can use. Where, having them down there… you would kind of not realize they're there, so wouldn't use them necessarily.'

Students also appreciated not having to do any browsing to access the content both before and after clicking a link in an assessment page. Before opening the *appropriate academic sources* link shown in Figure 1, S9 found it was convenient because 'if a person forgets about it, even if he comes back to it, it's right there, so he can click on it, and go to it… right away.' As well as valuing how the links were 'inserted where they're relevant', S10's experience of clicking *direct quotes* and being linked to a page titled *paraphrasing and quoting* suggests that there should not be any browsing required after opening a link: 'If I want to find direct quotes, it takes me to paraphrasing and quoting. It's a little bit more general than necessarily just quotes.' This indicates that the student did not immediately see content of specific relevance after opening the link.

Regarding prototype three, students thought that including examples in an assessment page was problematic. One reason is that it conflicts with their goal of identifying what the task is: 'if you're just wanting to learn about the actual assessment, little bit unnecessary cos it's more additional information to "this is the assignment – go and write an essay"' (S10); and 'I wouldn't want to put these in the assignment itself where you have to submit the work due – definitely not' (S8). Including examples in the page also made it too long: 'I probably wouldn't put it like this… with everything all on the one page… just so there's not so much stuff going on' (S12); and 'the page size increases… not really that great because you need to keep scrolling down' (S9). However, S11 thought including examples in the page resulted in immediate access 'because you don't have to click into any links… it's just straight away there.' Additionally, as the example content used colour coding, S11

thought it increased the page's visual appeal: 'I like how the colours are used, which gets attention because the page is mostly just blue and white and black. And then you go down here and there's a pop of colour.'

These possible benefits of immediacy of access and visual appeal when including examples in an assessment page would need to be considered carefully in light of our other findings that students do not want to be distracted from their assessment tasks or want pages to become too long. When we asked them for a preferred prototype, all six 2024 students chose the one with links in the assessment instructions. S11 also preferred the one that included examples in the page, but caveated this by saying it would need efficient use of space by being carefully organized into interactive tabs that would enable students to have an overview of available content and to have choices for what is shown. This aligned with other students' preferences for links to examples rather than including them in the page because it gave them the choice of whether to access the examples or not. According to S10, 'I'd probably prefer the first one [links] cos yeah if you want that extra information, you can go to it. By having it in here, kind of makes it seem like you have to read this.' This idea of a student choosing whether or not to access content was also expressed by S8:

> S8: When you're looking at an assignment, you just want to know what you really want to do. And, unless you really need the help, you would just search for it…
> Mark: Yeah. So if I want help, I'll go to look?
> S8: Yes.
> Mark: And it would be helpful if, for that person, if I want help, if there were links?
> S8: Yeah, yeah because this could also be regarded as important information.

Discussion

All our student participants expected examples of how to do their assessments to be relevant and easily accessible to them as part of their courses. They did not to tend to look elsewhere within their institution for examples, instead preferring to search online. This behaviour of searching online for relevant guidance and examples beyond the institutional environment is consistent with Fischer et al.'s (2023) observations of students' collaborative activities while working on a summative assessment. The students demonstrated evaluative judgement when making recommendations to each other about which externally provided online resources they had found effective in supporting their work. Fischer et al.'s (2023) finding suggests that, as well as searching online for resources, students also make choices about which resources are of appropriate quality. However, other research suggests that having to look beyond institutionally provided resources can be problematic because students' assessment work can be made less efficient (Liu et al., 2023), students can be steered down irrelevant search paths by algorithms (Araos Moya & Damşa, 2023), and the increasing prominence of generative artificial intelligence adds greater pressure on students' capabilities to judge the quality of what they find online (Bearman et al., 2024). Providing examples about how to do assessments within courses can meet student expectations for easy access to relevant content that contributes to assessment work, reducing the need to search externally for examples of varying quality and relevance.

Regarding the positioning of examples and guidance about how to do assessments, our findings point to assessment pages and weekly materials in LMS courses as being optimal. In this research, examples include a focus on the development of academic and information literacy relevant to students' assessments and disciplinary contexts (Macnaught et al., 2022). All our student participants wanted direct access to these examples as a normal element of their courses, indicating that such content is interwoven with what is valued and how communication is structured in disciplinary contexts (Boughey & McKenna, 2021). Therefore, it is not optimal to position this content externally from students' disciplinary contexts on websites provided by centralized units that students have to browse through for specific content. Such sites are not used much (Behrend, 2014) likely because students do not identify them as relevant (Drury & Mort, 2015). This aligns with our finding that students did not look for examples in any institutionally provided online spaces apart from their LMS courses. Another issue is the extraneous processing (Clark & Mayer, 2023) required of students

when engaging with multiple institutional online spaces that are designed differently, increasing the difficulty of assessment work according to students (Selwyn, 2016).

