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Design Thinking

A Critical Review,
Reflection and Analysis
of Design Thinking

Introduction

As a designer, it has become increasingly clear that behind nearly every product, service or experience, there has been a complex journey that has led to its output. Within that journey, there would have been many questions asked and answered, user needs defined, goals set and re-examined, prototypes developed and stress-tested, more questions asked, more prototypes, followed by even more questions all to understand how that output ended up as a finished article. If this were true for all products, it would be remiss to suggest that design - or Design Thinking in particular - is a linear process.

However, it is essential to go on that journey to solve the ever-increasingly complex requirements of today's challenges. It is no longer adequate to merely follow a step-by-step strategy to meet these demands, instead relying on a more innovative and out-of-the-box approach.

As Design Thinking continues to creep into other industries - due, in part to the adaptability of the creative process - it is becoming more challenging to keep the integrity of what Design Thinking involves in check. In this paper, I will argue that while Design Thinking is indeed a valuable tool that can be adopted by many industries, its use should be done so with care, so as not to dilute the principles of the process. I will discuss the ethics surrounding the use of the term and how its practice should be tempered to retain the core values. Finally, I will critically review how Design Thinking was used in response to a complex design challenge set to multi-disciplinary teams and critique its effectiveness during that project.

What is Design Thinking?

For one to discover the effectiveness of a tool, it is important first to try and understand what it is and as with any profession, there are both advocates and critics of Design Thinking. Perhaps one of the most prominent advocates is Tim Brown, CEO and President of IDEO. Brown describes Design Thinking as "a methodology that imbues the full spectrum of innovation activities with a human-centred design ethos." (Brown, 2008). Brown goes on to explain that by understanding and observing people's needs and wants, likes and dislikes about a product's life cycle, innovation is powered.

Kees Dorst (2011, p. 521) describes Design Thinking as "an exciting new paradigm for dealing with problems" in many sectors. Lucy Kimbell once wrote that it was unsurprising that people who advocate for Design Thinking (2011 p. 289.) "have trouble articulating what it is, whether all designers can do it, whether it is something new or just a different name for what good designers have always done, and why it might be a good thing that non-designers can learn it and do it too – or perhaps they do it already".

Conversely, Natasha Jen, a partner of Pentagram, New York, suggested that 'Design Thinking is Bullshit' at a 99u Conference in 2017. Jen's definition of Design Thinking is:

"Design thinking packages a designer's way of working for a non-designer audience by codifying their processes into a prescriptive, step-by-step approach to creative problem-solving - claiming that it can be applied by anyone to any problem." (Jen, 2017)

So, if some of the biggest and most experienced names in the design industry are unable to pin down an exact description of the term, how can those in other industries be expected to formulate a description? Taking the commonalities of each of these descriptions, it can be deduced that Design Thinking is a way of working that aims to solve creative problems using innovative solutions and a human-centred design approach. By using a human-centred approach, it allows the designer to build empathy with its target audience, enabling them to work towards their needs and desires rather than solving a problem for the designer. Several tools can aid a designer in the Design Thinking process, and while they have different steps, phases or stages, they all follow the same principles. These principles, as described by Nobel Prize laureate Herbert Simon in The Sciences of the Artificial in 1996, have been applied by Hasso-Plattner Institute of Design at Stanford - also known as d.school - and they are as follows on p. 4:

Empathise – with your users

Define – your users' needs, their problem, and your insights

Ideate – by challenging assumptions and creating ideas for innovative solutions

Prototype – to start creating solutions

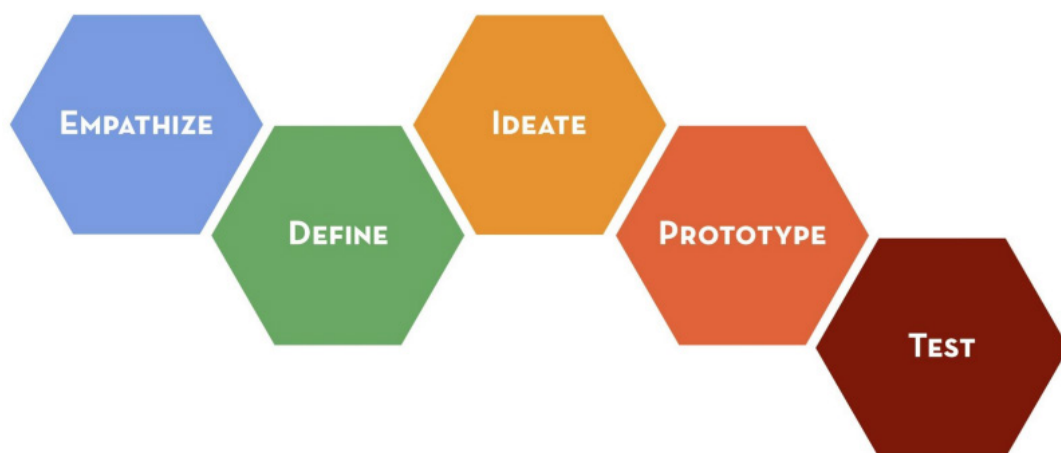**Test** – solutions (Dam, R. Siang, T. 2018)

