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Using Design Thinking to Integrate Academic Literacies into Subject Teaching in Higher Education

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Abstract

Design Thinking is a design approach created to assist in resolving complex problems. This paper argues that there is a problem with the traditional, lecture-led approach to Higher Education. This approach has led to a teaching imbalance between the delivery of subject content and the skills necessary to write a good academic essay or report. Courses can be content heavy, to the point where it might be argued that many students feel overloaded with information, but the development of academic writing competencies is often a very minimal part of the core curriculum on any individual module or indeed degree programme as a whole. This problem is then exacerbated, within the current UK HE system, by an erroneous cognitive separation of writing from thinking and learning. This paper reflects on an initiative that attempts to resolve this problem by taking a design thinking approach to module redesign in two modules on an undergraduate business programme at a post-1992 institution. The paper concludes that, despite being used in many different industries and for product development in many cases, that a design thinking approach is highly suitable for use in designing education programmes. Indeed the user-centric focus of the design thinking concept, makes it a very useful design framework for those seeking to design with a student centred approach in mind.

Keywords: Design Thinking, Student-centred Design, Active Learning, Academic Literacy, Learning Development, Higher Education

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1. Introduction

The inspiration for writing this article is to pause and reflect on our progress to date on our project to develop an innovative higher education (HE) module design process, at a post-1992 university business school. In particular, we wanted to reflect on the benefits we identified in using a design thinking approach to redesign two undergraduate modules. Design thinking principles include being design orientated, user (student) centred and taking a collaborative approach to problem solving (Grau and Rockett, 2022; Carlgren et al., 2016). By embedding these principles into our design approach we feel that we have equipped ourselves with a useful methodical framework that we can follow when testing, improving and retesting our ideas in practice. Design thinking also appears to be an apt conceptual framework for education, as we feel it also has similarities to an action research approach, which is a very well-established practice and research methodology in the education profession. Although distinct (and not the subject of this paper) action research also involves practitioner planning and design, practical implementation and testing of ideas designed to improve the outcomes and experiences of learners, a strong evaluation focus and subsequent reiteration of improved versions (Armstrong and Moore, 2004). So although design thinking is a distinct approach, some aspects would not be completely unfamiliar to education practitioners that had previously conducted action research.

One reason that design thinking has been adopted in numerous business and service environments, across a broad range of industries and professions, is that it is a practical tool for tackling complex problems and enhancing the user experience (Adams and Nash, 2016). Improving the user (student) experience has been a huge motivation for us in embarking on our module redesign project. The 'complex' problem we have been attempting to grapple with is that the traditional (lecture based) approach to teaching in HE has created an imbalance between teaching subject content and the development of competencies needed by students to produce high quality written outcomes at the assessment stage, with the emphasis strongly leaning toward the former (Mitchell and Evison, 2006). This is problematic, because this type of content dominated, lecture orientated HE teaching approach does not always sufficiently enable students to fulfil their learning potential (Grau and Rockett, 2022; El-Azar, 2022) or produce their best work in assessments (Monroe, 2003, cited in Mitchell and Evison, 2006).

We should point out at this stage, therefore, that the focus of our module redesign project is not purely about HE teaching practice, nor is it purely on HE assessment design, because (to paraphrase the Beastie Boys) in our view one is the cheese and the other is the macaroni; that is to say we see them as intrinsically connected, complementary elements and a key element of our module redesign process to put the recognition of that concept front and centre. We cannot separate our approach to assessment design from our approach to module teaching design, as we strongly believe that the latter is most positively impactful on the student experience if it feeds into the former at every plausible opportunity. Another aspect that is absolutely central to the design thinking approach we have taken is that it involves a much higher level of collaboration, a key design thinking element, (Carlgren et al., 2016), between a subject lecturer in the business school (author 1) and an academic tutor (author 2), than typical

HE established practice would normally facilitate. For the purpose of clarity it is worth summarising the role of the academic tutor as the role goes by different job titles in different institutions. The main functions of the academic tutor in our institution are student facing; they provide academic writing support via 1-2-1 'drop in' sessions and they are regularly invited by subject lecturers to provide semi-bespoke lessons, with a specific focus on assessment related skills (although this aspect is widely practiced this 'support service' is by no means utilised by lecturers on every module). As such, while it is common for academic tutors and subject lecturers to collaborate to some degree to create these ad-hoc lessons, particularly assessment related support sessions, a holistic collaborative approach to a complete redesign of whole subject specific modules is much rarer and far more innovative (see Mitchell and Evison, 2006). The importance of this facet of our approach will be covered in more detail anon.

