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DESIGN THINKING — A BUZZWORD OR THE HOLY GRAIL OF DESIGN?

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ABSTRACT
Design Thinking constitutes a concept that appears to reflect the zeitgeist of current design education. At the same time, recent interpretations of ideas surrounding design thinking raise most fundamental questions about the validity of traditional design-disciplinary practices. Large proportions of relevant writings are anchored in business management studies rather than in design. So how wide a circle should we draw around design thinking? And where exactly may we expect to find the centre of this circle? Design? Business?
This paper draws on four different definitions of design thinking as articulated by Richard Buchanan at the Design Management Institute conference in London in 2014: an imaginative act, a cognitive decision-making process, a spirit, a discipline. In pursuit of a more in-depth understanding of Buchanan's design thinking concepts, a series of interviews conducted with designer-entrepreneurs at InnovationRCA, a London-based design business incubator, reveals particular attributes which all interviewees seemed to share: an enterprising spirit and a deep-seated ambition to foster radical innovation. Might this connect with the *spirit* that Buchanan was alluding to? Are the *design thinkers* of the future, the designer-entrepreneurs who we see emerge at present? If so, can this spirit be taught and nurtured through academic provisions? In the book 'Design Thinking for the Greater Good', Jeanne Liedtka et al. claim that design thinking is human-centred, 'possibility-driven' [1]. So, what are the *possibilities* of innovating design education to nurture design thinking as a spirit and to develop this process into a discipline? And what are the challenges?

Keywords: Entrepreneurialism, collaboration, T-shaped, designerly thinking, d.School, innovation, start-ups, interdisciplinary, design business

1 INTRODUCTION

The potential significance of design thinking is widely recognised, yet some speculate that it may be no more than a temporary trend. Whether or not this is true, is difficult to judge since it is often unclear, what exactly is meant by *design thinking*. The variety of concepts and definitions overlap and it can be difficult to tell, which idea a speaker or writer is referring to. As highlighted by Richard Buchanan in his keynote speech at the Design Management Institute conference in London in 2014, many practices build on the idea that design thinking constitutes nothing more than an imaginative act that leads to an interesting idea (first definition), others relate the term to cognitive decision-making processes (second definition) [2]. Two additional notions of design thinking offered by Buchanan are: a spirit — perhaps for a better word: ethos — that permeates culture or an organization (third definition), and a discipline (fourth definition). Buchanan claims the four definitions to be 'fundamentally different'. However, one could argue that they are not necessarily mutually exclusive. For example, one could well imagine that a company that embraces design thinking as an ethos with respect to all its operations (third definition), will make use of cognitive design thinking methods (second definition).
The third definition breaks away from the design thinking paradigm that is most commonly fostered by design academies, the methods of which are mostly rooted in the d.School approach and the methods from which Buchanan dissociated himself in his keynote speech. With the exception of design-specialist firms, the notion of design thinking that 'permeates a culture or an organisation' [3] will always involve a range of stakeholders from different disciplines and

backgrounds. Therefore it can be seen as trans- or interdisciplinary by default. This is why it is rather challenging to envisage design thinking as a discipline on its own.
Building on a range of case studies conducted at InnovationRCA, a London-based design start-up incubator, this paper discusses whether or not the third definition listed above constitutes a paradigm that can be taught in an academic context and applied in practice, thus shaping design thinking as a discipline in its own right.

