

Degree Design Thinking: integrated design frameworks for emerging online degrees in higher education

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This paper proposes a new conceptual framework for curriculum design that incorporates the principles of both educational and service design. Traditionally efforts in designing high quality online learning have relied on learning design and not on broader principles drawn from other fields of studies such as service design. This paper presents a case study of creating a quality online course on digital learning leadership to argue for the importance of an integrated approach to educational design. This new postgraduate degree in Digital Learning Leadership was aimed at the community of professionals working in the field of digital learning. The case study presents an integrated approach that combines design thinking and a Community of Inquiry framework as a way of cultivating a sense of belonging online for a network of digital learning professionals.

Keywords: digital learning, professional practice, learning design, service design, belonging

Introduction

The so called Fourth Industrial Revolution – not just the rise of artificial intelligence but a range of advances in genetics and computing which lead to a fusion of the physical, digital and biological worlds – will continue to produce large scale disruption and change in both the world of work and higher education (Seldon 2018; Auon 2017). This has led to the increasing importance of an employability agenda within higher education and a concern with both disruptive and sustaining innovations – particularly in the areas of online learning (Al-Imarah & Shields 2019). Design thinking and associated frameworks offers one approach to this complex environment (Carvalho & Goodyear, 2018; Goodyear, 2015). In education ‘instructional design’ or more broadly ‘teaching as a design science’ has a long history (Laurillard, 2012). But this work has often focused on either the meso view of constructive alignment (Biggs & Tang, 2007) or the micro view of learning activity design. There has been little scholarship exploring large-scale design of educational programs as a whole. As Carvalho and Goodyear (2018) note such studies which could draw on emerging areas of design studies such as the move from product design to social design or service design are an important gap in both the educational and design literature.

Design is a broad discipline that is increasingly being used ‘beyond design’ (Dorst 2019) to design solutions to ‘wicked problems’. In analyzing this new type of design thinking Dorst notes that design in these large-scale complex domains must adopt a continuously iterative framework and is likely to become a multi-year “design-driven program of activities, rather than a design project.” It is also increasingly multidisciplinary:

Social design requires designers to manage multiple stakeholders in the problem space as well as in the solution space, and it requires the combination and eventual integration of multiple fields of professional knowledge into what are often very complex product-service combinations (p. 119).

Through a specific case study this paper introduces an innovative, integrated approach to design work for educational programs that attempts to address some of these issues of complexity. It incorporates both existing learning design frameworks at the micro level and a new program level framework presented in this paper called ‘Degree Design Thinking’. The case study outlined here is part of a larger innovation project which saw Deakin University become the first university in the world to put a suite of degrees on a global MOOC platform. There were two objectives for this program: firstly, extend the international reach of Deakin programs and secondly create a step-change process which took the design and delivery of the university’s online offerings to a new level of professionalism. This paper therefore ultimately addresses the issue of new visions for digital learning through the exploration of a case study.

Frameworks for degree design

Our approach to program level design thinking evolved as part of our implementation of the Deakin Degrees @ FutureLearn initiative. The implementation of this ambitious program, from conception to enrolment, took eight months to launch seven degrees on a global MOOC platform. This was only possible through an agile design

thinking framework which saw quick iterations of program elements emerge as minimum viable products that then moved to enhanced experiences across the two-and-a-half year project. What became increasingly clear across the lifecycle of the project was the necessity to connect the planning, design and delivery of a range of activities within the program. It began with a very clear focus on learning design which enacted a tailored version of Laurillard’s learning activity types (Laurillard 2012) and an approach to the student experience which drew on broad notions of service design. Over the course of the project, through a series of reflective reviews, internal evaluation processes and external presentations (O’Donnell & Schulz 2018; Oliver 2018; Bearman Lambert & O’Donnell 2018), a four-part model for designing online degrees emerged. This “Degree Design Thinking” approach goes beyond traditional learning design approaches at the micro- and meso- level of learning outcomes, tasks and assessment, to address broader areas of student and staff experience at the macro level of program or degree design. Because the Degree Design Thinking framework maps a set of concerns and connections rather than a specified approach to design in each area it can easily be combined with other approaches to achieve identified outcomes. This case study describes such an integrated approach drawing on both this new model and the existing Community of Inquiry framework. (Garrison 2007)

