

Title

Engaging with industry through Design Thinking: Reflections of a WIL educator

Author

Dr. Jo Li Marie-Joelle Tay

Curtin University

Contact

joli.tay@curtin.edu.au

T: 08 9266 5731

Dr. Jo Li Marie-Joelle Tay
Curtin University

Title

Engaging with industry through Design Thinking: Reflections of a WIL educator

Abstract

Design thinking has recently gained popularity outside of the design industry, especially in the business sector. Companies are recognising the value that design and design thinking brings, especially in terms of solving problems. The growing interest in design thinking has provided design students with opportunities to engage with industries outside the creative industries sector, such as consulting.

At the same time, work-integrated learning (WIL) is a pedagogical strategy that is well-suited to design disciplines, since designers typically have to work with client organisations or individuals to develop solutions. Working with clients requires many of the soft skills (e.g. teamwork, organisation, etc.) sought after by employers – skills that are also crucial for a successful career in design.

In this paper, the author describes how design thinking and WIL were used together for a unit that is part of the Graphic Design major at Curtin University. The author also reflects on the role of design thinking and WIL in creating and supporting industry engagement, as well as their combined impact on design education and student engagement.

Biography

Jo Li is an associate lecturer in Graphic Design at Curtin University. Her teaching is primarily centred around design thinking, research methods in design, and design theory. She has research interests in Aesthetics, Interactivity, Experience Design, Learning, and Design Thinking. Her PhD is titled "A Model for Mapping Interactivity in Learning Experiences".

Dr. Jo Li Marie-Joelle Tay
Curtin University

Engaging with industry through Design Thinking: Reflections of a WIL education

Keywords: Design Thinking; Design Education; Work-integrated Learning; Industry Engagement; Problem-solving

Introduction

Design thinking has recently gained popularity outside of the design industry, especially in the business sector. Companies are recognising the value that design and design thinking brings, especially in terms of solving problems. The growing interest in design thinking has provided design students with opportunities to engage with industries outside the creative industries sector, such as consulting.

At the same time, work-integrated learning (WIL) is a pedagogical strategy that is well-suited to design disciplines, since designers typically have to work with client organisations or individuals to develop solutions. Working with clients requires many of the soft skills (e.g. teamwork, organisation, etc.) sought after by employers – skills that are also crucial for a successful career in design.

In this paper, the author describes how design thinking and WIL were used together for a unit that is part of the Graphic Design major at Curtin University. The author also reflects on the role of design thinking and WIL in creating and supporting industry engagement, as well as their combined impact on design education and student engagement.

Background

The unit being discussed here is a core unit of the Creative Advertising and Graphic Design major in the Bachelor of Arts at Curtin University, referred to henceforth as “the DT unit”. Students in this major are expected to take it in their second year of study. It

has been running in more or less the same format since 2016 Semester 2¹. The industry partnership with a Perth-based consulting firm commenced in 2017 Semester 1. The key milestones in the DT unit are shown in the timeline below (Figure 1).

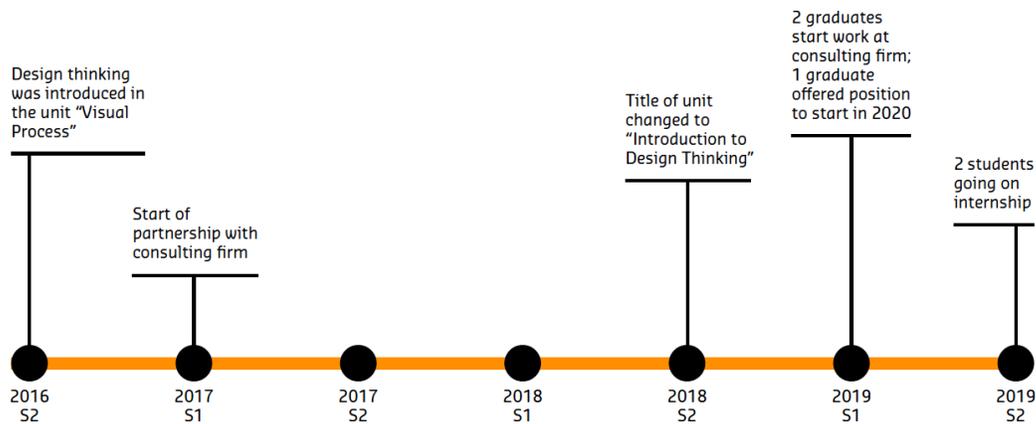


Figure 1: Key milestones in the DT unit

The DT unit's primary focus is on the application of design thinking and use of research methods. Students are first introduced to design thinking and a range of research methods, working individually to apply these to develop solutions to a problem in Assessment 1. They then work in teams on a second problem (with the industry partner acting as the client), applying the process and methods learned from doing Assessment 1, in order to produce a project document for Assessment 2 and a pitch presentation for Assessment 3. This reflects the reality of typical design projects, where designers work in teams to deliver an outcome or solution to the client. Three to five teams are shortlisted following the Assessment 3 presentations to pitch their solutions to the client (industry partner), who awards the group with the best solution. One or two individual students are then shortlisted from the groups who presented; these students are fast-tracked through the industry partner's graduate recruitment process.