2 FROM DESIGNERLY THINKING TO DESIGN THINKING

Discussions of design thinking principles are most commonly found in the context of design practice on the one hand, and business management studies on the other. The guiding thought that leads the following discussion, is the fact that design and business management are both processes, at the heart of which lies decision-making in relation to problem-solving activities. Strangely there is no historic link between the emergence of design thinking in both areas of study: '… even though there must be some relationships between the academic discourses of design(erly) thinking and the management discourse based on the same concepts, there are seldom references linking the two. It is as if design theorists such as Richard Buchanan (1992) and management writers such as Roger Martin (2009) coined the label of "design thinking" completely independently of each other.' [4]
Designerly thinking and designerly ways of knowing evolved from discussions surrounding the degree to which the design process could be seen as scientific. Nigel Cross explains how this discourse culminated 'in the series of workshops and conferences known as the "Design Thinking Research Symposia", beginning in 1991' [5]. The problem related to the question how scientific design can be, derives from the insight that problems to be solved through design, are not commonly as straight-forward as they are in a scientific context. They are *wicked*, to use Buchanan's term. Due to their complexity, they often escape causal reasoning. So designerly thinking is a way of engaging effectively in the process of solving complex problems. One might be inclined to argue that not all problems are *wicked*, and that not all challenges require design thinking. It is difficult, perhaps impossible, to draw a clear line between design thinking and conventional problem solving through design. Design thinking involves 'the use of the early-stage discovery processes' [6] Until problems re-analysed and understood, it appears impossible to specify with certainty where exactly design thinking is required or of best benefit to the problem-solving process.
With reference to Kimbell's review entitled as 'Rethinking Design Thinking' from 2011, Johansson-Sköldberg et al. differentiate between design thinking 'as a cognitive style engaged by individual designers engaged in problem solving' (which concurs with Buchanan's first and second definition), design thinking as 'an organisational resource for businesses and other organisations', and design thinking as 'a general theory of design as a field or discipline focused on taming wicked problems' [7]. The second idea concurs with Buchanan's third definition, and the third idea with Buchanan's fourth definition.
Since design thinking is a problem-solving approach, we may assume that the definitions of design thinking manifest themselves in relation to the problems, around which the process is orchestrated. The more complex and indeterminate the problems, the greater the need for design thinking to be involved in some shape or form. In her keynote speech at the Design Management Academy conference in Hong Kong in 2017, Jeanne Liedtka insists that the area of social design is destined to accommodate, if not to say demand, design thinking. Liedtka sketches a paradigm shift towards a democratisation of innovation, which, in her book 'Design Thinking for the Greater Good', she and her co-authors refer to as *Innovation II* [8]. Social innovation challenges are often complex, *wicked* as it were. To resolve them, a linear approach as used in *Innovation I*, which reflects the traditional design process managed and executed by trained designers, may be compromising. *Innovation II* is not a finite process, but an ongoing engagement with social issues, involving co-creative research. Other challenges as found in areas of customer experience design, service design, environmental design, mobility and transport, etc. pose similarly complex challenges. It can be argued that design thinking is not exclusive to social design, and many of the other areas mentioned overlap with each other. In the light of this one is inclined to assume that design thinking, in its variety of incarnations and applications, is gaining significance.
As thorough as it may be, Johansson-Sköldberg et al.'s genealogy of design thinking is of limited help for determining how Buchanan's third and fourth definition of design thinking are best pursued. In whichever way design thinking has evolved, there are fundamentally different ways in which design

problem solving can be approached, and some of these may be recognised as design thinking. What is useful, however, is the juxtaposition between design thinking in business management on the one hand, and design thinking in the context of design practice on the other. The question that emerges is where are the connection points? Where do the two areas of practice overlap?

3 FROM DESIGN LONDON TO INNOVATION RCA

Design London was a joint venture between the Royal College of Art, Imperial College School of Engineering and Imperial College Business School with the objective to foster innovation through interdisciplinary collaboration, whilst 'avoiding simplistic importations of "design thinking" in favour of a deeper mutual learning' [9]. In exchange for equity, postgraduate students and alumni could apply for seed funding which was offered in conjunction with a business start-up incubation programme. In preparation of their pitches, candidates were trained through presentations, talks, seminars, etc. 'Design London received £5.8M seed corn funding from NESTA, HEFCE and the partner institutions' [10]. The four key drivers behind initiatives such as workshops, presentations, boot camps, pitches, were teaching, research, incubation, and stimulation. Design London intentionally mixed the disciplines, design, business and engineering 'to achieve the best possible foundation for innovation' [11]. Design London began in 2007, and in 2011, when funds had dried up, was discontinued and superseded by InnovationRCA.

In 2013-2015 the author has interviewed ten designer-inventors who, at some point or other, had been part of the Design London Incubator, respectively of InnovationRCA. Data was gathered through qualitative semi-structured interviews, and verified through conversations with business coaches involved. The insights were triangulated with secondary research findings gathered via press releases, articles and newsfeeds found on the internet. Despite the difference in the inventions involved in the diverse ventures that were examined, there were clear communalities in the responses received.

Gregory Ebbs, founder of RoboFold, a firm developed around a novel metal folding process, emphasised that 'you need a team, interdisciplinary, […] you cannot do things on your own.' [12] Roland Lamb, the inventor of a new music instrument, started out on his own, but soon assembled an interdisciplinary team, after having equipped himself with knowledge 'about the relationship between IP, product design and entrepreneurship. Those things have all come together.' [13] Sheraz Arif, one of the designers behind Squease, a garment for autistic children, explained that '…the learning curve was big […] We have had to learn that along the way… understanding corporate governance in terms of being able to communicate to the investors in a timely fashion in a non-intensive way.' [14] He also pointed out that interdisciplinary collaboration did not always go smoothly at Design London: 'There have been a lot of horror stories …' whereas in some cases the collaboration between designers and business management students worked well. There were not enough interviews, and the circumstances varied too much, to elicit what caused collaborations between MBA graduates and designers to succeed or to fail. However, what seemed quite obvious was that design graduates shared a clear deficiency of design-entrepreneurial skills upon leaving college.

