Chapter 2
From Design Thinking to Design Doing: Experiences from an Academic Staff Development Programme for Blended Course Design

Daniela Gachago, Jolanda Morkel, Izak van Zyl, and Eunice Ivala

2.1 Introduction

Higher education in South Africa has recently seen widespread disruptions as a result of national protests against untenable university fees, Westernised curricula and student exclusions, which have been amplified by the COVID-19 pandemic. These student-led protests have highlighted the inequality that persists in the country's tertiary education system and pointed to the need for new approaches to address systemic problems in this sector. While not a panacea to structural inequality, 'design thinking' has long been touted as a contemporary, boundary-spanning and inclusive approach to 'wicked problems' in both academia and civil society (Buchanan, 1992; Goodyear, 2015). The uptake of design thinking in universities

D. Gachago (✉)
Centre for Innovation in Learning and Teaching, University of Cape Town, Cape Town, Western Cape, South Africa
e-mail: daniela.gachago@uct.ac.za

J. Morkel
Instructional Design, STADIO Higher Education, Durbanville, South Africa
e-mail: jolandam@stadio.ac.za

I. van Zyl
Centre for Communication Studies, Cape Peninsula University of Technology, Cape Town, South Africa
e-mail: vanzyliz@cput.ac.za

E. Ivala
Centre for Innovative Educational Technology, Cape Peninsula University of Technology, Cape Town, South Africa
e-mail: ivalae@cput.ac.za

N. B. Dohn et al. (eds.), *Conceptualizing and Innovating Education and Work with Networked Learning*, Research in Networked Learning,
https://doi.org/10.1007/978-3-030-85241-2_2

around the world is growing beyond the disciplines that were traditionally associated with the creative industries and design. Design thinking is being established as a learning paradigm that nurtures creative problem-solving and multi-perspective collaboration (Von Thienen et al., 2017).

Despite its purported benefits, design thinking is under-researched in the field of academic staff development (Gachago et al., 2017; Goodyear, 2015). The aim of this chapter is to report on and evaluate the first iteration of a staff development intervention that set out to foster a 'design thinking mindset' among university lecturers. Based on recommendations from a previous paper, the authors—a group of academic staff developers and lecturers—were part of the design, facilitation and evaluation of a short course titled *Designing for Blended Learning*. The course was structured around design thinking principles such as problem orientation, learner empathy and collaboration. In this chapter, drawing from participants' feedback, the authors reflect on the first iteration of the course offered in 2017. Since 2017, we have run the course three more times and have reflected and published on further iterations, redesigned based partly on the reflections which emerged from this study (see for example Gachago et al., 2019). However, this first iteration was our first attempt to consciously employ design thinking as a guiding principle. As such, it represents our most radical shift in how we deliver staff development and therefore we regard this work as valuable to explore the potential of design thinking to support blended course design.

2.2 Literature Review

2.2.1 Staff Development in South African Higher Education

Investment in information and communication technologies for teaching, learning and assessment in higher education in South Africa does not always translate into visible change of practice. This is because lecturers continue to replicate behaviourist and teacher-centred instructional methods (Ivala, 2016; Ng'ambi et al., 2016). Academic staff development relies on the unlearning of assumptions developed through years of subjection to ineffective pedagogy, as academics instinctively draw on how they were taught, as a primary mode of their teaching. Disrupting these practices is notoriously difficult. Bali and Caines (2018) argue that to convince academics to question their assumptions, reflect on their practices and embrace alternatives after critically evaluating their suitability in context is as essential as it is difficult. Moreover, training and support on the use of technology in education often focus on the effective use of the technology itself with insufficient emphasis on course design and training of lecturers to effectively integrate technology in their practices (Dysart & Weckerle, 2015; Ivala, 2016). Academic staff development is often presented in a 'one-size-fits-all' manner (Bali & Caines, 2018), via once-off seminars, which raise awareness around opportunities to use technology in learning and teaching and showcase innovative approaches at the institution. What is missing

in South Africa, however, with some exceptions such as the short courses offered by the regional Cape Higher Education Consortium (CHEC), are longer term sustainable (inter)institutional strategies. These strategies must allow for follow-up and collaboration between academics and academic staff developers in terms of both technical and pedagogical support, such as short courses (ideally co-designed with potential participants), or set-up of local peer-to-peer support networks (Ivala, 2016).

2.2.2 *Design Thinking and Design Doing in Education and Academic Staff Development*

Design thinking is rapidly expanding into fields that have not traditionally been associated with design, such as management, business and education innovation (Razzouk & Shute, 2012). Although there is some confusion about its definition (Beligatamulla et al., 2019), most authors agree that design thinking is human centred, fundamental to everyday human activity, and that it addresses complex or wicked problems (Rittel & Webber, 1973; Smulders et al., 2014).

Despite the establishment of design thinking schools (HPI d.schools) at the Universities of Potsdam, Stanford and—most recently—Cape Town, design thinking is not generally associated with the domain of innovation in learning and teaching in higher education. Neither is it generally employed for academic staff development. While the application of instructional design models such as ADDIE (Analysis, Design, Development, Implementation and Evaluation) is not new in this field, design thinking differentiates itself from these models in a number of ways. For example, it focuses on interdisciplinarity and the iterative, exploratory and sometimes chaotic nature of design (Razzouk & Shute, 2012). Human-centred design offers what most instructional design models lack, namely a focus on the person whom it is designed for (Brown, 2009; Walling, 2014). In traditional instructional design models, there is also a limited focus on creativity (Clinton & Hokanson, 2011).