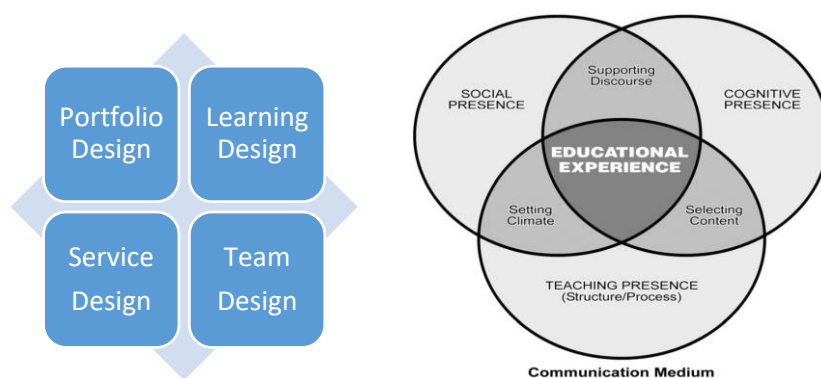


Figure 1 (left): Degree Design Framework (O’Donnell and Schultz 2018)

Figure 2 (right): Community of Inquiry framework (Garrison 2007)

Macro level design: Degree Design Thinking framework

The Degree Design Thinking framework, as described in Figure 1 above, identifies portfolio design, service design, learning design and team design as a set of interrelated processes. The framework seeks to address the challenge identified by Carvalho and Goodyear (2018) of bringing the macro, meso and micro elements of educational design together into a cohesive design process. It is a connecting framework, not a specified approach to design in each area, that enables an integrated approach to business and curriculum development, student experience and academic work practices. It can therefore be used and adapted as a planning and evaluation framework across a range of different programs.

Portfolio design focuses on designing a connected series of educational products that answer a defined educational need and work together as a set of cohesive pathways to delivering high quality digital educational experiences. This includes diversified credentialing models, the demands of local and global markets and business returns. **Learning design** operates ‘at the micro level of educational activity’ (Carvalho & Goodyear, 2018, p. 31) where creation of educational experience occurs, whereas **service design** ensures that the various kinds of services available to students are appropriately structured, and provided in a just-in-time manner, thus where possible eliminating barriers to the flow of student experience. As Carvalho & Goodyear (2018) note, this notion of education as a service has been ignored or challenged but is in fact critical to enhancing the holistic student experience - including seamless and simple administrative processes for enrolment and serviced problem solving or coaching during the course of study as well as coordinated academic literacies support. Finally, **team design** emphasises the need for multi-disciplinary and cross-functional teams purposefully put together. These team members include those who inhabit the ‘third space’ – namely, (hybrid) academics, learning designers, learning technologists, multimedia producers, graphic designers and project managers (Mitchell, Simpson, & Adachi, 2017).

Micro level design: Community of Inquiry framework

The Digital Learning Leadership suite of degrees, targeting experienced professionals, required a specific approach to cultivate a sense of belonging among professional networks and peer sharing of knowledge. Bang

and Vossoughi argues that ‘successful educational innovation is almost always participatory’ (2016 cited in (Carvalho & Goodyear, 2018, p. 28) and this is especially true where adult professionals are the target cohort. To address these specific needs in the micro design of student experience, the project needed to go beyond the Degree Design Thinking framework to be able to creatively design specific learning activities and assessments at a micro level. Given this context, the Community of Inquiry (CoI) model was used to guide the learning design process.

