



## Using Design Thinking to Enhance Research Impact

Researchers often design interventions and products for people that we know will be good for them, and then we evaluate them to make sure that they do what we think they will do. Too often, those fabulous, theory-informed, evidence-based interventions sit on the shelf as we don't have the resources, skills and capacity to market our products (or the time!), but also, sometimes, because we make things that don't really solve a problem for the target audience. Using design thinking can fix this, and it can help us to have greater impact.

We need to ensure that our knowledge translates to bridge the research-practice gap, but also, the problem-solution gap. As researchers, we need to focus much more on the problem from the perspective of the end-user, not just the research literature.

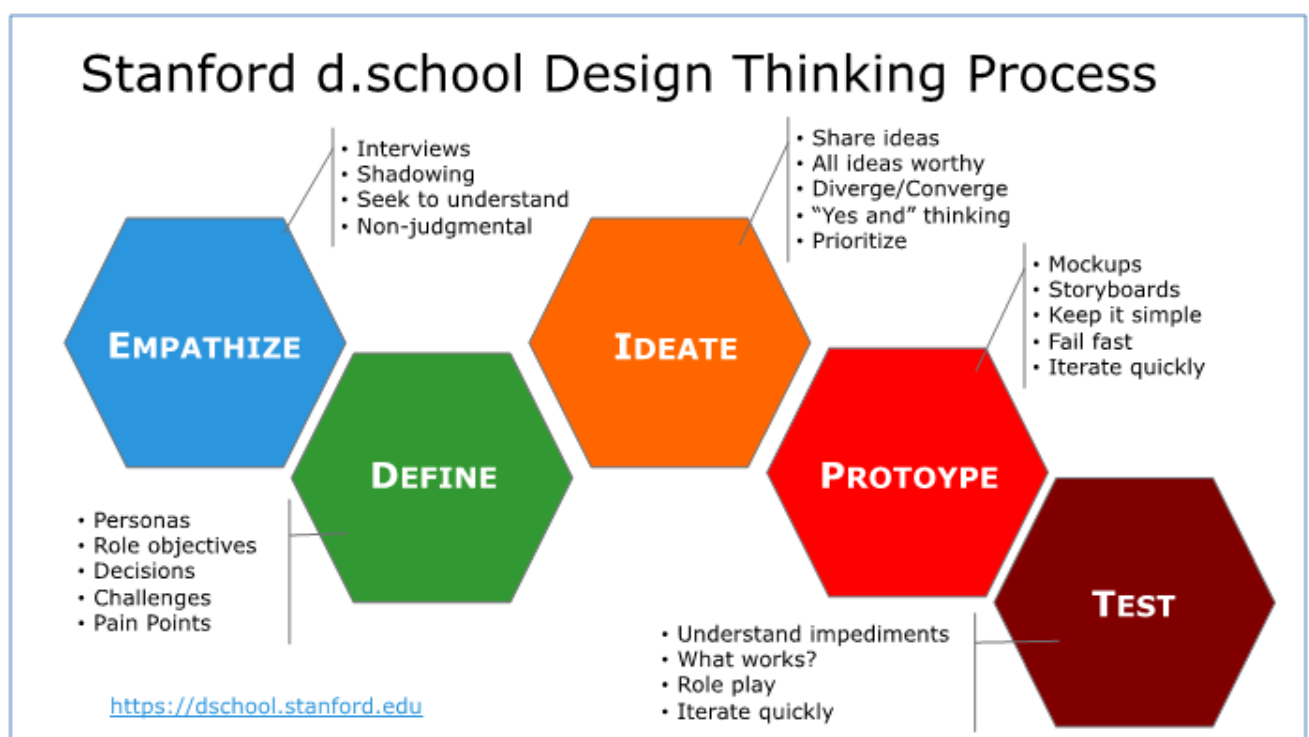
Co-design, co-creation, and co-creation have all become popular approaches in research and resource development, but there are very few formalised frameworks to follow. Design thinking provides a structured, iterative process for incorporating the needs of end-users, that can, and does fit easily into our existing research context.

### **Design Thinking: What is it?**

User-centred design, human-centred design and design thinking are common in the start-up and business world, but not in research and academia. There are a lot of things that academics and researchers can learn from this approach to user engagement to design programs and interventions that people actually want to use.