Following on Nussbaum's (2011) criticism of design thinking, some authors like Martina Rossi (2017) and Juelsbo et al. (2017) have recently picked up on the need for design doing as a way to reframe design thinking for practices beyond the design professions (Rossi, 2017). However, literature on design doing as a 'broader conceptualisation of design thinking' (Juelsbo et al., 2017, p. 149) is limited, and mostly focused on the design professions. In her doctoral work, Stephanie Di Russo (2016) emphasises that 'design thinking is intimately linked to design practice' (Di Russo, 2016, p. 13). She claims that the process of design thinking keeps people 'thinking and doing' as it moves them through the iterative and generative phases of discovery, interpretation, idea generation, experimentation, evolution and refinement (p. 79).

Studies on the potential of design thinking in education (Koh et al., 2015) are focused on postgraduate studies in education (Rauth et al., 2010; Ulibarri et al.,

2014) and professional development for teacher education (Garreta-Domingo et al., 2017; Hodgkinson-Williams & Deacon, 2013) rather than on academic staff development (Gachago et al., 2017; Goodyear, 2015). The gradual shift from traditional instructional design models, such as ADDIE, to learning experience design approaches has been accelerated by the sudden pivot to remote and online learning as a result of the COVID-19 pandemic in 2020. This shift is critical in view of the growing demand for student-centredness, diversification of the student population and growing emphasis on ethics and accountability in the context of the call for equity, inclusion and decolonised curricula (Beligatamulla et al., 2019).

2.2.3 Blended and Networked Learning

Although we use the terminology 'blended learning' rather than 'networked learning' in our study, our definition of blended learning speaks to the more nuanced understanding of networked learning as for example expressed by Goodyear et al. (Networked Learning Editorial Collective, 2020) in their commentary 'Networked Learning: Inviting Redefinition'. We regard blended learning as more than a combination of campus-based and online learning, but rather *as a thoughtful combination of different pedagogical approaches, drawing on a range of teaching and learning theories, using a variety of tools and technologies, to create context-sensitive and flexible learning experiences with and for our learners* (Gachago et al., forthcoming). In our work we also focus on the development of communities of practice (see for example Gachago et al., under review). The elements of human-centred design, digital technologies and a collaborative, relational approach to academic staff development thus cut across our own definition of blended learning, networked learning and design thinking.

2.3 Context and Intervention

2.3.1 Blended Learning Short Course

The design-based research from which the data presented in this chapter is drawn was conducted at a University of Technology in South Africa. In 2016, the educational technology support unit servicing the six faculties at the institution embarked on the design of a short course on blended learning course design, in collaboration with design experts at the institution. Design thinking was the conceptual underpinning of the course design, drawing on a 2016 study on shared characteristics of eLearning champions at the institution (Gachago et al., 2017). Seven themes emerged from interviewing these 'champions', which were collaboration and generosity; learner empathy; problem orientation; exploration and play; reflection and resilience; focus on practice; and becoming change agents. We found that these

characteristics corresponded largely to a design thinking mindset (d.school, 2011; Schweitzer et al., 2016).

Research shows that design thinking is not necessarily a natural talent, but a skill that can be learnt (Lawson, 2005; Rauth et al., 2010) through unconscious adoption as much as through formal training (Porcini, 2009). Following design thinkers such as Rauth et al. (2010) who argue that design thinking education (i.e. the process of learning and teaching design thinking) can develop creative competence that 'assures the students of their own ability of acting and thinking creative' (p. 7), we set out to design a short course that would incorporate design thinking methods and processes and promote a design thinking mindset. The 10-week-long course was offered in a blended learning format, combining face-to-face workshops and online seminars. Presentations during the face-to-face workshops were kept to a minimum to allow for peer engagement and mentoring activities during those sessions. The online seminars were used for participant-led discussions on topics of blended learning, such as supporting diverse learners and ethics of blended learning (link to the course outline[1]). Following others (i.e. Ulibarri et al., 2014), this approach was employed to challenge lecturers to exchange their analytical, deliberate modes of being for an experimental, creative and playful approach to course design. The course design was iterative, 'designed on the go', and facilitators responded to participants' feedback through, for example, weekly reflections and other forms of interaction.