The specific context for our design thinking initiative is that we work at the University of East London (UEL), a post-1992 university based in Newham, East London. It's an institution where there is extensive ethnic diversity in terms of home students, a large international student cohort and lots of working class students. In relative terms we have an entry tariff at the lower end of the UCAS scale and lots of students would fit into the broad category of 'students from non-traditional backgrounds.' According to the 2020-25 access to participation plan (UEL, no date), Black, Asian and mixed ethnicity students comprise around 70% of our UEL student population, about 75% of admissions are students that come from the two highest quintiles of 'incidents of multiple deprivation' and about 50% are mature students. This context is important to us. Design thinking is practised in multiple industries and services but is being increasingly used in an education context (Pande and Bharathi, 2020; Grau and Rockett, 2022). Grau and Rockett's (2022: 137S) application of the theory to the HE environment is particularly pertinent when considering context as they argue that design thinking in HE is an empathetic process that:

> '… begins with a focus on the 'user'—in the case of higher education, that usually means students—and their challenges and pain points. Design thinking is a way to design learner centred initiatives.'

Therefore, it is important for us to emphasise that our students are not generic students and nor are they Oxbridge or Russell group students (although some of our experience may well be transferable to other HE environments); in contrast they are students whose 'challenges and pain points' are informed and shaped by their distinctive life experiences. Our understanding of this is informed primarily through our direct dialogue with them; but to some extent this can also be explained, in imperfect shorthand, by highlighting some of the contextual statistical information we've used above. As such, when we talk about designing with the user in mind, it is the varied types of students that attend our university that we were thinking of specifically.

When it comes to our design thinking approach, in practice we did not stick to using one single model of design thinking to inform our process. Rather, we have drawn from a range of design thinking research to help us understand and use the core principles and apply them to our own module design. However, to help us explain our

process here, we will borrow a structure from a really helpful design thinking framework outlined in Carlgren et al. (2016), who identify five key elements of the design thinking approach: user focus, problem framing, visualization, experimentation and diversity. We'll begin by discussing problem framing, before user-focus, in this reflection to provide a more logical narrative.

2. Framing and re-framing the problem

In their article on design thinking, Suri and Hendrix (2010: 60) observe that 'Designers also bring a critical eye, detecting and sometimes becoming offended at designs that don't work'. Similarly, our decision to collaborate together on module design was, to some extent, born out of our mutual frustration with key elements of the status quo that, in our view, simply were not working. One of us had a business school subject lecturer view of the problem and the other an academic tutor view; but based on our interactions with students, we knew that, using existing conventions of practice, neither of us was able to deliver an optimal response to the problems students were identifying. One key aspect of our mutual experience was our interactions with students around assessments. We were both aware that they were often being asked to submit assessments without first being given sufficient levels of support or practical active learning experience, to support them in developing the abilities that would allow them to experience high levels of achievement in certain assessments. This was particularly, but certainly not exclusively, the case for assessments that required academic writing. We were both feeling our way, through experience and reading academic research, toward a viewpoint that this problem was based on the dominance, in many modules, of subject content over academic literacies competency development. Subject content is undoubtably of extreme importance, but we were asking ourselves whether it was possible to teach it alongside academic literacies competency development in a more meaningful way.

We didn't view the current imbalance in teaching as a deliberate error that was being made by subject lecturers. Indeed both lecturers and academic tutors work incredibly hard to provide adequate support for students and to offer guidance on assessments. However, part of our problem framing process has been to observe the cultural and institutional elements of custom and practice that prevented students from sufficiently developing their assessment competencies, despite the best intentions of all involved. In some respects, with certain assessments, it appeared comparative to asking the students to dig a large hole in the ground, but only providing a teaspoon for the task. Remember, the vast majority of our students do not arrive with inherent abilities in this area; this to some degree may be a similar situation in many universities, but we are conscious of additional barriers faced by student from our demographics.