Design thinking is the process that designers use to solve problems and develop new products and services- it's probably what was used to design the chair you are sitting on, and the building you are sitting in. However, this process can apply to the development of most products and services- even those in psychology, health promotion, and education. Design thinking is particularly useful for solving complex problems, and coming up with new ideas that meet the emotional and functional needs of consumers. This means that the end-product that has been developed is much more likely to be used, enjoyed, and have impact.

There are a few different variations in name (human-centred design, user-centred design, design thinking), and variations in how the process is described, and regarding exactly how many steps there are, but in general, there are 5 or 6 main phases. [Stanford D. School](https://dschool.stanford.edu) is credited with 'inventing' design thinking so let's use their model.



As researchers, we usually define the problem from decades of academic literature, a theory or two, and what we think will get funded- rarely the needs of the audience we are doing all of this work for! This step helps us to flip things around, determine who you are developing your product for, and learn more about this group- Empathise with them. You then Define the problem from the point of view of those future users. The next phase of Exploration involves Ideating, or brainstorming solutions (usually using post-it notes!), Prototyping, where you build a version of your ideas that you can show to others, and Testing your ideas with your user group.

The design thinking process is non-linear- the whole idea is that you test, go back, tweak something, test again, until you have something that works.

In order to utilise this process within a research context, I suggest adding a step at the start that involves reviewing the research literature so that you have a good understanding of the existing, effective interventions that are available in the research area that you are in.

Now let's go through the process in detail.

### **Step One: Empathise**

The first step in any of the design thinking processes is to really understand the issue from the end-user's point of view. How many times have you developed resources for parents, or a program for school kids based on your interpretation of the problem, not theirs?

For example, let's say your aim is to develop resources to help parents in improving their adolescent's body image. You see the problem as being that: adolescents have high levels of body dissatisfaction, and parents are unprepared to support them. You are probably thinking of running an information session, a webinar, or writing a booklet that parents can access at their leisure to learn how to develop body image in their adolescent children.

But what do parents think about this? What would adolescents like their parents to know? How would they like to access this information? If you develop a resource based on your definition of the problem, it will do the job, but will it really have impact?

According to [D. School](#), you should do three things to be able to empathise:

- Immerse: experience what users experience.
- Observe: view users and their behaviours in the contexts of their lives.
- Engage: interact with and interview users through schedules and "intercept" encounters.

So, let's try some design thinking tools:

#### 1) Observe and Interview

Yes, you've done observations and interviews before, but, if they're anything like the ones I've done, they usually don't have the purpose of probing deeper into what the experience of a problem is like for an end-user. An interview in this process allows you to set aside your assumptions (or those of the research literature) and gain a deeper personal understanding of how users experience a problem.

Observations allow you to immerse yourself in the environment of the end-user, and see how they experience the problem. Shadowing might allow you to observe how users currently do things, which can also lead to you gaining a better understanding the problem from their perspective. The tools that you use will depend a lot on what you are designing, what you want to know, and who you have access too. If you are just starting the process of developing a resource, and none currently exist, then interviews are probably best. If there are several products on the market, and you want to develop one that is more effective, observation might be more powerful.

Whatever you do, it's important that you approach the interview or observation as a learner, not an expert. Your aim should be to learn as much as possible from the interviewee's point of view. Put aside everything that you know about the field for now, put together some open-ended questions, make the participant feel

comfortable, and learn from the people that you are so passionate about designing resources for. Whether you do this before or after human ethics or IRB approval will depend on whether you want to publish the results or not, and the time that you have available. I suggest speaking to the chair of your board or committee first to get their perspective from your institution's point of view.

There are a lot of existing information about conducting these sorts of interviews, look at these resources from:

Lorca Lorkassa Sa- [Techniques for Empathy Interviews in Design Thinking](#)

Nielson Norman group- [Creating empathetic questions](#) for user interviews

Interaction Design Foundation: [How to conduct user interviews](#)

Interaction Design Foundation: [How to conduct user observations](#)

Interaction Design Foundation: [Shadowing in user design](#)

## 2) The Empathy Map

The Empathy map is the key tool that is used by designers to pull together the insights from their user interviews. An example of an empty empathy map is as follows:

**Empathy Map Canvas**

Designed for: \_\_\_\_\_ Designed by: \_\_\_\_\_ Date: \_\_\_\_\_ Version: \_\_\_\_\_

**1 WHO are we empathizing with?**  
Who is the person we want to understand?  
What is the situation they are in?  
What is their role in the situation?