2.3.2 *Learning Experience Design Process*

The learning experience design process that we refined over the years, through an iterative process, draws from design thinking literature, such as IDEO's (2012) 'Design Thinking for Educators' guide, and also from Gilly Salmon's Carpe Diem model[2] and Diana Laurillard's Six Ways of Learning (2012). In this process, lecturers start with a persona development exercise, which serves as a constant reminder of the needs of the learners for and with whom they are designing. Next, lecturers identify a design challenge which is developed into a design brief, followed by a brainstorming (ideation) activity, using the World Café methodology, to come up with possible solutions to address learner needs (Soeder, 2016). This methodology creates a space for large group dialogues, where all voices can be heard and where ideas can be documented in multimodal formats. The facilitators further support a knowledge tree exercise—inspired by the First Nations Holistic Lifelong Learning Model (CCALKC, 2007)—which recognises both Western and indigenous knowledges and assigns different types of knowledges to the different elements of a tree. The knowledge tree exercise allows the surfacing of assumptions that our

[1] See http://bit.ly/DBLcourseoutline

[2] https://www.gillysalmon.com/carpe-diem.html

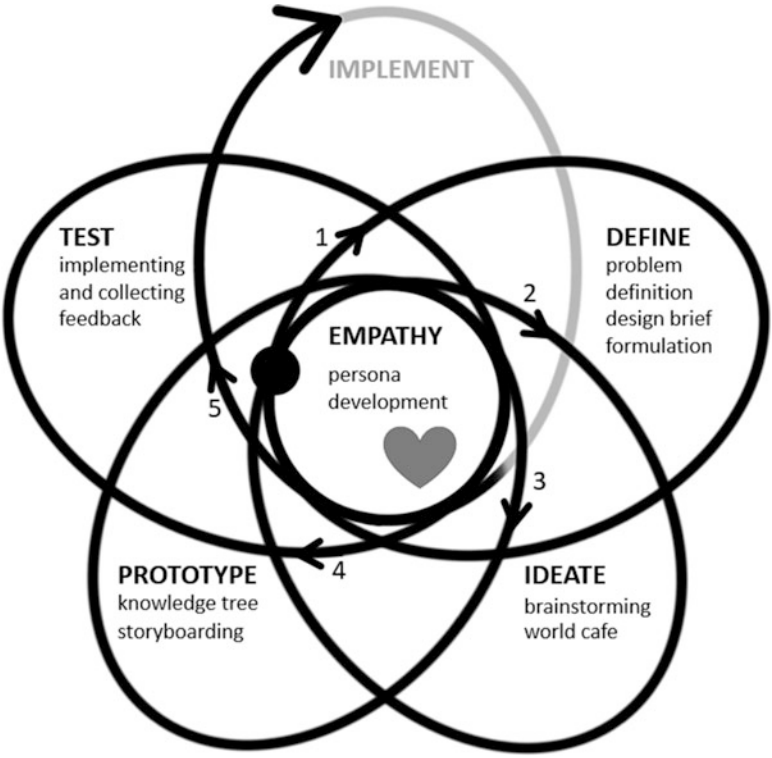

Fig. 2.1 Iterative learning experience design process and design activities

participants make about the different forms of knowledge, for example, what is valued and what is discounted as knowledge in academia. Finally, the learning design process concludes with a storyboarding exercise, where lecturers map learning outcomes, learning activities and course assessments for a course, subject or module, across a certain learning period. Combining the latter activity with Laurillard's six ways of learning, i.e. 'learning through acquisition, inquiry, practice, production, discussion and collaboration' (2012, p. 96), redirects the focus of course design from the tools to the pedagogical practice. Across these activities the facilitators encourage discussion, sharing, reflection, experimentation and mentoring by more experienced colleagues (for a more detailed discussion of our learning design process, see Gachago et al., forthcoming).

In summary, as illustrated in Fig. 2.1, the learning experience design process in this case follows an iterative pattern, which cannot be represented by a linear or even a circular diagram. The start of the learning design process is marked with a black dot and the line that runs clockwise in loops (sequence numbered 1–5), always returning to Empathy at the centre, before moving to the next design stage, represents an iterative and ongoing process. The continuous line ends in an arrow to show that the process is iterative and ongoing. Not only does the process start with Empathy, but

every stage of the process, namely Define, Ideate, Prototype, Test and Implement, is brought back to Empathy through checking the design decisions against the persona that represents the student's learning environment, goals, values and beliefs, knowledge, skills and experiences (Seitzinger, 2016). This approach foregrounds the active consideration for, and engagement with, the learner through placing Empathy at the centre of the learning experience design process.

2.3.3 Design-Based Research Approach as Research Design

In this chapter we report on a design-based research approach (see Barab & Squire, 2004). As facilitators of a design-based intervention, we focused on a single unit of analysis, namely a group of lecturers and support staff at a university of technology. This group was selected as an exemplar for design thinking dynamics in academic staff development. From an evaluation perspective, the case would help us to assess the 'quality, merit and effectiveness' (Saldana, 2011, p. 17) of the institution's staff development initiative. In total, eight participants completed 10 weeks of training—none of them from the Design disciplines at the university. Six of these participants were lecturers in the Faculties of Business and Economic Sciences and Health and Wellness: Nazleen[3] and Riaan worked in the Unit of Applied Law while Precious and Jody were employed in the Sports Management Department. Mark and Sonwabo lectured in Biomedical Sciences, while Noma worked for a central support unit as a language lecturer and Tasmeen was a librarian in the Nursing Department.