To build on the theoretical content covered in this unit and give students a better understanding of the real world applications of design thinking and the contexts that requires its use, a work-integrated learning (WIL) approach is used throughout the unit.

¹ Prior to 2018 Semester 2, the unit was titled "Visual Process". Design thinking was only introduced in the unit "Visual Process" from 2016 Semester 2 onwards.

This is so students can learn about design thinking through hands-on, practice-based learning experiences. The learning experiences incorporated into the DT unit over the course of the five semesters include:

- The use of different design research methods to conduct human-centred research (e.g. interviews).
- The use of project management tools (i.e. Basecamp).
- Working alone and in teams to solve design problems using a design thinking approach. One of the design problems involved the industry partner, who acted as the client.
- Collaborating with team members to produce a single design document.
- The presentation of a final solution as a team in the form of a pitch. Each semester, three to five teams are also selected to present to the client.

Key highlights

A number of key highlights have occurred in the DT unit since the design thinking and work-integrated learning were combined in this unit. These include consistently positive student survey responses, a long-term ongoing industry partnership (five semesters so far; 2020 Semester 1 will be the sixth), as well as students being offered graduate positions (three students) and paid internships (two students). The unit coordinator (also the author) received a Learning and Teaching Award in the WIL Educator category in 2018 for the work in the DT unit.

Definitions

What is design thinking?

Razzouk and Shute's (2012, p. 330) simple definition neatly summarises the view of design thinking that is adopted in the DT unit: 'Design thinking is generally defined as an analytic and creative process that engages a person in opportunities to experiment, create and prototype models, gather feedback, and redesign'. The DT unit also presents to students the view that design thinking is 'closely related to innovation' and 'conceptualised as a specific way that non-designers evaluate and use design methods'

(Wrigley and Straker 2017, p. 375). In other words, design thinking is used by both design and non-design disciplines to generate innovative solutions to wicked problems².

The design thinking model presented in the DT unit combines two existing popular approaches (Figure 2) – the British Design Council’s Double Diamond model (Technopolis Group 2015, p. 15) and the design thinking process used by Stanford University’s d.school (Welcome to the Virtual 2017). Students are told that this model is not prescriptive – despite the similarities in the stages used by designers and non-designers who use a design thinking process, there are also key differences in the how and when these stages occur between disciplines and even between different designers within the same discipline. Additionally, students are asked to consider all of the following three constraints when using design thinking to generate solutions: feasibility, viability, and desirability³ (Brown 2009).

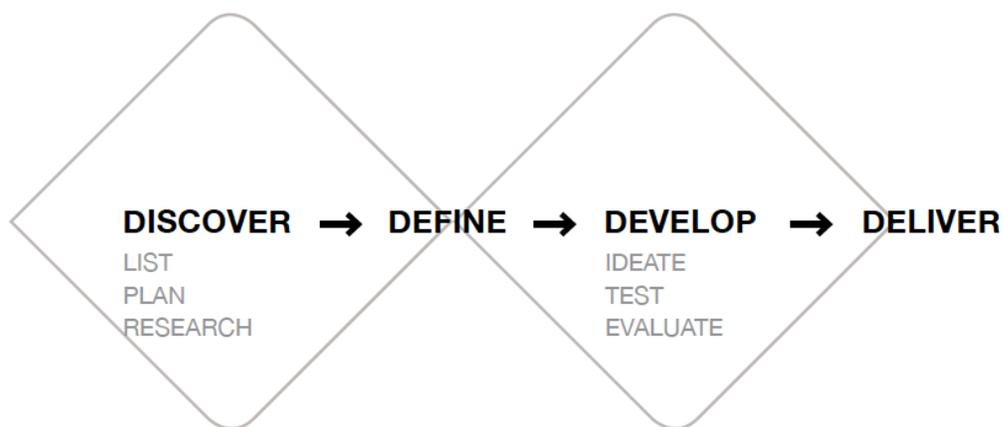


Figure 2: Design Thinking model used in the DT unit, combined from the British Design Council’s Double Diamond (Technopolis Group 2015, p. 15) and the approach to design thinking from Stanford University’s d.school (Welcome to the Virtual 2017)

² The term “wicked problems” aligns with the following definition by Rittel (1967, cited in Buchanan 1992, p. 15): ‘class of social system problems which are ill-formulated, where the information is confusing, where there are many clients and decision makers with conflicting values, and where the ramifications in the whole system are thoroughly confusing’.