**2 What do they need to DO?**  
What do they need to do differently?  
What job(s) do they want or need to get done?  
What decision(s) do they need to make?  
How will we know they were successful?

**3 What do they SEE?**  
What do they see in the marketplace?  
What do they see in their immediate environment?  
What do they see others saying and doing?  
What are they watching and reading?

**4 What do they SAY?**  
What have we heard them say?  
What can we imagine them saying?

**5 What do they DO?**  
What do they do today?  
What behavior have we observed?  
What can we imagine them doing?

**7 What do they THINK and FEEL?**  
**PAINS**  
What are their fears, frustrations, and anxieties?  
**GAINS**  
What are their wants, needs, hopes and dreams?

What other thoughts and feelings might motivate their behavior?

**6 What do they HEAR?**  
What are they hearing others say?  
What are they hearing from friends?  
What are they hearing from colleagues?  
What are they hearing second-hand?

Last updated on 16 July 2017. Download a copy of this canvas at <http://gamestorming.com/empathy-map/> © 2017 Dave Gray, xplane.com

you can download this from the [Gamestorming Website](#)

The idea is that you do an Empathy map for each user that you interview or observe. Focus on interviewing and mapping personas that represent the extremes of any people on your continuum, and some in the middle. Ideally, seven interviews and maps should give you a good coverage of your users without being too overwhelming. And yes, I see you saying 'this is going to take forever- I don't have this much time'. Seven interviews and maps is the ideal situation. If you are short on time you could

actually just take a moment to think about a problem from a typical end-user perspective and do a general empathy map, but it won't give you the same depth of insight.

For more information on Empathy Maps, see [Adobe Blogs](#).

### 3) Customer Journey Maps

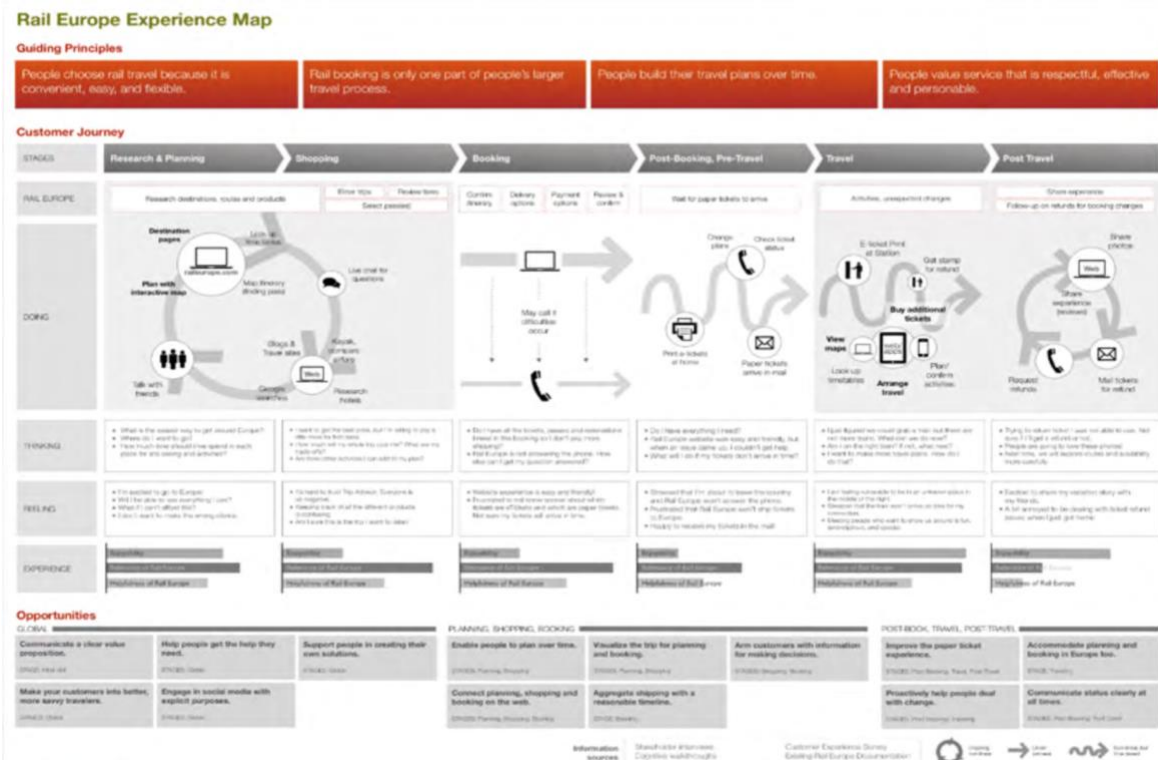
Customer Journey maps are useful when you are designing an intervention that might be a part of a process, or an intervention for a specific time period. You basically map out the touch points that users might have with the intervention, or in their journey or process, and what their functional and emotional needs might be at each step.