Data was drawn from weekly written reflections submitted by participants as part of the short course assessment requirements. Furthermore, a focus group conversation at the end of the course was organised, facilitated by a colleague from a partner institution, who was both an academic staff developer and interested in design thinking. Five participants took part in the focus group conversation at the end of the course, in which they discussed their experiences during the course. Questions focused for example on whether and how participants' understanding of course design and blended learning changed, and whether and how certain dimensions of the design thinking mindset were developed during the course. The three participants who did not attend the focus group conversation completed an online survey which mirrored the questions asked in the focus group session. Coding was done independently by three of the authors who went through the written reflections, the transcript of the focus group and the open-ended comments from the survey responses, to come up with emerging themes. An open, axial and inductive analysis process was followed, through which all transcripts were coded, categorised and interpreted (see Thornberg & Charmaz, 2014). Six major themes emerged from the analysis, namely interaction and collaboration (with the sub-themes of nurturing empathy and modelling tools and technologies), creativity, evaluation and feedback, experimentation,

[3] All names changed.

Table 2.1 Overview of data collection and reporting process

Method	Number of participants	Reporting in findings
Weekly reflections	8	By name of participant
Focus group conversation	5	As focus group
Online survey	3	As survey extract

time and transferring theory into practice. These themes are discussed in detail in the next section. Ethical clearance was obtained through institutional channels, consent was sought from the participants to participate in the study and names of participants were anonymised. Where possible, we refer to the pseudonyms when using quotes (i.e. when drawing from individual lecturers' reflections or individual survey responses); otherwise we refer to participants in general (i.e. when drawing from data collected in the focus group discussions) (Table 2.1).

2.4 Findings and Discussion

In what follows, we describe the themes that emerged from the data collected in this study, namely nurturing empathy, modelling tools and technologies, promoting creativity, ongoing evaluation and feedback, safe and supportive spaces to experiment, time commitment and transferring theory into practice.

2.4.1 Interaction and Collaboration

A strong emphasis of the course design was collaboration among colleagues from within and outside their disciplines. Working with and from different perspectives allowed participants to learn to cope with contexts that are messy, complex and ambiguous (Jobst et al., 2011). Participants were encouraged to sign up as departmental course design teams and they were grouped across disciplines for workshop activities. This was appreciated as Nazleen's comment shows: 'But then because [my colleague] was here, we could bounce ideas and correct each other's understanding of certain things; . . . doing it with someone who understands the context that you are working in was invaluable'.

The design team introduced the World Café methodology (Soeder, 2016), usually employed to facilitate large group dialogues, in this course. This methodology encourages everyone's contribution, connects diverse perspectives, promotes listening together for insights and facilitates sharing of collective discoveries, as Mark stated: 'I was pleased to learn that my fellow participants are all from *various disciplines*, it made the experience more varied. I especially liked the rotation between discussion groups [in the World Café]'.

2.4.2 Nurturing Empathy

One of the key components of user-centred design (Brown, 2009) is focusing on the end user, which emphasises the importance of co-designing interventions with the end user (in our case, the learner). To emphasise the notion of designing for a specific learner, to put the learner at the centre of the design process, the design team introduced the 'persona' activity at the beginning of the course. Personas (Seitzinger, 2016) are graphically represented user archetypes that help define the intended design activity (Van Zyl & De la Harpe, 2014). It is an informed and experienced description of a hypothetical (end) user (in our case, the learner), his or her context, challenges and goals. Respondents commented on their increased awareness of their students' diversity in circumstances, personalities and needs as suggested by Precious: 'I have started to pick up *distinct differences* in my students that I have previously been unaware of'.

2.4.3 Modelling Tools and Technologies

The course designers invited a variety of mentors or champions to the course and encouraged them to share their own practices in informal conversations, rather than formal presentations, with participants. Using their pedagogical innovations as case studies, to be considered and analysed as examples or 'precedent' (Hitge, 2016; Lawson, 2005) by course participants, was an important strategy to encourage more creative uptake of technology. Jobst and Meinel (2012) call this strategy of constantly observing others as models in action 'vicarious experiences'. The success of this approach depends on mentors' ability to externalise their tacit knowledge, i.e. design thinking (Koh et al., 2015), and the mindset that enables it, as the following comment shows: 'Loved [the experts]. Inspirational and encouraging. More confident to try new things [survey extract]'.

Design activities and assignments for the course focused on participants' teaching practices and these were chosen to be as authentic as possible. While facilitators modelled certain tools in the course (such as the online conferencing tool, Blackboard Collaborate, as mentioned in comment 1 below), participants were encouraged to go beyond the course tools and to experiment with a range of tools and technologies that they saw fit for their respective contexts (see comment 2). In respondents' comments facilitators found a growing understanding of the affordances of the tools and technologies and an increase in sensitivity towards their students' established practices:

> .... using *Blackboard Collaborate* gave me ideas on how to use it in my own class (focus group)

> I think *Zoom* is convenient easy to use tool as it saves time, using 1 tool for various functions allowing the user/student to select which format (mp4/mp3) he/she wants to utilise (Tasmeen)

> I would like to try [*Twitter*] with my class, however something to think about is most of our students in South Africa are more likely to have Facebook accounts than Twitter, and if they do they are likely not very active users. Another popular social media platform these days is Instagram, though I'm not sure how effective it would be as an education tool; probably not very helpful as it is mainly to post pictures and short videos and such. In sport maybe we could use it to post pictures of events we attend and signage at the venue and such (Precious)