³ Feasibility refers to ‘what is functionally possible within the foreseeable future’; viability refers to ‘what is likely to become part of a sustainable business model’; and desirability refers to ‘what makes sense to people and for people’ (Brown 2009, p. 18).

What is work-integrated learning?

Choy and Delahaye (2011, p. 157) explained that work-integrated learning (or WIL) is 'where the academic curriculum is aligned with work tasks' and 'offers learning experiences for worker-learners to focus on outcomes that serve such expectations'. In this context of the DT unit, the knowledge and skills associated with design thinking were embedded into learning experiences that reflected real world contexts (as outlined in the Background section).

Combining design thinking with a work-integrated learning (WIL) approach

Design thinking is arguably practised in one form or another within the creative industries (e.g. graphic design) already. However, the use of design thinking in communication design-focused businesses is often limited to the generation of ideas that creatively reinterpret or present a marketing message, and is focused on what Buchanan (1992, p. 20) referred to as 'changing attitudes and preferences of potential users'. The DT unit sought to expand students' views of design and design thinking, by encouraging them to shift their view of design from being about solving communication design problems focused on aesthetics and brand identity (e.g. designing retail advertising) to being about solving 'non-design' problems such as societal issues (e.g. advising people on the dangers of texting and driving). Similar approaches have previously been attempted in design education (Melles, Howard & Thompson-Whiteside 2012).

Work-integrated learning (WIL) seemed like an ideal approach to use in the DT unit, since design students can sometimes find it difficult to understand theory without also engaging in practice; this is why '[learning] through projects is a common feature in practice-based design education' (Lee 2009, p. 541). This is particularly true when design thinking is the topic or focus. Melles, Howard and Thompson-Whiteside (2012) reviewed the delivery of design thinking units across five courses, finding that project work was a core component of the curriculum design and that these projects were generally team-based and addressed real world problems.

Another important aspect of WIL is that it provides design students opportunities to learn, apply, and practise what Freudenberg, Brimble and Cameron (2011, p. 80) call ‘generic skills’⁴. Such skills are important because they are portable and can be transferred from one job to another (Freudenberg, Brimble & Cameron 2011). Furthermore, employers place significant value on them—Freudenberg, Brimble and Cameron (2011) noted that ‘students with generic skills have better graduate employment prospects’ (p. 81) and ‘employers rated teamwork, initiative and communication skills as important’ (p. 80). In design industries, these same skills are paramount because designers are often required to interact not only with clients, but also co-workers and service providers. For self-employed design professionals (or freelancers), generic skills such as planning and organisation are fundamental to their survival and success.

Benefits to students and industry

There are clear benefits to both design students and industry from combining design thinking with a WIL approach. The benefits to design students include: learning design thinking by doing design thinking; industry relevance and real world experience; and internship and employment opportunities. These benefits to students directly relate to the benefits to industry: potential graduate employees arrive with design thinking knowledge and skills; potential graduate employees arrive with generic skills founded on industry and/or real world experience; aligns with graduate recruitment processes.

Learning design thinking by doing design thinking

As described in the Background, Assessment 2 requires students to work collaboratively in teams, using design thinking and research methods to develop solutions in response to a brief from a real client (the industry partner). This not only reflects a WIL approach, it also aligns with the Educational Design Ladder developed by Wrigley and Straker, who stated, ‘design projects should involve authentic, hands-on tasks; possess clearly defined outcomes that allow for multiple solutions; promote student-centred, collaborative work and higher order thinking; allow for multiple design iterations to improve the product’ (Wrigley & Straker 2017, p. 383).

⁴ These include ‘communication, teamwork, problem-solving, initiative and enterprise, planning and organising, self-management, learning, and technology’ (Freudenberg, Brimble & Cameron 2011, p. 80).

Industry relevance and real world experience

Franz noted that 'students learn in a deeper, more meaningful way and are better prepared professionally when theory is integrated with practice'⁵ (Franz 2007, p. 2). By working on a team project for a real client, students are able to, from a firsthand perspective, understand the relevance of design thinking in a real world context and can learn and apply skills related to working in teams. Students have opportunities to ask questions and receive feedback from both teaching staff and industry professionals, which according to Weisz and Smith (2005, cited in Franz 2007) allows students to achieve 'a deeper level of learning' (Franz 2007, p. 2). Finally, participating in a competitive process for a chance to pitch to the client prepares students professionally as it is reflective of industry practice.