Accelerators such as Design London or InnovationRCA can provide a spring board for the innovators to learn from one another with respect to the area they are lacking. MBA graduates learn from designers, and vice versa. However, managing the 'divergent and convergent approaches, when zooming in and out of the issues at hand' [15] can be challenging. This, in combination with differences in perspectives and expectations, can easily lead to frictions. Throughout its lifetime, the Design London initiative underwent a number of adjustments. Those who entered later seemed noticeably more satisfied with respect to the support received. Interdisciplinary collaboration worked in some instances better than in others. The complementary skills shared within multi-disciplinary teams highlight the knowledge deficiencies of those with a design background. The question remains, how these knowledge gaps can be filled. At Design London and at Innovation RCA, candidates had to equip themselves with design thinking skills in the course of the process, when entrepreneurial activities were already underway. Trial and error was often perceived as costly and painful.

4 FROM T-SHAPED PEOPLE TO V-SHAPED PEOPLE

The idea of the T-shaped person emerged in the early 90s as a concept to articulate the notion that specialist skills (deep skills) represented through the stem in the T, ought to be complemented by 'the disposition for collaboration across disciplines' [16]. Empathic team working skills are represented through the horizontal bar that sits on the stem of the T. In an interview with Morten Hansen from

Chief Executive Magazine, Tim Brown, CEO at IDEO, names *empathy* as the most significant attribute, and states that '…they tend to get very enthusiastic about other people's disciplines, to the point that they may actually start to practice them. T-shaped people have both depth and breadth in their skills.' [17] This suggests that the learning of empathy and team-working skills should not compromise too much the acquisition of subject specialist skills mentioned earlier, because the individuals would then have nothing to contribute to the team: 'Somebody who's just got the cross of the T — it's an empty experience.' [18] The question that arises, is how the 'T' is best proportioned. One might assume that the optimum width-height ratio depends on the design challenge on the one hand, and on the person's role within the team on the other. Brown makes it clear that for design problem solving I-shaped people are needed as much as T-shaped team players. Design institutions nowadays seek to cater not only for empathic brainstorming capabilities, but also multidisciplinary design skills. Due to the trans-disciplinary nature of design thinking, the design thinker clearly needs to be able to look beyond the boundaries of his or her design discipline. Some of Liedtka et al.'s case studies suggest that social design skills and entrepreneurial are key attributes of the design thinker of the future [19].

Design London connected three key areas required in pursuit of innovation: Design, Engineering, and Business. Participants were encouraged to become T-shaped. Annabella Gawer, formerly Professor of Strategy and Innovation at Imperial College Business School, highlights the increasing prominence of platforms over products [20], and Alexander Manu, a future forecast strategist explains the shift towards a subscription economy [21]. In the light of these paradigm shifts, we may assume the role of engineering to be changing, perhaps its significance will be reduced, although platforms require programming and digital engineering to be developed and maintained, of course. With respect to conceptualising and strategising, the key drivers of future innovation will be design expertise paired with business acumen. The interviews with designer-entrepreneurs at Design London as well as Innovation RCA, reveal a significant knowledge deficiency in the area of business-management, business strategy development and market-analysis amongst designers. Rather than multi-disciplinarily addressing this shortfall in prerequisites, i.e. through getting members from different disciplines to fill each other's knowledge gaps through collaborative effort, one could pre-empt the knowledge deficiency through cross-disciplinary education. This would mean to provide design students with business management modules, and MBA students with design modules. Such a training initiative could also help to avoid the culture clash that has compromised the collaborative efforts of various teams at Design London.