The additional contextual background to the problem we are trying to resolve relates, at least partially, to the tradition of the lecture in HE. 'Students typically still sit and listen to lectures,' despite the growing evidence that various types of active learning create better engagement, which in turn creates better student outcomes (Grau & Rockett, 2022: 136S). It is worth considering, at this point, the ingrained legacy of hundreds of years of HE in the UK. Given the historical development of HE teaching,

it is little surprise that there is still a widespread assumption that the role of the 'lecturer' (the dominant job title for HE teachers in UK) is to lecture: the clue is in the name. While it is clear that these traditions, especially that of the lecture being an effective way to teach, are being challenged by modern understanding of the learning process and a gradual move toward more effective active learning techniques (El-Azar, 2022), the long-established traditions of practice retain their dominance in many areas of HE. One way lecturers might reflect critically on the role of the lecture is to ask themselves: is the lecture format more suited to showing off the extent of my own knowledge, as opposed to being the most effective way for my students to build theirs?
Another crucial element of the problem we are trying to frame is the intellectual separation of subject content learning from student writing competency. Mitchell and Evison (2006) observe that delivering subject content is traditionally perceived as the principal responsibility of the specialist subject lecturer but that supporting students writing competency development is often considered to be outside their direct remit. As a result of this, some courses can be a bit content heavy, to the point where many students feel slightly bombarded by subject related information, but much less certain about how they might be expected to use it. On the other hand, development of academic writing skills / competencies is often a very minimal part of the core curriculum on any individual module or indeed degree programme as a whole. In this circumstance the relationship between the subject content delivered and the assessment can become incredibly difficult for many students to decipher. This in turn could lead to anxiety and lower engagement. Furthermore, support for students who struggle with the conventions of academic writing (a common assessment form) is often 'outsourced' (in terms of not being part of the core teaching, not usually in terms of privatisation) to the academic / writing skills support staff (at UEL known as academic tutors). Unfortunately, this has led to the use of a 'deficit approach to supporting the learning development of students … of text-focused study skills such as instruction on essay structure, grammar and punctuation and accurate referencing protocol (not practice), which aim to plug the 'skills gap' (Gornall, 2019: 2). As we will now explore further, this more generic and deficit-based approach to supporting writing has created a range of complications.

Firstly, in the UK HE system, it has led to an erroneous cognitive separation of writing from thinking and learning (Mitchell and Evison, 2006). Therefore, from the subject lecturer perspective, there is a cultural pressure to see the problem of writing skills as being mostly beyond your subject content based remit. As discussed, it is the academic tutors who are then asked to provide support for students requiring help with subject specific writing, which they may be less than optimally effective in providing because they don't have enough context specific information. This practice is widespread and structural within the HE institutions across the UK and it creates a misconception that focusing on generic writing skills is a particularly effective way of supporting the student. This is a significant problem because such practice ignores the fundamental, integral, distinct and specific relationship that exists in each academic discipline between knowledge construction and writing (Wingate, Andon and Cogo, 2011).
Webster (2023) also articulates a range of potential practical problems with this delineated separation of subject content and academic skills, from the academic tutor's perspective. She argues that stand-alone sessions, even when they are 'embedded' into

the core teaching time, often don't work effectively because: assignment information wasn't detailed enough; sufficient exemplars were not provided; the timetable slot didn't make pedagogic sense; the students didn't respond to a teaching approach that is different from that of the subject lecturer; or there was no time to build a trust relationship to aid learning (Webster, 2023: 32-33). All of the problems outlined above could have an impact at any HE institution; but in an institution with high levels of 'home' students coming from non-traditional academic backgrounds, where they often do not carry with them the cultural capital to adapt almost seamlessly to ostensibly middle class and upper class academic conventions, it creates an even bigger barrier to success. In a similar vein we have many international students, whose cultural capital is based on a very different pedagogical approach to the UK system, and in our experience they also often require much more proactive support in adapting to the key academic literacies required for success in UK HE assessments.