Internship and employment opportunities

The set up of the DT unit enables staff from the industry partner organisation to interact with potential candidates for graduate recruitment and see them in action (via the pitch presentations). This provides some certainty that shortlisted students will have the requisite design thinking knowledge and generic skills prior to shortlisting them for interviews.

Lessons learned

Maintaining student engagement

Students appeared to be more motivated and generally showed higher levels of responsibility and accountability when teamwork was involved. This may partly be attributed to the inclusion of assessment criteria relating to engagement and participation. Ferns and Zegwaard (2014, p. 179) previously noted that assessment is 'a key driver for student engagement'. It is possible that working in a team on a brief for a real client may also have contributed toward student engagement. Some students did

⁵ Franz (2007) also cited Boud & Solomon (2003), Orrell (2004), and Billett (2006) as examples.

not engage as well as others; it is suspected that these students might have found working on an industry brief intimidating or incompatible with their career expectations or academic aspirations. Further research is required to confirm this.

The importance of narratives as a pedagogical tool

After extensive reflection, the author recognised the importance of narratives as a pedagogical tool for both problem-solving and transferring knowledge. In relation to problem-solving, Jonassen and Hernandez-Serrano (2002) noted that narratives are frequently used in professional contexts to solve complex problems that lack clearly defined structures, unlike the kinds of problems students typically work on in formal education settings, which tend to be 'decontextualized and well structured' (p. 68). Hence, the use of narratives in the DT unit is particularly suitable due to its focus on solving "wicked problems". In relation to transferring knowledge, the author realised that by using anecdotes to explain how and why of a process, theory, etc., she had unwittingly transformed her experience into 'pedagogical content knowledge' (Lave & Wenger 1991, cited in Jonassen and Hernandez-Serrano 2002, p. 30). These seemed, in the author's view, to result in increased engagement and retention.

Creating the right 'fit' for a successful partnership

The DT unit has had the same industry organisation as a partner for three years (2017-2019) and this is continuing in 2020. The success of this partnership can be attributed to the following factors: common ground between unit and industry partner; alignment of knowledge and skills desired by industry partner; and having a collaborative approach.

Common ground between unit and industry partner

Partnerships between industry and academia need to be beneficial to those involved (Cyert and Goodman 1997; Orrell 2004). There was already a strong foundation for mutual benefit—both the industry partner and the DT unit had a shared focus on design thinking, the existing DT unit structure easily facilitated an industry partnership, and the time investment required by the industry partner was not excessive. Furthermore, the DT unit would benefit from the involvement of a real client to extend the WIL experience,

while the industry partner would benefit in terms of access to graduate recruitment candidates from design disciplines.

Alignment of knowledge and skills desired by industry partner

Staff from the industry partner were provided with an overview of the unit content and assessments to establish whether these aligned with their graduate recruitment requirements. In addition to the unit's focus on design thinking, many of the generic skills identified by Freudenberg, Brimble and Cameron (2011)—in particular, communication, teamwork, problem-solving, initiative, planning and organising, self-management, learning—addressed in the DT unit appeared to be desirable graduate qualities for the industry partner.

Having a collaborative approach

Moody (1997, cited in Orrell 2004) argued that involving the industry partner in the planning process is crucial to the effectiveness of placement programmes; this is likely to be true of all WIL programmes since the commitment and support of host organisations are needed for these to run smoothly and over an ongoing period. The planning done with the industry partner consists of four key stages:

- **Step 1: Planning.** Co-creation of the industry brief and agreement on key dates (introduction to brief, final presentation to industry panel). The main actions required by the industry partner was a new brief each semester, organising room bookings, and confirming staff participation.
- **Step 2: Introduction to brief.** Industry partner staff introduce brief to students and answer questions, with university staff in attendance.
- **Step 3: Presentation to industry partner.** Shortlisted student group present solutions to the industry partner, with university staff in attendance.
- **Step 4: De-brief.** De-briefing between university staff and industry partner staff at the end of each semester.

Key challenges

In general, the key challenges in the DT unit relate to the size of cohort, monitoring student participation in the team-based project, and managing student progression. In semesters where there was a larger cohort (80-100 students), it became apparent that hosting large groups of students at the industry partner's offices required additional planning (and sometimes additional sessions and time commitment from the staff at the industry partner organisation). Monitoring student participation in the team-based project also posed challenges, especially with a larger cohort. In early iterations of the DT unit, students were required to use paper-based project booklets to report on their project status and progress. The use of a project management platform (i.e. Basecamp) was introduced after two semesters. This made it easier and more efficient for tutors and the unit coordinator to assess students' participation and engagement.