Fig 1. The Stanford d.school Design Thinking Process.
Image source: https://medium.com/@philmichaels/5-components-to-design-thinking-by-stanford-d-school-48dd111bbbe5

Tom and David Kelley of IDEO (2013, p.19) succinctly created a Venn diagram which is used to "find the sweet spot of feasibility, viability and desirability" of customer needs and desires, at the centre of which is innovation.
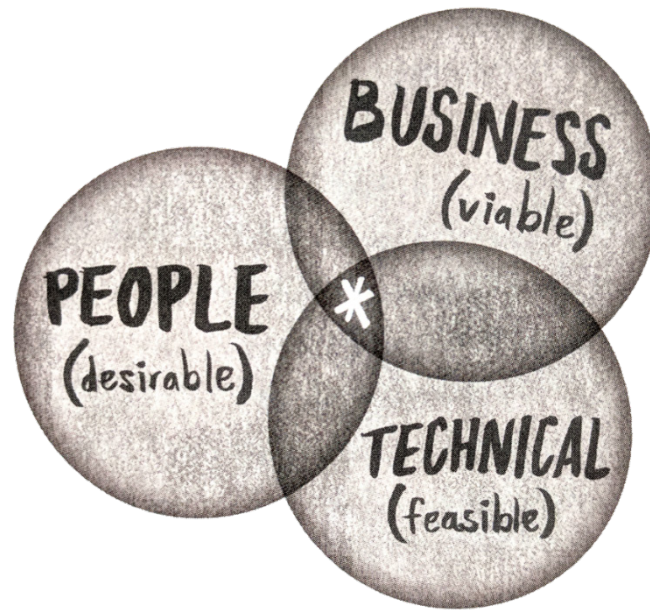
Fig 2. Tom and David Kelley's diagram: finding the sweet spot of feasibility, viability and desirability. Image source: Creative Confidence: Unleashing the Creative Potential Within Us All. (2013, p. 19)

The Design Council believe that "every design specialism has a different approach and ways of working, but there are some commonalities to the creative process" (Design Council. n.d.). The Design Council created the Double Diamond based on these beliefs. The Double Diamond is a tool used in Design Thinking represented by two diamond shapes that splits a design journey into four phases: Discover, Define, Develop, Deliver. The Discover phase of the first diamond allows designers to create possible ideas through 'divergent thinking'. Designers can then Define their ideas through 'convergent thinking'. It is at this stage that questions are asked, and a problem is usually defined, giving direction for the designer to work towards. The third phase, Develop, is the stage at which concepts are created, prototyped and tested and iterations made through trial and error. The final phase is the Delivery, where the project is finalised, produced and launched. (Design Council. n.d.) Although the Double Diamond looks simple in its design, the use of divergent and convergent thinking allows for a lot of freedom and creativity.
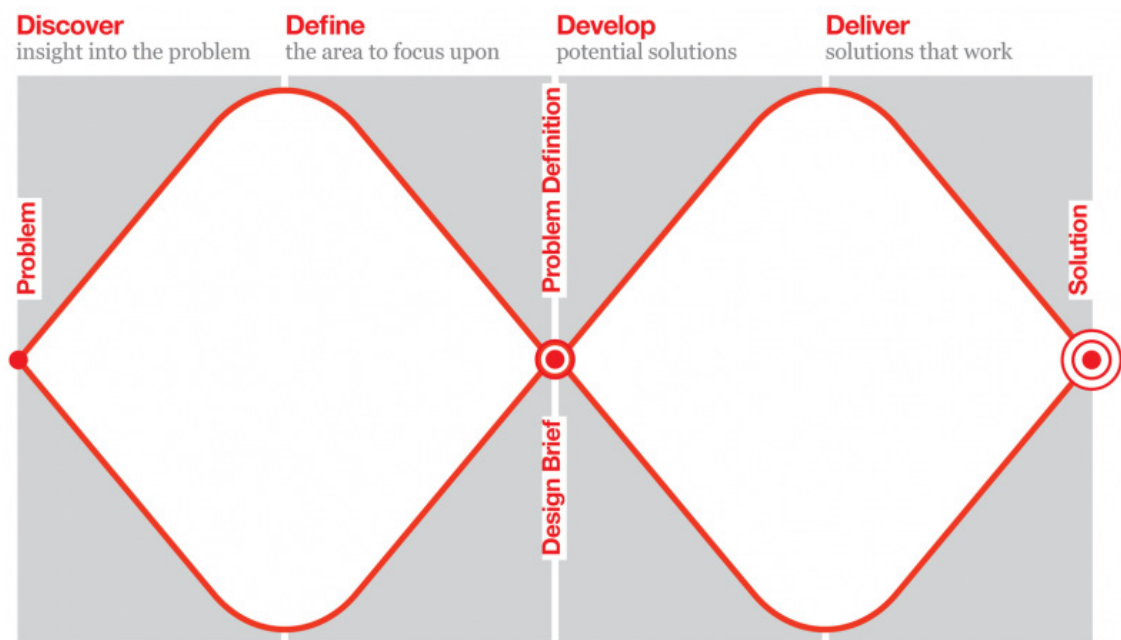
Discover
insight into the problem