Dorst (2011) discusses how re-framing the problem is a core part of the design thinking process; giving an example of how reframing late night social disturbances in a metropolitan entertainment district could be mitigated if the view of the problem was shifted from a law and order control issue (which was failing) to a new perspective as an facilities and transportation provision issue. We have taken a similar approach to reframing the problem around the quality of student writing in assessment. We have witnessed attempts to resolve similar problems to the one we have identified that have focused solely on the assessment, i.e. to change the type of assessment or the length of it. To which we would say, sure, variety of assessment is great; but we would also ask is it viable or desirable to remove all academic writing assessments from our courses? In no way would we want to ignore the vitally important discussions that are taking place in HE around inclusive assessment and authentic assessment. They are worthy of extensive discussion in their own right and are very pertinent to our overall approach to module design. Really useful examples of discussion on these topics include Bain (2023) and Evans (2016). However, that discussion, while highly relevant, is not the central feature of this particular reflection on design thinking, as we reframed our particular problem in a different way. In light of this, we want to share some of the practical details of how we redesigned two business school undergraduate modules after we 're-framed' (Dorst, 2011), the 'assessment' problem as a 'teaching' problem and how this led us to adopt some of the key principles used in the design thinking approach.

According to Monroe (2003, cited in Mitchell and Evison, 2006) academic writing competency development must be fully integrated with the subject content teaching otherwise it becomes impossible for students to be able to produce their best work. Having reframed the problem, that core belief, which our experience has led us to share, was a central factor in the pedagogical approach we took to our initial iteration of our module redesigns. We identified an opportunity to, collaboratively, redesign two business undergraduate modules from scratch (one at level 4 – first year undergraduate - and one at level 3 – foundation / access level). We collaboratively planned how we could redesign the teaching methods across a whole 12-week module, to actively support writing competency development while simultaneously teaching subject content. We also recognised, again through experience and reading available research,

that making the course active learning orientated would be beneficial. In taking this approach we have attempted to change the conception of the identified problem, the difficulties students face in performing to their true capacity in assessment (especially but not exclusively written assessment), from a student deficit issue to a pedagogy challenge and from an assessment only issue to an assessment and teaching one. In doing so, we have also taken some first steps towards putting the 'user' (the student) at the heart of longer term solutions.

3. User-Focus

When it comes to considering the relationship between the designer of a product or service and the user of a product or service, a key term that is oft-repeated in design thinking analysis is that of 'empathy' (Adams and Nash: 2016; Pande and Bharathi, 2020; Grau and Rockett, 2022). Adams and Nash (2016) highlight the difference between sympathy, merely being concerned for the wellbeing of the user, and genuine empathy which involves a cognitive understanding of their needs and an affective understanding of the feelings generated by the users situation. Our approach to understanding the student experience is based on several factors. One significant factor was the experience of the subject lecturer (author 1), who was an undergraduate (from 2016-2019) on the course they are now teaching in the same university. During this time, in numerous informal discussions with fellow students, and during many sessions providing peer support for fellow students, it became starkly apparent that there was an important missing element within what was otherwise, in many ways, an excellent educational experience. That element was support for the development of a range of skills, abilities and competencies (academic literacies), that were needed to utilise the content being taught, in a manner that would produce higher quality outcomes at assessment. Since moving into a teaching role as a lecturer, this dialogue with students about their experiences on modules taught by author 1 has continued (and sometimes with students sharing comments on other modules they were taking). Author 2 had drawn similar conclusions independently, during several years working with students in a number of HE institutions, but most recently and pertinently as an academic tutor at UEL. This is but a brief summary of course, but hopefully is gives a flavour of the experiences and dialogue that have led to the creation of a deep empathy, emotional as well as cognitive, with our students. While combing an emotional bond with a deeper understanding of user needs is no guarantee of successful design, it is a great starting point for designing with the user utility and satisfaction at the centre of your design focus.