Managing student progression in the DT unit was challenging at times, given that students did not always consistently attend or complete required tasks. To support students' progression, the unit resources were reviewed and updated at the end of each semester following student feedback received via the university's formal unit evaluation survey. After two semesters, a document template was created for Assessment 1 to assist students who either missed attending a tutorial or did not understand what was expected. This was also intended to reduce students' workload (by not having to create project document from scratch) so they could focus more on design thinking and research, which were the main focus. However, the availability of the templates seems to have encouraged some students to become complacent and not allocating sufficient time to complete tasks.

Conclusion

This paper was intended to enable other design educators to learn from the author's experience as the unit coordinator of the DT unit. It presented an overview the DT unit based on the author's reflections, describing combining design thinking and work-integrated learning in a unit has provided design students with a richer learning experience as well as a broader understanding of design and design thinking. This paper acknowledges the absence of qualitative and quantitative research to support the

author's reflections. The author intends to conduct further qualitative and quantitative research into the use of design thinking and WIL in design education, since such research would contribute toward improving the quality and management of WIL collaborations between universities and industry, to the benefit of all involved, especially students.

References

- BROWN, T 2009, *Change by Design: How Design Thinking Transforms Organizations and Inspires Innovation*, HarperCollins Publishers, New York.
- BUCHANAN, R 1992, 'Wicked Problems in Design Thinking', *Design Issues* vol. 8, no. 2, pp. 5-21.
- CHOY, S & DELAHAYE, B 2011, 'Partnerships between universities and workplaces: some challenges for work-integrated learning', *Studies in Continuing Education* vol. 33, no. 2, pp. 157-172.
- CYERT, R M & GOODMAN, P S 1997, 'Creating Effective University-Industry Alliances: An Organizational Learning Perspective', *Organizational Dynamics*, vol. 25, no. 4, pp. 45-57.
- FERNS, S & ZEGWAARD, K E 2014, 'Critical assessment issues in work-integrated learning', *Asia-Pacific Journal of Cooperative Education: Special Issue*, vol. 15, no. 3, pp. 179-188.
- FRANZ, J 2007, 'Work Integrated Learning for Design: A Scholarship of Integration. In Zehner', in *Proceedings of ConnectED 2007 International Conference on Design Education*, University of New South Wales, Sydney, 9 – 12 July, pp. 1-4, viewed 2 May 2020, <https://eprints.qut.edu.au/25953/1/Work_Integrated_Learning_for_Design_-_A_Scholarship_of_Integration.pdf>.
- FREUDENBERG, B, BRIMBLE, M & CAMERON, C 2011, 'WIL and generic skill development: The development of business students' generic skills through work-integrated learning', *Asia-Pacific Journal of Cooperative Education*, vol. 12, no. 2, pp. 79-93.
- JONASSEN, D H & HERNANDEZ-SERRANO, J 2002, 'Case-Based Reasoning and Instructional Design: Using Stories to Support Problem Solving', *Education Technology Research and Development*, vol. 50, no. 2, pp. 65–77.
- LEE, N 2009, 'Project methods as the vehicle for learning in undergraduate design education: a typology', *Design Studies*, vol. 30, no. 5, pp. 541-560.
- MELLES, G, HOWARD, Z & THOMPSON-WHITESIDE S 2012, 'Teaching Design Thinking: Expanding Horizons in Design Education', *Procedia - Social and Behavioral Sciences*, vol. 31, pp. 162-166.
- ORRELL, J 2004, 'Work-integrated Learning Programmes: Management and Educational Quality', in *Proceedings of the Australian Universities Quality Forum (AUQF): Quality in a Time of Change*, Adelaide, 7 – 9 July, viewed 2 May 2020,

<<http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.466.3357&rep=rep1&type=pdf>>.

RAZZOUK, R & SHUTE, V 2012, 'What Is Design Thinking and Why Is It Important?' *Review of Educational Research*, vol. 82 no. 3, pp. 330-348.

Technopolis Group 2015, *Innovation by Design*, British Design Council, viewed 4 December 2019, <<http://www.designcouncil.org.uk/resources/report/innovation-design>>.

WRIGLEY, C & STRAKER, K 2017, 'Design Thinking pedagogy: the Educational Design Ladder', *Innovations in Education and Teaching International*, vol. 54, no. 4, pp. 374-385.

Welcome to the Virtual Crash Course in Design Thinking 2016, Stanford University Institute of Design, viewed July 5, <<http://dschool.stanford.edu/dgift/>>.