Define
the area to focus upon

Develop
potential solutions

Deliver
solutions that work

Problem

Problem Definition

Design Brief

Solution

Fig 3. The Design Council Double Diamond tool.
Image source: https://www.designcouncil.org.uk/news-opinion/design-process-what-double-diamond (n.d.)

It must be noted that while these toolkits are useful in helping designers solve a problem with empathy in mind, it does not guarantee that a solution can be made for all problems.

Design Thinking in Other Industries

As Design Thinking continues to gain popularity, its adoption has already begun in other industries. According to Lisa Carlgren, Maria Elmquist and Ingo Rauth, "Design Thinking (DT) is part of the curricula in management and executive education of renowned schools such as Stanford University, Harvard Business School and the Rotman School of Management." (Carlgren, Elmquist and Rauth, 2016). Carlgren, Elmquist and Rauth go on to ask "could it be that the early use of DT is bound to be challenging because it deals with innovation? Or does the use of DT face some kind of unique barriers due to its inherent characteristics?" (Carlgren, Elmquist and Rauth, 2016 p. 345) I believe a simple answer to the latter question would be 'yes'. One could argue that everyone can cook a meal, but it does not make them a chef. Similarly, for the Design Thinking tool to be a success, it requires the experience and expertise of a designer to ensure the core values are adhered to.

Design Thinking is as much as about doing as it is about thinking and, it is reasonable to assume that knowing when and how to do is as important as knowing what to do; this is where the designer's expertise comes in to play. Helen Walters (2011) clarified a point made by Peter Merholz of Adaptive Path that "those who extoll the virtues of Design Thinking are at best misguided, at worst likely to inflict dangerous harm on the company at large, over-promising and under-delivering and in the process screwing up the delicate business of design itself." (Walters, 2011) In the same article, Walters goes on to say that Design Thinking should not be used as a replacement for those whose job it is to do the difficult job of design; it should be used collaboratively with them. Finally, Walters sums up Design Thinking concisely: "Design thinking is not fairy dust. It is a tool to be used appropriately. It might help to illuminate an answer, but it is not the answer in and of itself." (Walters, 2011)

Marnix Assink (2006) conducted a study on why large firms and organisations failed to adapt 'disruptive innovations', including Design Thinking. Assink was able to cluster those inhibiting factors into barrier types: innovation barriers, adoption barriers, mindset barriers, risk barriers, nascent barriers and infrastructure barriers. Assink used these barriers to determine that inhibiting factors from within the organisations and not the tools they were using were the reason why these firms were not able to adapt these disruptive innovations. Factors such as the inability to "unlearn obsolete mental models, a successful dominant design or business concept, a risk-averse corporate climate, innovation process mismanagement, lack of adequate follow-through competencies and the inability to develop mandatory internal or external infrastructure." (Assink, 2006)

One might then use these findings as confirmation that although Design Thinking can be used in other industries, it must be done in the right way, and those who use it must be willing to embrace the process entirely. It should be noted that it is not a fix-all for every problem and each team must find a way to adapt their own needs to their projects while keeping the heart of Design Thinking beating. Users of the tools should be open-minded about their journey and should not expect miraculous results for every project. Design Thinking is hard work, but if used correctly, it can spark creativity and innovation in ways that might not have been possible following a linear, step-by-step approach. Its looping nature allows ideas to be built upon, tested, iterated on, tested again and broken down from 'nice-to-have' elements to 'must-haves' to fit the needs and desires of the user. Andy Young, formerly of Snook and now an industry

leader in the Digital Experience and Digital Management courses at Hyper Island, Manchester described Design Thinking as a mindset; Google defines 'mindset' as 'the established set of attitudes held by someone'. If users are not willing to change their mindsets, like those five large organisations in Assink's 2006 report, then perhaps Design Thinking is not the tool they are looking for.