2.4.4 Promoting Creativity

Research shows that creativity is best taught through domain-specific training and by developing skills associated with creativity, such as problem identification, conceptual combination, idea generation and idea evaluation (Clinton & Hokanson, 2011). Design agencies such as IDEO (2012) developed design activities for educators to model design processes. Such activities include stakeholder interviews, persona development, problem definition and use of metaphors. Participants remarked positively on the range of design activities, but mentioned the persona activity, the focus on problem definition and the learning metaphor as particularly useful:

> I have [. . .] begun to empathise more with students as [the persona activity] has opened me up to the idea that I have neglected the fact that there are *different personalities* in the classroom and they all behave differently, learn differently and face difference struggles and . . . require different interventions to reach their full potential (Precious' weekly reflection)

> Design thinking focuses on the process rather than finding a quick solution, which allows for flexibility to teaching interventions and testing of different ideas towards *solving complex problems* (Jody's weekly reflection)

> . . . the other highlight for me was the *learning metaphor* and having that graphical visualisation of what your subject is about was actually quite an eye opener (Mark's weekly reflection)

Having participated in the course, respondents noted that they started thinking differently about learning and course design. They noted that the course helped stimulate both their individual and collective creativity, focusing on the iterative process of course design rather than on the outcomes.

> So for us it was—it actually *changed the way we were thinking* of designing our subjects and especially because we have students who will be going back to their communities, we will be doing block release with students and those sort of things. So, it's given us a lot of tools that we can use and it made us think about the whole process of designing our courses very differently (focus group).

> I think because design thinking pushes the boundaries of our "conventions", it will challenge me to think outside the box and bring *real creativity* to my delivery of my course. I think design thinking is very different from our "traditional" ways of curriculum design because it is not linear (Precious' weekly reflection).

Hodgkinson-Williams and Deacon note: 'a key component of the design thinking process is fostering the ability to not only solve problems, but to define problems' (2013, p. 84). Koh et al. (2015) warn that more experienced academics might jump

too quickly to established solutions and design surface-level change, finding it difficult to shift their established practices. Interventions such as the World Café and the design brief development gave participants time to ponder a variety of problems from different viewpoints. Through full consideration of the design problem rather than rushing to solutions, it was possible to remain in the problem space for longer (Lawson, 2005), as the following comment shows:

> *For me it never occurred that a problem could be understood.* I just saw a situation; there is a problem and then what's the solution? That was my standpoint before I started this course but now I can understand that there is more to a problem than just what I see there, is the other person's point of view as well, where they are standing and how they see that problem. And what might be a problem to them might not appear to be a problem to me so for me, that understanding of what a problem is and looking at it from all angles or all possible angles was a revelation and I enjoyed coming to it (focus group).

2.4.5 Ongoing Evaluation and Feedback

Design thinking involves iterative cycles of creation and reflection (Rauth et al., 2010). As part of the assessment strategy in this course, participants were required to conceptualise actual course design interventions. A strong emphasis was placed on continuous reflective practice (Hitge, 2016). Participants wrote weekly reflections on their design journeys, and they were encouraged to obtain regular feedback from peers and students, as well as to take part in facilitated online and face-to-face reflective design conversations (Lawson, 2005) aimed at fostering creativity and innovation. In their feedback, participants noted the value of regular feedback and evaluation loops in their current course design development.

> The present feedback mechanism ... cannot ensure timeous intervention or a change in direction for those that raised issues. So [students] input in the design is limited and for them most probably meaningless. It seems then that feedback must occur as delivery takes place. So the design process must include *feedback and redesign* (Riaan's weekly reflection).

2.4.6 Safe and Supportive Spaces to Experiment

Ulibarri et al. (2014) highlight the importance of creating an emotional, supportive and non-judgemental atmosphere to foster creativity. One example of how facilitators introduced playfulness was the introduction of learning metaphors. Learning metaphors prompt and guide the development of a learning activity or a course by imagining or framing all elements of the activity within a certain learning experience, such as 'sitting around a campfire' or 'the amazing race' (Morkel, 2015). We also tried to design activities that participants would experience as 'different' (as shown above) and challenging, such as facilitating online webinars (which was still a relatively unknown practice in 2017). Participants noted that the course was

challenging at times, and they made reference to their lack of digital literacy skills, but also working in disciplines not known for their creativity, as Riaan noted: 'As academic disciplines, Law is not known for encouraging risk-taking'.

As enabling factors, participants mentioned the support received from their peers and course facilitators, as this comment from the survey shows: 'It's [the] continued support from facilitators and I feel I have an academic community I belong to ... they are passionate about their work and exercise a whole lot patience ... why not clone them perhaps?' Moreover, the course enabled the participants to experiment with various tools without the fear of failure within a community of practice, supporting each other. In this regard, the course was a safe space within which to explore options and alternative interventions, as discussed in the focus group: 'And you *don't feel isolated*. I mean we could, when we went to report back in meetings, we could back each other up so it doesn't seem as if you're this mad hatter trying to convince everybody of something that you read off the internet somewhere' (focus group).