Yes, this is most often used in sales and marketing, but it can also be a valuable way to get inside the heads of your end-users. It helps identify their functional and emotional needs at each step along the way. Functional needs are the things that users know that they want- they want resources to assist in improving the body image of their children. The emotional needs are the subconscious desires that users have in terms of their value, aspirations, and desires, for example they want connection with their children.

For example, if you are focussing on developing resources to enhance parents' capability to more positively support their children in the transition to school, you identify the major points in the process first:

| Touch Point      | Investigate potential schools online                                    | Attend School information nights | Select school and complete enrolment | Orientation program | Attend School |
|------------------|---|----------------------------------|--------------------------------------|---------------------|---------------|
| Functional Needs | Key pieces of information about zoning, school numbers, etc             |                                  |                                      |                     |               |
| Emotional Needs  | To know that their child will be happy, safe, and secure at the school. |                                  |                                      |                     |               |

More complex customer journey maps can capture the flow of the journey, and a greater number of touchpoints, like this example from RailEurope:



Customer journey mapping resources can be very corporate and salesy-focused, but there are lots of different types, and this just gives you another way to capture user experiences. There are more good resources to inform this from [UXMastery](https://uxmastery.com)

#### 4) Insight Statements

You've done some interviews, created empathy maps, and realised a lot of things about your end-users. Now it's time to summarise those, in themes, or as a nice concise statement that can help you to capture what you have learned from this process and move forward.

In our example, our insight statements might be:

- Parents need to have go-to phrases and responses to adolescent's comments about their bodies
- Parent education about eating disorders needs to be brief and accessible at a range of time points

From this process, you know that parents might need something that is much more time responsive and will prepare them for engaging in conversations with their adolescents about their body image.

Use the [IDEO field guide](#) on page 82 and 83 for more information, or this nice summary from [Thrive Thinking](#).

Still confused not clear enough to move on? [The IDEO Field guide](#) to human-centred design has some great strategies for understanding the needs of your users on pages 38-55.

#### Step 2: Define your Design Challenge

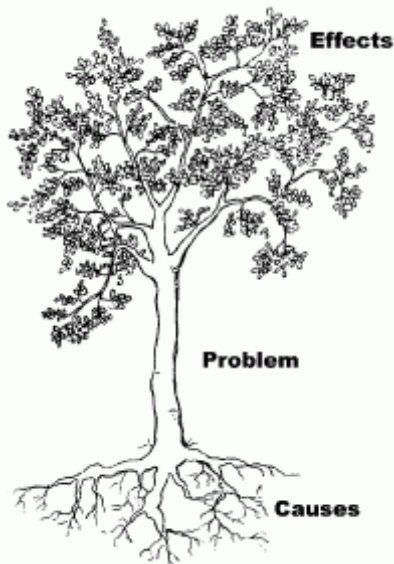
In health promotion and research, the challenge is usually already pretty clear... there is a health issue, that could cause more future physical or physiological health issues, so we

need to prevent it from starting or happening again. However, it is still worth making sure that we have captured our design challenge correctly.