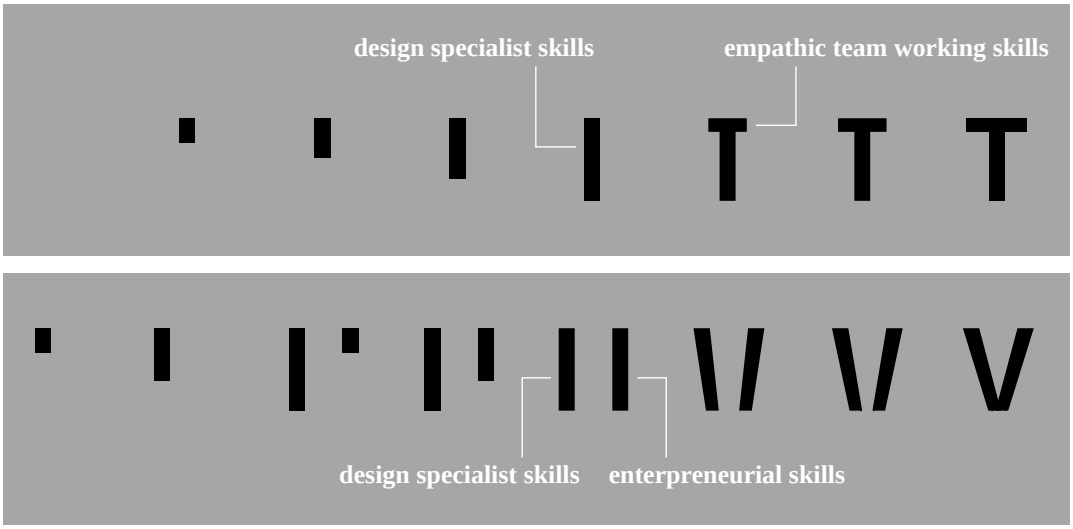

Figure 1. Attributes of a T-shaped designer versus those of a V-shaped designer

If deep skills are developed in two different disciplines and these skills are connected through design-entrepreneurial initiatives we may prefer to speak of a V-person rather than a T-person, since the development process is fundamentally different. The idea here is to entice students to generate subject specialist skills in two or more fundamentally different fields; and to subsequently bridge those skill sets. In some respect, the idea educating of V-shaped designers already exists. Dual degree

programmes offer the opportunity to graduate simultaneously in two disciplines, and postgraduate studies can be used to pave the way towards transdisciplinary design education. When the MA Service Design was introduced at the RCA in 2012, it was almost impossible to find candidates with a BA in Service Design. Instead the cohorts were — and still are — built with representatives of a variety of disciplines, ranging from medicine to finance, from design to music. Tim Corvin, tutor at MA Industrial Design and Engineering (IDE) at the RCA, makes it clear that the student intake into MA IDE is no less multidisciplinary [22]. IDE's curriculum delivery links the RCA with Engineering at Imperial College of Science and Imperial College Business School. LASALLE College of Art is currently contemplating possibilities of connecting multiple MA programmes in the field of Art and Design to allow for cross-disciplinary elective modules, which would allow students to tailor their MA education towards their individual needs and preferences. This shows that multi-tier design education is not a novelty, but — at least to some extent — a tried and tested approach to design education. What is yet to be achieved, is to balance the provision of business management skills with design practical skills, so to develop the design thinker of the future. The idea that emerges is that design thinking may involve an enterprising spirit, business acumen as well as the capability of engaging in interdisciplinary collaboration in order to resolve complex problems. Ideally this is done prior to entering an accelerator such as Design London. Providing design students with these sets of attributes might pave the way towards design thinking as an ethos, and this provision could be formalised within design educational programmes comprising 'collaborative work through real-life business projects' which help to exercise design thinking in different contexts [23]. Rather than applying underdeveloped design thinking skills in an entrepreneurial context, where the risks are real and critical for the designer-entrepreneurs involved, relevant skills would best be introduced prior to graduation.

5 CONCLUSION

Whether design thinking constitutes a *buzzword* or the *holy grail*, depends on how we interpret this concept, and how we implement it. As long as we refrain from using it as a buzzword, it could be — perhaps should be — central to restructuring design curricula with a view on future-proofing the design profession, on re-emphasising 'the idea of human collaborative work' [24] and on fostering an understanding 'of the world as "becoming" instead of "being"' [25]. This paper highlights the potential impact of design thinking on future curriculum developments in the area of business management and design practice. The focus of this study is Buchanan's third and fourth definition of design thinking as discussed in the introduction. What unites all interviewees spoken to at Design London and at InnovationRCA, is an enterprising attitude, a willingness to take risks, and a keen interest in breaking the mould. This attitude paired with specialist expertise in design and business management, as well as an understanding of design thinking methods can be seen as the foundation of design thinking as an ethos. If relevant skills such as business management and business development strategies, can be taught in a transdisciplinary fashion along with design-subject-specific knowledge, enterprising attitudes, and interdisciplinary team-working capabilities, we may see design thinking evolve into an ethos that can be distributed through academic provisions. This could be achieved through introducing entrepreneurship modules in the field of design, or conversely through design modules in the context of business studies. This has been trialled in places, however with mixed results. Koria argues that 'Learning in the area of DT [design thinking] requires an understanding of how the collisions happen in the teams' [26]. The most prominent challenges yet to be tackled, appear to relate to differences in working cultures, i.e. the way in which business management courses are commonly delivered as opposed to design programmes. 'DT [is] being taught more as a lecturing-weighed activity in some cases (for most business students) and in a more experiential way in others (design and entrepreneurship students).' [27] How these differences are best resolved, in particular for large cohorts of students, provides opportunities for further exploration.

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