2.4.7 Time Commitment

As expected, the course presented some challenges. For participants who were mostly academics and already under considerable pressure from high teaching loads, administration and research expectations, signing up for a 10-week course required a significant time commitment, as the following comment from the focus group conversation shows: 'It could have been a little bit more *condensed* if it makes sense, to five weeks instead of ten'. Participants also commented that the course material was too much: 'I didn't get the chance to do the readings that we got beforehand because *there wasn't time* to do it (focus group)'.

The preparatory readings required for the online sessions were discussed in depth during the focus group conversation. While some reported to enjoy them, others argued for 'less academic' reading that should have taken them outside the 'usual' academic space or practice: '*Ja, I think for me it's more of an escape.* I feel like we read a lot, every day it's always about reading. At work you read, most of the time you have to read. So, I thought it would just—just get an escape from your everyday' (focus group).

2.4.8 Transferring Theory into Practice

Most disappointing for the facilitators, however, for a course on blended learning course design, which should involve iterative prototyping, was that participants expressed concern that the course did not allow enough transfer into their own practices, as exemplified by the following exchange during the focus group conversation:

Participant:	We would have liked, with the exercises that we did, designing the personas and all of that [. . .that] we can go back to class, maybe see how we can use that in class. I don't know if that makes sense.
Interviewer:	So you mean more applied or . . .?
Participant:	Yes, yes.

This is an important observation as the course specifically set out to support academics in the practical integration of tools and technologies in their practice. However, this finding underscores our understanding of the importance of 'design doing' as a 'broader conceptualisation of design thinking' as suggested by Julesbo et al. (2017, p. 149).

2.5 Conclusion

In this chapter, the facilitators set out to report on the first iteration of an academic staff development intervention for blended or networked learning design, aimed at promoting design thinking principles, processes and mindsets (Rauth et al., 2010). As Taheri et al. (2016) suggest, when developing design thinking capacities, facilitators must consider three specific outcomes: skill-based, cognitive (i.e. design mindsets) and affective outcomes (i.e. creative competence). The data showed that the course was received positively and there was evidence of a shift in how participants understood and engaged in blended course design. Participants also displayed a growing cognitive awareness of the complexities of designing learning for a diverse student population. The course encouraged playfulness and experimentation through the design activities, the informal atmosphere and the mentors who were more experienced eLearning champions. Through the mentors' sharing of their practices and experience, the participants' creative confidence was developed, as an affective outcome of the course. Since this was the first iteration of the blended learning course design, facilitators were 'designing on the go', which also added to the atmosphere of experimentation and openness, and it modelled risk-taking. Similar to other studies (Ulibarri et al., 2014), participants appreciated the course as a safe space to think, to talk about design and to 'play at design'. 'Designerly ways of knowing' (Cross, 2007) were modelled and these are evident in the participants' responses.

An important concern was raised about the direct application and more rapid prototyping of design activities in participants' practice or skill-based outcomes. Taheri et al. (2016, n.p.) warn that 'while design thinking training creates a safe environment for failing and experimenting for trainees so that they develop beliefs in their own creative ability, the development of skills which foster their creative agency is important'. They argue that this is particularly paramount in professional contexts, where individuals need to apply their learning within their own working contexts. Furthermore, they add that an exaggerated focus on cognitive and affective aspects of design thinking might result in unrealistic expectations of what can

happen beyond the training space. However, as Irwin (2015, p. 93) notes, when introducing design thinking into new contexts, especially at the beginning, the main value of design thinking processes may not be 'the ideas and solutions we developed but rather the cultural transformation that resulted .... [over time we] developed a (mostly) collaborative, consensual group process that became the basis for profound change'.

This tension between promoting skill-based, cognitive and affective dimensions in design thinking is mirrored in Nussbaum's (2011) notion of 'design doing' as a way to practice 'design thinking'. Promoting the active engagement of academic staff in learning experience design activities associated with each of the learning design stages (refer to Fig. 2.1), in particular when it comes to prototyping and testing, through the adoption of rapid feedback cycles, would enable and encourage academic staff to value empathy. Furthermore, it would also encourage academic staff to purposefully place the learner at the centre of their blended and networked learning interventions, while strengthening the continuous and iterative dialogue of theory to practice, and thus moving them from design thinking to design doing. In subsequent iterations we therefore included a stronger focus on immediate application to allow better transfer into practice (see design principles in Gachago et al., 2019).

Another important point raised in the feedback was the need to (co-)design with and for *all* participants. Participants' responses reminded the facilitators to be sensitive to designing for a diverse group of people—those more and those less digitally literate, those more and those less risk averse, those in teaching positions and in other roles, those drawn to academic readings and those looking for more accessible information.

The participants' reflections on this course emphasise the difficulty to strike a balance between process and product, playfulness and structure, challenging tasks and a feeling of safety and trust, and lightness and depth. It encouraged the facilitators to create a 'safe' space to experiment, to take risks and fail and in doing so to challenge attitudes of perfectionism prevalent in academia. Facilitators also recognised the importance of combining established elements of academic staff development, such as academic readings, to establish trust, with activities that push participants' thinking about teaching and learning. They noticed the importance of modelling a designing-on-the-go approach, through the design team and mentors, focusing on the iterative processes of (re)design while working on larger projects (course designs) and providing scaffolding to help participants develop and gain creative confidence. Most importantly, it showed how follow-up and continued work including constructive feedback on lecturers' practice were crucial to strengthen cognitive, affective and skill-based outcomes of such academic staff development.