The CoI framework, as outlined in Figure 2 above, presents the three components that make up educational experience: i) social presence, ii) teaching presence and iii) cognitive presence. The following explains each element of the framework (Anderson, Liam, Garrison, & Archer, 2001):

- **Social presence** – ‘the ability of participants to identify with the community (eg. course of study), communicate purposefully in a trusting environment, and develop inter-personal relationships by way of projecting their individual personalities.’
- **Teaching presence** – ‘the design, facilitation, and direction of cognitive and social processes for the purpose of realizing personally meaningful and educationally worthwhile learning outcomes.’
- **Cognitive presence** – ‘the extent to which learners are able to construct and confirm meaning through sustained reflection and discourse.’

Although the CoI model was chosen to guide the learning design it intersects across the degree design framework allowing moves across the complex micro-meso-macro levels of design. For example, social presence element within the CoI has implications for service design and team design in that it goes beyond the micro level design of learning activities. In the detailed description and analysis of the case study below, we illustrate how the Degree Design Thinking framework and the CoI model were enacted and applied in the process of developing the new professional degree.

Case study – Digital Learning Leadership degrees and unit

The Digital Learning Leadership suite of degrees, composing nested Graduate Certificate and Masters qualifications, is a unique mix of traditional units of study and micro-credentials and has a number of distinctive elements which necessitated rethinking the connections between the various design elements and a constant movement back and forth between the macro, meso and micro elements of design. In the next section of this paper we show how the Deakin Degree Design Thinking model and the CoI framework inform a multi-level approach to degree design.

Portfolio design

This degree suite is part of a unique approach to credentialing within the Deakin portfolio of courses. The bulk of each degree is made up of micro-credentials. These micro-credentials recognise and validate, through a standards-based reflective portfolio approach, students’ already existing professional skills and knowledge in the areas relevant to their work. Each micro-credential provides half a credit point towards the degree. Given these courses are offered entirely online on FutureLearn, they attract both global and local markets and learners.

Table 1: Degree structure for the Graduate Certificate of Digital Learning Leadership

	Unit (1 credit point)	Micro-credentials (2 credit points)	Unit (1 credit point)
Units of work	Introductory unit (EEE726 – Digital Learning, Design and Assessment)	Digital learning professional expertise; Communication; Critical Thinking; Digital Literacy	Capstone unit – project based
Target cohort of learners	Part 1: Global learners in the MOOC (2-week content) Part 2: Deakin students in the closed courses (10-week content)	Global learners	Deakin students only

The table above outlines the course structure of the Graduate Certificate. The first introductory unit is broken into two parts – i) the MOOC and ii) closed, Deakin enrolled-student-only courses. The whole unit is delivered through a UK based MOOC platform, FutureLearn, and the first component of the unit is open for global exposure where we have potentially thousands of global learners, mostly adult learners interested in learning about digital learning. Therefore, learners can move through from a short two-week MOOC on digital learning, to an introductory, credit-bearing, unit of work, to micro-credentials pertaining to digital learning and finally to the postgraduate degree course on Digital Learning Leadership. The MOOC course works as a taster giving exposure of the unit and our

institutional expertise on a global stage while degree courses are designed to appropriately meet the Australian Qualification Framework.

Service design and team design

As part of the project, which fundamentally challenged the ways in which our courses were traditionally offered (eg. MOOC platform and different enrolment processes for both local and global markets), a cross-functional, multidisciplinary team of people from across the University and beyond had to be involved. This team included: a senior leadership group which included the steering committee to oversee the progress and decision-making process; the university's student services area, who look after the enrolments – eg. marketing through local and global avenues; and FutureLearn HQ, who provides the platform for this degree. The ongoing communication and collaboration with student service areas across Deakin and FutureLearn were critical in ensuring that diverse learners' (learning) needs were met and supported across the whole journey.