In the course that I have done, they taught us to develop 'how might we' questions ... how might we create a resource for parents that makes them feel like they can connect with their child and respond to in-the-moment situations related to body image'. Defining this challenge is best done in teams.

The [IDEO Field guide](#) steps you through framing your design challenge on Page 31-33.

In their book 'Edupreneur', Aaron Tait and Dave Faulkner use a different process. First, they suggest using the stem sentence 'it is unacceptable that...' to frame your problem. For example, "It is unacceptable that teachers don't have any evidence-based resources to teach about body image in schools". Then, complete the sentence "we believe..." as in "we believe in a school where students feel comfortable in engaging in physical education class"



The [Edupreneurs](#) also suggest a 'problem tree' strategy, whereby you write your problem on the trunk of the tree, write the consequences of the problem on the branches, and the root causes of the problem on the, well, roots.

For example, if our problem is that parents don't know how to support their adolescent, root causes might be:

- They have body image problems themselves
- They feel guilty about their relationship with their children
- They don't know enough about what body image is
- They feel like they don't have the right words to say when they need them

More often than not, the right solutions come from chopping away at the root causes of the problem rather than hacking at the consequences or going straight at the problem itself.

### Step 3: Ideate

You're going to need a lot of post-its. This is the time when you finally get to start creating solutions to the many, many problems that you now know that your end-users have.

There are various methods, but most revolve around setting either a number of ideas, or a period of time in which you continuously write down ideas. This is best done with the whole research team. Write things down even if they seem crazy. Keep going! Some design thinking calls for 50 or 100 post-its, others say to set 5 or 10 minutes for ideation. It might seem like a lot but the first 10-20 ideas are probably ones that you had before going through step 1 and 2 of the design thinking process, 20-40 are probably still not hitting the mark, and it's not until you start getting to 70-80 that you start getting some crazy, and start getting somewhere... You can do this on your own, with your team, or a mix of both, it's up to you.

Some guidelines for brainstorming from [IDEO Field guide](#) page 95:

1. Defer judgement. You never know where a good idea is going to come from. The key is to make everyone feel like they can say the idea on their mind and allow others to build on it.
2. Encourage wild ideas. Wild ideas can often give rise to creative leaps. When devising ideas that are wacky or out there, we tend to imagine what we want without the constraints of technology or materials.
3. Build on the ideas of others. Being positive and building on the ideas of others take some skill. In conversation, we try to use “ yes, and...” instead of “but.”
4. Stay focused on the topic. Try to keep the discussion on target, otherwise you may diverge beyond the scope of what you’re trying to design for.
5. One conversation at a time. Your team is far more likely to build on an idea and make a creative leap if everyone is paying full attention.
6. Be visual. In Brainstorming, we put our ideas on Post-its and then put them on a wall. Nothing gets an idea across faster than a sketch.
7. Go for quantity. Aim for as many new ideas as possible. In a good session, up to 100 ideas are generated in 60 minutes. Crank the ideas out quickly and build on the best ones.

If you get stuck, go back to your insight statements or ‘how might we’ statements.

- For example, if your insight is: Parent education about eating disorders needs to be brief and accessible at a range of time points
- Your ‘how might we’ could be: ‘how might we create brief and accessible parent education tools’
- Repeat for each of your insights.

See [IDEO Field Guide](#) page 86 and 87 for more information.

Cluster or clump your ideas together and look for common themes. Group things together that could form operational solutions.

When you hit a wall here, try returning to your Empathy Mapping and Insight statements to come up with some core design principles that you will follow in developing your product.

#### **Step 4: Prototype**

When researchers develop a ‘pilot’ of their resource – it’s usually pretty close to being fully developed. We are then so devoted to our perfect product that we don’t want to change it much- even if people make suggestions to do so. In [The Lean Start-up](#) model, the Minimum Viable Product [MVP] is the thing that you can develop in the fastest amount of time that will test your assumptions, and whether people will want to use what you plan to make. The whole idea of the MVP is to learn hard and learn early without having spent a lot of time, money, and energy to get there.