Design Thinking in Response to a Complex Design Challenge

This next part of the paper will outline how a team consisting of five Digital Experience Design (DXD) and Digital Management (DM) students at Hyper Island applied Design Thinking to a complex design challenge. In the interest of clarity, these students will be referred to as 'the team' or 'the group'. The team chose to work with the Double Diamond tool as it would allow for a lot of flexibility in their approach. Their experience of using it will be detailed, and I will critically review its effectiveness over the course of this project.

The group started off by defining a team canvas, outlining expectations, setting rules and agreeing on a team purpose, laying the groundwork for how they would move forward as a team. The crew – the collective name for all the students on the DXD and DM course at Hyper Island – then met with the clients: Lauren of Noisy Cricket, Mooch of Big Change and Graham of Street Support. Together, they are a part of the Manchester Homelessness Partnership and posed this question to the crew: How can we improve the systemic, cultural and personal process to enable those people looking for gainful employment to find their success story? More specifically, the crew were tasked with helping those with a lived experience of homelessness get back into meaningful work.

For clarity, the team adopted the moniker 'Alex' to describe people with a lived experience of homelessness; our team decided that Alex could be used to describe an individual, or multiple people, depending on the context, and Alex will continue to be used similarly throughout the rest of this paper.

After reading through the brief, it quickly became clear that there would be a tremendous amount of complexity and sensitivity to this task, and the team set out to discover; who their target audience was, the reasons why people with a lived experience of homelessness weren't able to get meaningful work, and the challenges that businesses faced in hiring Alex.

It was agreed that the team would try a 'Double Double Diamond', doing a Google sprint process to quickly establish a direction to focus on, before refining their idea based on feedback on a prototype. Through both primary and secondary research, the team were able to conclude some initial findings; stigma and perception of homeless people was a major inhibiting factor, as well as a lack of jobs available for Alex and a lack of understanding how businesses can help. Through a system of dot-voting, the team came up with the first of many 'How might we…?' questions: How might we create an environment to get Alex into work and offer them the necessary support to succeed?

After struggling through the first week to decide on a clear goal, the team decided to attack the brief from a different angle; a negative brainstorming session. The group flipped the wording of the 'How might we…?' question to 'How might we create a culture of bullying and abuse in order to keep Alex out of a job?' and did five minutes of silent brainstorming, coming up with obscure ways that would drive Alex away from working. The team then 'downloaded' what had been learned – a tool that allows the team to transfer data from post-it notes or their minds into a form that everyone can see, such as a whiteboard or flipchart – and discussed how we could flip the negative ideas into positive ones.

As dark as the brainstorming was, it provided the team with a more precise goal to aim for, and it eased many tensions within the team dynamics. By looking at the problem from a different viewpoint, the team was able to come up with micro 'problems' and then provide micro 'solutions' which helped shape the overall concept.

The team then went off to individually come up with concepts on how to answer the 'How might we…?' question. After picking out the best parts of each team member's concept, it was decided that we should focus on removing the public perception of Alex, while at the same time developing an online platform where both Alex and businesses could come together to connect. Using these insights along with the research we had conducted, we were able to mock up a prototype website and mobile app, along with a marketing campaign to change the public perception of Alex, ready for a talk event at KPMG the following week.

At the beginning of week two, the team had taken to conducting more research; building personas, stakeholder maps, interviews and 'show and tell' sessions with other teams, where we shared our insights and ideas with the rest of the crew. The team spent a lot of time researching, and fractions were beginning to show between team

members. It seemed as though we had gone back a step and instead of moving on to the 'define' phase of the Double Diamond, we were languishing in the 'discover' stage again. In my opinion, if the team had been more experienced in using the tools, we would have moved on to the next step at a much faster pace.

Two of the team members attended the event at KPMG along with a prototype to gain some primary feedback. The feedback was vital, and the team learned that a mobile app and a jobs board would not solve the problem, so the group used another tool at their disposal; 'crazy eights', where each team member comes up with eight ideas in eight minutes. From this the team came up with their ultimate idea and a new 'How might we…?' question: How might we use the existing knowledge and successful employment programmes to make it easier and attractive for businesses to hire Alex?