Design is a *slow* process (Goodyear, 2015; Irwin, 2015; Ulibarri et al., 2014)—not a quick fix. How to sustainably transfer design thinking into one's own and into a departmental practice is an important challenge to consider as a long-term project. Nurturing creative confidence requires a community of practice to draw from, on an ongoing basis. In this chapter we suggest that a brief once-off academic staff development intervention is insufficient. Instead, academics should be encouraged

and supported to continually share their experiences (failures and successes), and present their approaches to blended course design, and opportunities should be created for them to comfortably and confidently ask questions and demonstrate possible solutions, at various departmental, faculty or institutional meetings or other academic forums.

This is work in progress and further research should explore the longitudinal impact of this staff development programme for networked and blended course design. Such research might focus on the possible strategies for actively adopting and demonstrating empathy and learner-centred practices through which design doing can be demonstrated as an expanded conceptualisation of design thinking.

References

Bali, M., & Caines, A. (2018). A call for promoting ownership, equity, and agency in faculty development via connected learning. *International Journal of Educational Technology in Higher Education, 15*(1), 46. https://doi.org/10.1186/s41239-018-0128-8

Barab, S., & Squire, K. (2004). Design-based research: Putting a stake in the ground. *Journal of the Learning Sciences, 13*(1), 1–14.

Beligatamulla, G., Rieger, J., Franz, J., & Strickfaden, M. (2019). Making pedagogic sense of design thinking in the higher education context. *Open Education Studies, 1*(1), 91–105.

Brown, T. (2009). *Change by design (Google eBook)*. Retrieved from http://books.google.com/books?id=x7PjWyVUoVAC&pgis=1

Buchanan, R. (1992). Wicked problems in design thinking. *Design Issues, 8*(2), 5–21.

Canadian Council on Aboriginal Learning Knowledge Center (CCALKC). (2007). *First nations holistic lifelong learning model*. Retrieved December 12, 2019, from https://bit.ly/2WrFjzW

Clinton, G., & Hokanson, B. (2011). Creativity in the training and practice of instructional designers: The Design/Creativity Loops model. *Educational Technology Research and Development, 60*(1), 111–130.

Cross, N. (2007). *Designerly ways of knowing*. Birkhäuser.

d.school. (2011). *Design mindset and process (PowerPoint)*. Retrieved from https://dschool.stanford.edu/resources/getting-started-with-design-thinking

Di Russo, S. (2016). *Understanding the behaviour of design thinking in complex environments*. Unpublished PhD thesis, Swinburne University, Melbourne.

Dysart, S., & Weckerle, C. (2015). Professional development in higher education: A model for meaningful technology integration. *Journal for Information Technology Education: Innovative Practices, 14*, 255–265.

Gachago, D., Cruz, L., Belford, C., Livingston, C., Morkel, J., Patnaik, S., & Swartz, B. (under review). From third places to third spaces: Moving beyond mobile communities of practice in the age of COVID-19. *International Journal for Academic Development Special Issue* on "Conversations on learning and teaching: Changing conceptions and practice" (publication 2021).

Gachago, D., Cruz, L., Morkel, J., & Parker, M. (2019). Development of cross-continental design principles for blended learning course design. In *8th International DEFSA Conference, 9–-11 September 2019, Cape Town, South Africa* (pp. 105–115). Retrieved from https://bit.ly/2Zv1tnc

Gachago, D., Morkel, J., Hitge, L., Van Zyl, I., & Ivala, E. (2017). Developing eLearning champions: A design thinking approach. *International Journal of Educational Technology in Higher Education, 14*(1), 30.

Gachago, D., Van Zyl, I., & Waghid, F. (forthcoming). More than delivery: Designing blended learning spaces with and for academic staff. In L. Sosibo & E. Ivala (Eds.), Creating effective teaching and learning spaces: Shaping futures and envisioning unity in diversity and transformations. Vernon Press.

Garreta-Domingo, M., Sloep, P. B., Hernández-Leo, D., & Mor, Y. (2017). Learning design for teacher professional development. *International Journal of Educational Technology in Higher Education, 14*(1), 36.

Goodyear, P. (2015). Teaching as design. *HERDSA Review of Higher Education, 2*(2), 27–50. Retrieved from http://www.herdsa.org.au/wp-content/uploads/HERDSARHE2015v02p27.pdf

Hitge, L. (2016). *Cognitive apprenticeship in architecture education: Using a scaffolding tool to support conceptual design*. Unpublished master thesis, University of Cape Town, Cape Town.

Hodgkinson-Williams, C., & Deacon, A. (2013). Pedagogic strategies to support learning design thinking in a masters course. *Educational Research for Social Change, 2*(1), 82–97.

IDEO. (2012). *Design thinking for educators.* https://doi.org/10.1007/978-3-642-13757-0. Retrieved from http://www.designthinkingforeducators.com/

Irwin, T. (2015). Redesigning a design program: How Carnegie Mellon University is developing a design curricula for the 21st century. *Solutions, 2015*, 91–100.