This could be just a simple 2-3 description of the resource, a storyboard indicating how someone would use a service, a diagram of a product, or a mocked-up physical resource. In the case of an app, the prototype could be a sketched-up version of the screens that you intend to use. No fancy designers, or pretty colours- just the basics of how it will work, and the core ideas related to functionality... The idea is that you show this to lots of different people in the next step, and we have found that representing the resource as basically as possible prevents people from commenting on the detail instead of the overall vision, ie “it’s a great idea, but I really don’t like red so I don’t think it will work.”



If you are developing a research resource, you might want to have ethics prior to the testing phase in order to allow you to record the number or, and anonymous feedback from potential end-users.

More on MVP's:

Cloudbridge Mobile [guide to MVP's](#)

Lean Startup Methodology: [The MVP](#)

## **Step 5) Test and iterate**

You've come up with some prototypes that represent some great user-generated ideas- now it's time to test them!

This sort of test is different to our usual desire to see if resources 'work' by changing attitudes and behaviour. This sort of test really helps us to discover whether the solution that we have together solves the problem for the user, and whether they will want to use it, understand what it is for, and feel that it is useful to them.

I really like this example from the [Lean Start up Method book](#): Back before online shopping really existed, in order to test whether consumers would order shoes online, the creators of Zappos took photos of shoes at the local shoe shop and made a website for customers to order from. When someone bought a pair of shoes on their site, they went and got them from the store and mailed them to the customer, learning about how to best design this service to meet customer needs along the way. How can you apply this mentality to testing whether users want, and will use the resources that you have developed?

There are a number of ways to test and iterate your product. I think the ones that relate most to researchers could be to do more customer interviews, have a focus group, and asking for feedback on concepts on social media groups. The key is to solicit actual honest feedback. In order to do this, it's a good idea to test multiple prototypes, present them in a neutral way with positives and negatives, and ask for the things that people like, don't like, and would like to change about them (sometimes known as 'I like, I wish, what if'). Probe to see whether your creation solves their emotional and functional needs at particular points of their journey. Don't defend the product when they critique your creation. You could develop a survey that asks about different aspects of the product, but when we do this, it is generally done to confirm that the pilot is the right way to go, rather than really inviting the end-users to guide the iteration of the product- can you see the difference?

Here is some great guidance on user testing from [The Design Foundation](#).

The other key difference between what we usually do, and design thinking is in iteration. Rapid iterating refers to the fact that you might alter your prototype while you are talking to a user to get feedback, or afterwards, but the key thing is that you quickly change your creation prior to talking to anyone else about it so that evolves over time into an ideal solution. If you have created a very low-cost MVP, like a sketch of a product, you can very quickly adapt this whenever you get new feedback.

And if they really don't like it? That's when you pivot. Used often in design and business, pivoting basically means changing direction or changing your plans. We don't do this a lot in research- You get your research approved, you do the research- despite the obstacles, and

even if it doesn't do what you want it to at the end, and then you defend it in a Viva or publications. But maybe our research would have greater application, relevance, and translation to the 'real world' if we listened to the world more when it is telling us that something isn't working. If the feedback you are getting on your MVP is sending some signals that you need to take a different approach, a quick pivot can get you back on track. Go back to your empathy mapping, insight statements and 'how can we' statements, go back to your list of ideas and come up with some new prototypes to test. This process should be cyclical- not linear!

More ideas here from [TNW](#), and this [interview with Eric Ries](#), Author of the Lean start-up explains more.

## Wrapping Up

Design thinking is a philosophy as well as a process. Beginning your process with the intention of being more centred around users and their needs is a good start, and whether you spend a lot of time in each step, or just take the essence of each part of the process is up to you.

I'd love to see more detail about how researchers develop interventions and resources- in journal articles, and in general. If you have used design thinking, mention it in your papers, and send them to me.

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[Dr Zali Yager](#) is a researcher in the Institute for Health and Sport at Victoria University, and completed a course on design thinking at Harvard University in 2019. Zali uses design thinking in her current projects aiming to enhance [body image in mums](#), and in [adolescent boys](#).

Join Zali in her [Well Researched Membership](#) if you want to engage with a group of likeminded researchers who want to have more impact and improve their own wellbeing.

You can find Zali on [Twitter](#), [LinkedIn](#) and [instagram](#), and contact her at [zali.yager@gmail.com](mailto:zali.yager@gmail.com) for consulting and speaking opportunities.