The team voted on a festival that would be built and maintained by Alex, supported by businesses and attended by the public. We all agreed that this would solve the areas we initially wanted to tackle; a lack of jobs, removing the public stigma and enabling businesses to come together to develop a solution to remove the constraints they faced in hiring Alex.
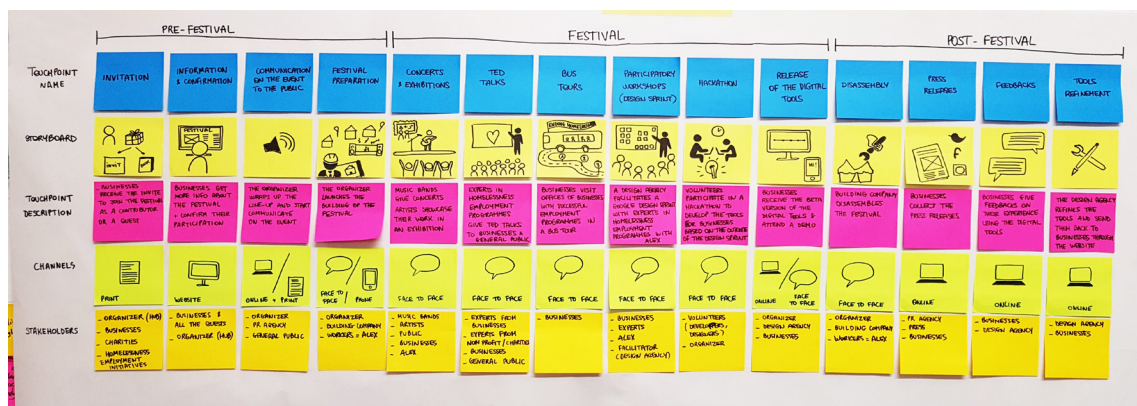

Fig 4. Journey map for festival idea.

However, at this point, the team were fast running out of time before the whole crew had to pitch their ideas to charities and businesses eager to help, so there was little time to prototype and test the concept. The first real barometer of whether the

idea might work or not was from feedback from interested parties after the pitch had been completed. The consensus was mostly positive, so it would have been interesting to see how the pitch might have gone if we had a real prototype to show.

Fig 5. Logo design for the Manchester Home Festival 2018 concept.

Review of the Double Diamond Experience

Having experienced the Double Diamond, it became clear that it is too easy to get caught up in the first diamond, discovering and defining research. This did not leave the team with enough time to explore the second diamond as much as might be necessary to get the full experience out of the tool. As mentioned earlier in the paper, Design Thinking is as much about doing as it is about thinking and had the team stuck to that idea; perhaps more time could have been spent prototyping, testing and iterating on the chosen idea. While conducting secondary research is useful in defining a goal, it is only one part of the solution. Better time- and resource-management would have enabled the team to find flaws or iterations in the idea that could have been addressed sooner. The flexibility offered by the Double Diamond is an excellent way to explore ideas, define them and then go back and do some more exploring, but there must be a point at which the team stops thinking and starts doing. The Double Diamond tool is a robust method of thinking of things that aren't possible by sticking to a logical approach while giving the opportunity to build on the ideas of others. The ability to diverge and converge the group's thinking provides a path to follow to prevent the team from being side-tracked and focusing on the wrong areas.

Conclusion

In the first half of this paper, Design Thinking has been explored at length, and the ethics surrounding its use in other industries has been reviewed. Personal experience of using the process in response to a complex design challenge completes the second half of the paper, along with the lessons learned that could be taken from that experience.

Throughout this paper, research has been used to suggest that Design Thinking is a robust methodology of creative problem solving that, when used correctly, can help a team develop innovative ideas that they may not have done through a more logical and linear process. However, this research has led me to believe that Design Thinking requires a lot of hard work, collaboration and the right team set-up to get the best out of it. As the research and the likes of Walters (2011) have concluded, Design Thinking is not a cure for all creative problems, and teams must adapt it to their own needs. Nor does it replace the difficult jobs that designers do; experience and expertise of what, why, how and when to implement Design Thinking can make or break the success of its implementation.

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Fig 2. Kelley, T and Kelley, D. (2013). *Creative Confidence: Unleashing the Creative Potential Within Us All*. [diagram] New York: Crown Business, p. 19.

Fig 3. Design Council. (n.d.). *Design Council Double Diamond.* [diagram] Available at: https://www.designcouncil.org.uk/news-opinion/design-process-what-double-diamond [Accessed 20 Feb. 2018].

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