Ivala, E. (2016). Educational technology training: Staff development approaches. *International Journal of Educational Sciences, 14*(3), 195–204.

Jobst, B., Endrejat, P., & Meinel, C. (2011). Does design thinking mediate critical innovation skills? An interview approach to synthesize five competencies taught at the D. School. In *International Conference on Engineering and Product Design Education* (pp. 199–204). City University.

Jobst, B., & Meinel, C. (2012). How can creative self-efficacy be fostered in design education? In *International Conference on Engineering and Product Design Education* (pp. 5220–5226). Artesis University College.

Juelsbo, T., Tanggaard, L., & Glaveanu, V. P. (2017). From design thinking to design doing. In F. Darbellay, Z. Moody, & L. Todd (Eds.), *Creative design thinking: Interdisciplinary perspectives* (Creativity in the twenty first century) (Vol. 1, 1st ed., pp. 149–167). Springer.

Koh, J. H. L., Chai, C. S., Wong, B., & Hong, H. Y. (2015). *Design thinking for education: Conceptions and applications in teaching and learning*. Springer.

Laurillard, D. (2012). *Teaching as a design science: Building pedagogical patterns for learning and technology*. Routledge.

Lawson, B. (2005). *How designers think: The design process demystified* (4th ed.). Architectural Press.

Morkel, J. (2015). *Ideate crea8 iterate: A learning design workshop.* ELearning Update, Caesar's Palace, Johannesburg. Retrieved from https://www.slideshare.net/jolandamorkel/learning-design-workshop-at-elearnigupdate-2015

Networked Learning Editorial Collective (NLEC). (2020). Networked learning: Inviting redefinition. *Postdigital Science and Education*. https://doi.org/10.1007/s42438-020-00167-8

Ng'ambi, D., Brown, C., Bozalek, V., Gachago, D., & Wood, D. (2016). Technology enhanced teaching and learning in South African higher education—A review of a 20 year journey. *British Journal of Educational Technology, 47*(5), 843–858. https://doi.org/10.1111/bjet.12485

Nussbaum, B. (2011). *Design thinking is a failed experiment. So what's next?* Fast Company. Retrieved from http://www.fastcodesign.com/1663558/design-thinking-is-a-failed-experiment-sowhats-next

Porcini, M. (2009). Your new design process is not enough! Hire design thinkers! *Design Management Institute Review, 20*(3), 6–18.

Rauth, I., Köppen, E., Jobst, B., & Meinel, C. (2010). Design thinking: An educational model towards creative confidence. In *1st International Conference on Design Creativity (ICDC 2010), (December)* (pp. 1–8).

Razzouk, R., & Shute, V. (2012). What is design thinking and why is it important? *Review of Educational Research, 82*(3), 330–348. https://doi.org/10.3102/0034654312457429

Rittel, H. W., & Webber, M. M. (1973). Dilemmas in a general theory of planning. *Policy Sciences, 4*(2), 155–169.

Rossi, M. (2017). "Design doing": What if we put more design into design thinking? In *4D designing development developing design* (pp. 315–325).

Saldana, J. (2011). *Fundamentals of qualitative research*. Oxford University Press.

Schweitzer, J., Groeger, L., & Sobel, L. (2016). The design thinking mindset: An assessment of what we know and what we see in practice. *Journal of Design, Business & Society, 2*(3), 1–23.

Seitzinger, J. (2016). *10 Learner experience powers from experience girl!* Retrieved from https://www.slideshare.net/catspyjamas/10-learner-experience-powers-from-experience-girlimoot16-agents-of-change

Smulders, F. E. H. M., Dorst, K., & Vermaas, P. E. (2014). Applying design thinking elsewhere: Organizational context matters. In *Proceedings of the 19th DMI: Academic Design Management Conference* (pp. 2797–2817). Design Management Institute.

Soeder, U. (2016). *The World Cafe design principles*. Retrieved from http://www.theworldcafe.com/keyconcepts-resources/design-principles

Taheri, M., Unterholzer, T., Strasse, H., Hölzle, K., & Meinel, C. (2016). An educational perspective on design thinking learning outcomes. In *The ISPIM Innovation Forum*. ISPIM.

Thornberg, R., & Charmaz, K. (2014). Grounded theory and theoretical coding. In U. Flick (Ed.), *The SAGE handbook of qualitative data analysis* (pp. 153–169). Sage.

Ulibarri, N., Cravens, A. E., Cornelius, M., Royalty, A., & Nabergoj, A. S. (2014). Research as design: Developing creative confidence in doctoral students through design thinking. *International Journal of Doctoral Studies, 9*, 249–270.

Van Zyl, I., & De la Harpe, R. (2014). Mobile application design for health intermediaries. In *Proceedings of the International Joint Conference on Biomedical Engineering Systems and Technologies* (Vol. 5, pp. 323–328). SCITEPRESS-Science and Technology Publications.

Von Thienen, J., Royalty, A., & Meinel, C. (2017). Design thinking in higher education: How students become dedicated creative problem solvers. In *Handbook of research on creative problem-solving skill development in higher education* (pp. 306–328). IGI Global.

Walling, D. R. (2014). *Designing learning for tablet classrooms: Innovations in instruction*. Springer International.