In no way, shape or form do we make any claims to have found a definitive solution to the problems of students having difficulties understanding, developing or engaging with a range of extremely useful academic literacies that could improve their assessment outcomes. That would, in our view, be an unachievable objective, especially so early in the development of a design and in such isolated circumstances. However, we do feel we are quite able to empathetically relate to the tumultuous emotions students feel when faced with time sensitive challenges (such as assessment deadlines), combined with the confusion induced by not knowing how to behave in a situation your life experience to date has not prepared you for (for our students this

might be applying academic conventions you are unfamiliar with to your writing or indeed just writing at all). By understanding this, at least to some extent, we have been able to develop a different type of HE module, based on active learning, that students appear to have responded positively to. To date we have run the level 4 module twice in subsequent terms and the level 3 module once.

Another design element that we used and think is worth highlighting because it was driven by the user centric principles of design thinking, was our desire to de-mystify some of the language used in academia. A really good example of this is a useful concept we found, that helps us to simplify and explain ideas around using secondary sources and subjecting them to critical analysis, in the students' academic writing. The concept was developed by Graff and Birkenstein (2010) and is called 'they say, I say'. We have designed sessions where we explain to students that when they write a paragraph or section of their work they should report on what they know other people have said about the topic they are discussing at that moment. This is what 'they say'. When they've found enough 'they say' sources to put together a viable summary of the key issues they can respond with their own views. This is the 'I say' part. We created a number of active learning activities in our newly designed modules, where students practice the method finding, interpreting and responding to research on subject relevant / assessment relevant secondary sources, using this demystified language as an explanatory tool. This is also an example of how we combine subject content (the secondary sources they are engaging with) and academic literacies development (practising writing using the 'they say, I say' method) into the same activity. Grau and Rockett (2022) talk about meeting students where they are in relation to being user centric and I think this example of our practice fits well with that. With time and practice, many of our students will feel comfortable with terms like secondary research and critical analysis of sources, but if we can use a communication tool, like 'they say, I say' (Graff and Birkenstein, 2010) to introduce them to these concepts in a transitional way, then I think we demonstrate more empathy with their situation at the outset of their academic journey.

Design thinking as a holistic conception has been useful to us, but if we had to artificially isolate one aspect, then we think that empathetic user focused design might have been the single biggest influence on our practice. So far, with the resources we've had available, we've done reasonably well on gathering and interpreting information that allows us to understand the user perspective. However, we can reflect on the fact that best practice often involves more formal methods such as focus groups and semi structured interviews (Pande and Bharathi, 2020). We have three cohorts of students that have experienced the early iterations of our new module design format. It is our intention now to use a more formal and detailed approach to gathering feedback from users to inform and improve the coming iterations of our modules. Even though we are pleased with our progress so far we know there are better versions to come. Reflecting on the methods we've used and new methods we still need to employ to build empathy with the students situation and why we have a particular affinity to the user centred aspects of design thinking, has been very useful for us. However, it is also the case that we have used and benefited from using other key components of the design thinking concept, which we'll now reflect on briefly in the following sections.

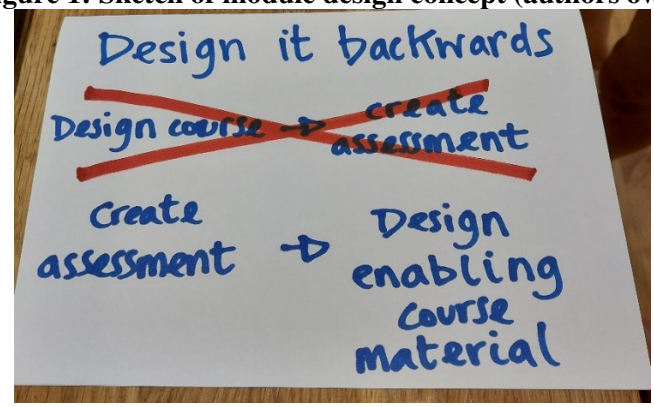
4. Visualization

We'll begin this section with a slightly longer extract for Carlgren et al. (2016) because we think it important to reflect that visualisation of design concepts and plans can be represented by a really broad array of tools:

> '… [visualisation can mean] making ideas tangible by means of low resolution representations or mock-ups of ideas or solutions … in two or three dimensions, or enacted through role-play and storytelling. Typical techniques include sketching, improvisation or making simple models by gluing or taping paper, foam, wood, etc. In software development, writing 'ugly code' was mentioned as a way of prototyping, as well as creating still images displayed on smartphones as a way of visualizing a new application. Further, storyboarding, acting, role-playing and video-skits were used across companies to prototype new ideas and insights' (Carlgren et al., 2016: 47).

Do what works for you, but do something to make your ideas tangible, appears to be a key takeaway from this. We did three key things related to visualisation on our project: we sketched out concepts on a pieces of paper; we made 12 week course plans; and we made individual lesson plans. We'll discuss each one in turn.

Figure 1: Sketch of module design concept (authors own)



What figure 1 (above) represents is a visual interpretation of a conceptual idea that was central to the design of our new modules. We felt we would have more chance of achieving our goal of improving the student experience in regard to how the teaching related to the assessment, if we designed it 'backwards', in contrast to our previous experience of module design. A key point here is that even a rough, messy visualisation like this can make an idea easier to communicate or understand. Our experience of designing courses prior to this project was that the lecturer develops the appropriate amount of weeks of teaching content (in our case twelve) and then, having put that in place, they create an assessment that tests the students learning of that content. Hence the idea of our design working backwards. First we developed an assessment, still using the module specification to ensure that all the required module learning outcomes were met in line with HE regulations. Then using the assessment as

a 'north star' and then we developed active learning based lessons that would, in our view, maximise the students' potential to simultaneously learn the necessary subject content and build academic literacies competencies that related to the assessment. A simple visualisation like the example in figure 1, of a few concepts of this nature, was vital in helping the co-creators understand each others' ideas and bring them to life.

From the conceptual sketches like figure 1, the next logical visualisation step in our process was to sketch out a 12-week module plan, so we could visualise how the necessary content and academic literacies development elements were being logically structured. From the visualised plan, we created a series of individual lesson plans. The lesson plan development process fits well with visualisation examples given by Carlgren et al. (2016) above, as they went through several stages of development, starting out as rough descriptions of activity types and ideas about associated subject content literature. The rough drafts were visual representations that helped us keep track of the development process and eventually they became (several drafts later) precise instructions for both students and seminar tutors that would carefully guide them through a series of two-hour long learning and teaching sessions. When we shared later versions with colleagues who were co-teaching on the level 4 module, they were able to input their suggestions and feedback on the lesson plans, which led to improvements. Clearly, visualisation and prototyping will mean different things to designers in different industries, but hopefully our simple examples convey the benefits that even basic visualisation tools can have in keeping the design process on track.

5. Experimentation

This design thinking element is described in Carlgren et al. (2016) as seeing design as in iterative process and being prepared to try things out, being comfortable with mistakes and being open-minded about a wide range of potential solutions. This element of the design process is very important. On the level 4 module, which ran from September to December 2022 and then again from January to May 2023, we have been able to learn from mistakes and improve the module in the second iteration. Even now, we are well aware it will evolve and improve each time we run this particular module. Additionally by running different modules in different ways, with a good degree of experimentation, we learnt about methods or activities that could be slightly adapted and transferred into different modules. Some things that worked really well in the level 3 module (for example a template that assisted students to collect and summarise secondary sources), will be imported into the level 4 module in the next iteration.

On our first iteration of the level 4 module, we often found we had often tried to fit too many activities into a 2-hour lesson. So altering this in the second iteration allowed the students to work at a more realistic pace and deepen their understanding. Another area we improved second time round was the order we delivered sessions in, shifting things around within the 12-week schedule to make the learning structure more logical, thus allowing students to build more fluently on the previous weeks' learning. Another learning outcome from experimentation was that some of the activities we designed

were clearly welcomed more enthusiastically than others by the students. Accordingly, we used feedback from students and seminar tutors, alongside our own observations from the classes we taught, and removed or changed some of the less successful activities. In education, where we are constantly trying to improve the student experience, every module is in some senses a prototype of the next one. We would view testing and reflecting as an vital part of the process of achieving the level experience we want the user (student) to have (Adams and Nash, 2016).