Regarding how centralized teams can manage the creation and ongoing maintenance of examples and guidance that are dispersed across large numbers of courses across the disciplines at an institution, an efficient option is to have one centralized repository, and for links to be created from those courses to specific parts of that centralized repository. Firstly, this should be on the same platform as students' courses (i.e., in the LMS) because the user interface is consistent, reducing cognitive load (Clark & Mayer, 2023; Krug, 2013) and increasing ease of use (Ashrafi et al., 2020). Moreover, including examples with other learning materials aligns with students' expectations of LMSs (Bassett et al., 2023; Henderson et al., 2017). Secondly, it may be optimal to link from a course page to examples rather than including the examples in a course itself. According to our students' experiences of the assessment page prototypes, including examples there could make the function of the page (to identify the task and submit the work) less clear and cause the page to become too long. Both concerns point to increased cognitive load (Clark & Mayer, 2023) and increased time required to decipher what is of most relevance (Krug, 2013). Appropriate page design could mitigate such issues, but this would create (perhaps unnecessary) work for the designer. Also, as shown in our findings, students liked having the choice to engage with examples via links as opposed to the implied sense of obligation to engage created by their inclusion in a page. Thirdly, a further consideration for teams who create and manage this content relates to sustainability. Linking from courses to examples in a centralized repository, rather than including multiple copies of those examples in the courses themselves, is sustainable because updates to existing content only need to be made once and version control can be maintained.

Regarding how links to examples should be included in courses, as well as where they should link to, our findings reflect established principles of user-centred design. Even though they were in an artificial testing scenario, the 2023 and 2024 students told us, and we could observe in their screen activity, that they expected content to be easily navigable. According to Krug (2013), this is consistent with how most people browse online, rather than engaging deeply and carefully considering the choices made in the design:

> What they actually do most of the time (if we're lucky) is glance at each new page, scan some of the text, and click on the first link that catches their interest or vaguely resembles the thing they're looking for. There are almost always large parts of the page that they don't even look at. (p. 34)

Therefore, as per our findings, links to examples that show students how to do their assessments should (a) be positioned in courses where they are relevant and prominent, and (b) take them to content that matches specifically with the wording used in the course without the need for any browsing. This aligns with Krug's (2013) principle of not making users have to think about how content is organized or how the navigation works. Forcing students to spend (from their point of view) too much time on activities that make their assessment work less efficient (Selwyn, 2016) at best causes some frustration (Steindal et al., 2021) and at worst causes them to go elsewhere (Liu et al., 2023).

If literacy development teams and lecturers want to provide optimal quality resources to support their students' academic success, then this needs to be done with user-centred design. In this research, the 2024 students valued having links to such resources positioned on assessment pages in LMS courses just after the main assessment task instructions and before the marking criteria. This positioning is consistent with the quote above from Krug (2013) because the students saw the links as relevant when included with their assessment instructions and did not usually even notice them in the marking criteria. While this research focused on linking from assessment pages, there are other appropriate locations in courses to link from. As mentioned in the Findings, S12 also positively appraised their experience of a link to examples being positioned in a weekly module of one course, which was effective due to its relevance and specificity to their current assessment work.

Conclusion

According to the findings of this two-year iterative user experience research project, centralized academic and information literacy teams should be positioning their online content – examples and guidance about how to do assessments – as part of students' normal learning environments. This most likely means access to that content needs to be via LMS courses. Not doing so can render the content invisible to students because if they do not find relevant examples in their courses, they do not search in any other institutionally provided online spaces. To minimize students' cognitive load and maximize the content's ease of use, we recommend that examples and guidance about how to do assessments are located in the same online platform as students' other learning materials. Rather than including examples in LMS course pages, we recommend the optimal method for including them is via the use of links from assessment pages (and/or relevant weekly materials pages) in courses to a centralized repository. This can simplify content students have to engage with in a course page, which is especially important for assessment pages that already have a distinct function and are considered high stakes by students. Linking from courses to a centralized repository is also more sustainable for teams who create and maintain that content for all students at an institution.

We make these recommendations in acknowledgement of our small sample of twelve students at one institution. However, the iterative user experience design process of creating content, testing it with students, updating the content based on the testing, and then testing again with more students affords a highly detailed articulation of the main issues students are grappling with. Furthermore, the focus of the content – to show students how they can be successful in their assessments through the development of academic and information literacy – and the centralized positioning of teams responsible for creating that content are reflective of the contexts in many tertiary institutions. Therefore, we see our findings as relevant to various literacy practitioners and lecturers. To further investigate this, our next project is to measure the impact of positioning our content in the ways we recommend on student outcomes as part of a sequential mixed-methods study of embedding literacy development in a large undergraduate course.

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Navigating the Terrain:

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