On the micro level design and production of unit development, a teaching and production team was also carefully constructed to successfully develop the unit under time pressure. The design and development team consisted of the Unit Chair who provided subject knowledge and expertise in the area, Senior Education Developers, Videographers, Animators, Proofreaders/copyeditors, Project manager/coordinator, Graphic designers, Copyright officers. This collaboration was critical and the composition of team members from both the central learning and teaching unit as well as faculty teams was also intentionally planned. This ensured not just a diverse set of voices but also a strategic dissemination of innovation across the institution.

Learning design with the CoI framework

As noted above, in order to create a sense of belonging among a network of digital learning professionals, we drew heavily on the CoI as a conceptual framework when planning the learning design of the first taught unit within this degree suite. Below we describe some of the specific design features we employed drawing on the three elements within the CoI. Combined with the Degree Design Thinking framework and Laurillard's conversational framework (2012), a focus on these CoI elements enabled the design team to constantly move across the micro-meso-macro levels of design work.

Social presence

To facilitate social learning among global professional learners and a team of teachers, we invested heavily in the art of digital story telling that evokes and invites learners to share their own stories. We carefully crafted interview videos with digital learning experts, exploring various key concepts and prompting learners' reflection. The Unit Chair was always featured as the interviewer/story-teller, which created the sense of ongoing 'conversation' between teachers, other experts and learners.

Teaching presence

In framing the teaching presence that works asynchronously across time and place, it was important to create an illusion of teacher presence in the unit. Various videos (eg. welcome and wrap-up videos in each week, interview videos with experts) were purposefully placed at particular places within the unit to enable students to 'touch base'. We also included 'behind the scene's stories' as text-based stories throughout the unit. This was a way of bringing teaching team's personas and professional anecdotes into the discussion, wherever relevant. For example, in talking about the nature of multi-disciplinary teams in and around digital learning initiatives, 'the behind the scene's story' included an anecdote of how the teacher co-founded a national special interest group called TELedvisors who bring digital learning professionals and their discussions together. This technique worked as a way of weaving in meaningful, personal and professional networks and inviting learners to become part of these wider professional communities and dialogue.

Cognitive presence

One way of learners confirming their understanding of key ideas and achievement of their learning is through assessment. To build on the context of professional practice degrees, we designed authentic assessment tasks (both formative and summative) that modeled real-world examples of work throughout the unit. Fortnightly, learners are prompted to take part in portfolio activities scaffolded to incrementally produce work towards their summative assessment tasks. Portfolio tasks were accompanied with guiding questions relevant to key topics and learners were encouraged to share their work-in-progress as part of their portfolio and provide each other with peer feedback iteratively across the unit. This practice itself – ie. sharing their work iteratively and openly with their community and engaging with feedback process – represented the authentic nature of design work conducted by digital learning professionals. Further, the fact that these portfolio tasks were given every two weeks in smaller

chunks meant that busy professional learners could work through formative tasks effectively and achieve high quality work for their summative assessment pieces.

Conclusion

In conclusion, this case study of designing and developing new online degrees highlights the importance of comprehensive and coherent design thinking frameworks that go beyond a simple focus on the micro-level learning design. The four elements of the Degree Design Thinking framework presented here – portfolio design, service design, learning design and team design – show a new approach which works across macro-, meso-, and micro levels of degree design work. Each of these elements still require detailed design work and the case study shows how other design frameworks such as the CoI model can be used for the detailed design of student experience. The broad principles of learning design need to be combined with humanistic elements of teaching and social interactions if we are to cultivate a sense of belonging and learning community among professional learners and teachers. The CoI framework in this regard offered a useful lens in designing for a learning community at the micro level. This paper therefore contributes to the latest thinking in the broader field of learning design which brings focus on both the program and project level. Due to the limited evaluation data available on the unit/degree at this stage, its first run completed only in early 2019, further study will focus on the evaluation and effectiveness of such design frameworks and the iterative development of the program over time.

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