6. Diversity

For this final part of the design thinking framework, we would like to draw two important applicable inferences from the way that Carlgren et al. (2016) interpret diversity in the context of the design thinking approach. Firstly they talk about diversity of skills and perspectives. This is ultra-relevant to our project, even though the core team was just two people. From the outset we have claimed that our project was innovative, and we believe that the collaborative nature of our design has been central to that innovation. It is not common practice in HE for a subject lecturer to co-design an entire subject discipline based module with an academic tutor. By working together we brought in vital ingredients that the other person would not have had access to if working alone. The lecturer alone would not have had the years of knowledge and experience about research and practical activities from the learning development field that would help the students develop academic literacies that could then be integrated into the course. The academic tutor, alone, would not have had the knowledge or experience to: a) integrate activity ideas with the most appropriate types of subject related content; or b) make subtle adaptations to their academic literacies development approach to account for the academic conventions of the discipline. Through collaboration we were able to use each other's skills to create a course that, while not perfect, did achieve our objective of integrating subject content and assessment relevant academic literacies into the core teaching, on two HE modules. It would have been almost impossible to do this without the collaborative element. Having reached this stage, a key reflection point for us is to ask ourselves how we make our design process more diverse and bring in an even broader range of skills and perspectives going forward.

The second element of the design thinking diversity element that seems most directly applicable to us is the encouragement in Carlgren et al. (2016) to enhance the design thinking process by networking with other organisations. This is a task we have set ourselves to help boost the quality of the next stage of module design development. We have taken our first steps by reaching out to learning development practitioners in other universities, to discuss our project, to share our ideas with them and learn from their ideas on best practice as well. Raising the profile of our project to allow us to have a productive dialogue with other HE professionals is a very important part of our design development plan. As well as liaising with learning developers, we could learn much from HE educators doing completely different types of projects to us, but also applying design thinking principles to their work. Finally, we are seeking to extend our collaboration base within UEL, involving our users (students) more actively and trying to get other departments and schools to work with academic tutors in a similar way. It

would be interesting to see how similar methods, both in terms of design thinking and in terms of academic literacy and subject content integration, could be used in different disciplines.

7. Final thoughts

The most important part of this reflection has been to underline for us the value of user-centred design being at the heart of everything we do. We are passionate about giving students from very diverse and often non-traditional academic backgrounds an opportunity to succeed in the academic environment. One of the most dangerous and lazy mistakes that can be made is to assume that, because someone struggles with unfamiliar academic terminology or unfamiliar academic practices or conventions, that this somehow reflects negatively on their cognitive abilities, or their potential to succeed in an academic environment. In recognising this, however, we also recognise that we need to meet students where they are, and that might mean adapting our pedagogical approach and redesigning HE modules and courses to fit with a different and diverse set of needs. The students' needs must be at the heart of our design process. In our respective fields of work we have seen that some of these needs could be met by seeing the benefits of integrating course content with academic literacy development, with the latter being taught simultaneously inside the class room, for the duration of a course or module and not just as a generic add on or ad-hoc service. That was the problem framing element that spawned our project. For other educators in other disciplines or HE institutions, their identified user (student) needs could be quite different.

We would argue that a design thinking approach can be used during the design process in a wide variety of design situations and that it can be used again, as we have done in this article, as a reflective tool. In doing this reflection, we've identified gaps in our process to date, for example, the need for more diverse collaboration for future iterations and a more formalised structure for user centric information gathering, including focus groups and interviews. So it has added value again, by using it in this manner. We would suggest that designers of educational programmes and services might want to use design thinking as a tried and tested approach that is methodical, tackles the design process holistically and can be adapted for use in a wide range of environments. We hope, that by seeing how useful a design thinking framework has been for us, that this article might encourage others to consider using design thinking methods for their own design projects.

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