

The dangers in Design Thinking

Over the past few years there has been an increased use of the term Design Thinking (DT). Organisations such as The NextDesign Leadership Institute and its related design consultancy, Humantific have been using the term in various projects such as the 'Design Thinking Made Visible' project (Humantific, 2011). The term Design Thinking gained popularity after the Stanford University Engineering School ran a course on it in 2005 (Christoph, Leifer & Plattner, 2011).

Many of the processes used by designers adopting this approach seem to come from non-design disciplines. Much of what has been taught in management schools for many years is used in DT, for example card sorts (clustering); creative thinking; and formal brainstorming (Hogan, 1999). DT has been a significant topic in the management field (Woudhuysen 2011). Another system that has been used successfully in industry, especially in the construction field, is Value Management or Value Analysis (NSW Treasury, 2004). Looking at the Value Management/Analysis process it is possible to draw parallels with many versions of DT: they all employ a collaborative group approach.

This paper looks at some of the difficulties inherent in teaching and applying DT and discusses an approach taken in a new unit in collaborative design. It proposes that collaboration is a skill that can be developed. It also details some of the pitfalls such as the problem of identifying what designers bring to the practice that other consultants do not.

Woudhuysen (2011) quotes design management journalist Bruce Nussbaum as calling DT 'a failed experiment' (Nussbaum, 2011), Nussbaum advocating instead 'humanistic design,' and outlining a third concept: 'creative intelligence'. None of these alternatives were provided with any clear definitions. This highlights one of the dangers in the use and advocacy of DT: it is contested territory and those with vested interests can make unsubstantiated claims about its relevance or irrelevance.

Commonly accepted approaches

The process advocated by Stanford University in its design school is regarded by many as the main approach to DT. In their *Bootcamp Bootleg* (2011) they break it down into sub categories:

- **Show Don't Tell:** Communicate your vision in an impactful and meaningful way by creating experiences, using illustrative visuals, and telling good stories.
- **Focus on Human Values:** Empathy for the people you are designing for and feedback from these users is fundamental to good design.
- **Craft Clarity:** Produce a coherent vision out of messy problems. Frame it in a way to inspire others and to fuel ideation.
- **Embrace Experimentation:** Prototyping is not simply a way to validate your idea; it is an integral part of your innovation process. We build to think and learn.
- **Be Mindful Of Process:** Know where you are in the design process, what methods to use in that stage, and what your goals are.
- **Bias Toward Action:** Design thinking is a misnomer; it is more about doing that [sic] thinking. Bias toward doing and making over thinking and meeting.
- **Radical Collaboration:** Bring together innovators with varied backgrounds and viewpoints. Enable breakthrough insights and solutions to emerge from the diversity

These categories or ways of working are further teased out into modes of operating: Empathize; Define; Ideate; Prototype and Test. The document then suggests a number of tools and methods that can be used to help facilitate these processes.

What is not clear from the document is in what ways DT differs from any other schools of thinking. Take for example the Value Management (VM) process, also called Value Analysis and Value Engineering.

A thinking system ... used to develop decision criteria when it is important to secure as much as possible of what is wanted from each unit of the resource used. The system is unique in that it effectively uses both

knowledge and creativity, and provides step-by-step techniques for maximizing the benefits from both. It promotes development of alternatives suitable for the future as well as the present. (Miles, n.d.)

Lawrence Miles was one of the architects of the VM system. It came out of the needs of General Electric's manufacturing in the Second World War in The United States of America (Value Foundation).

In Australia the relevant standard for VM is: AS/NZS 4183:1994. The Institute of Value Management advocates the use of the VM process across problem areas, much as DT is being considered. 'The types of function considered can range from those that are purely utilitarian to those that may be termed aesthetic or which relate to esteem, prestige etc - and even personal "values".' (Institute of Value Management)

Value Management uses a step process, usually incorporating seven steps or stages. Typically the first stage is Information. In this stage all stakeholders participate in a facilitated workshop or series of workshops where the issues to be dealt with are raised. In the public sector and in building construction these workshops bring together everyone who will be impacted by the changes being developed. This inclusiveness is important as it recognises that good ideas are not the sole preserve of the expert and that many breakthrough ideas come from the users. For this stage to be effective it needs good facilitation processes; methods such as 'nominal groups,' 'card sorts' and 'buzz groups' (Hogan, 1999) are often used to extract information from participants.

The next stage is Function Analysis, this typically uses the Function Analysis System Technique, or FAST diagram. A FAST diagram incorporates a Why axis and a How axis. This stage is a key to the VM process and differentiates it from other thinking workshop processes. The power of the FAST diagram comes from the requirement that functions are stated in their simplest Verb/Noun form, for example a Why might be: Improve Visibility and a how might be: Provide Illumination. These functions are compiled into a diagram that shows the overall problem, its component parts and suggestions for solutions. Figure 1 shows a simplified version of a FAST diagram.

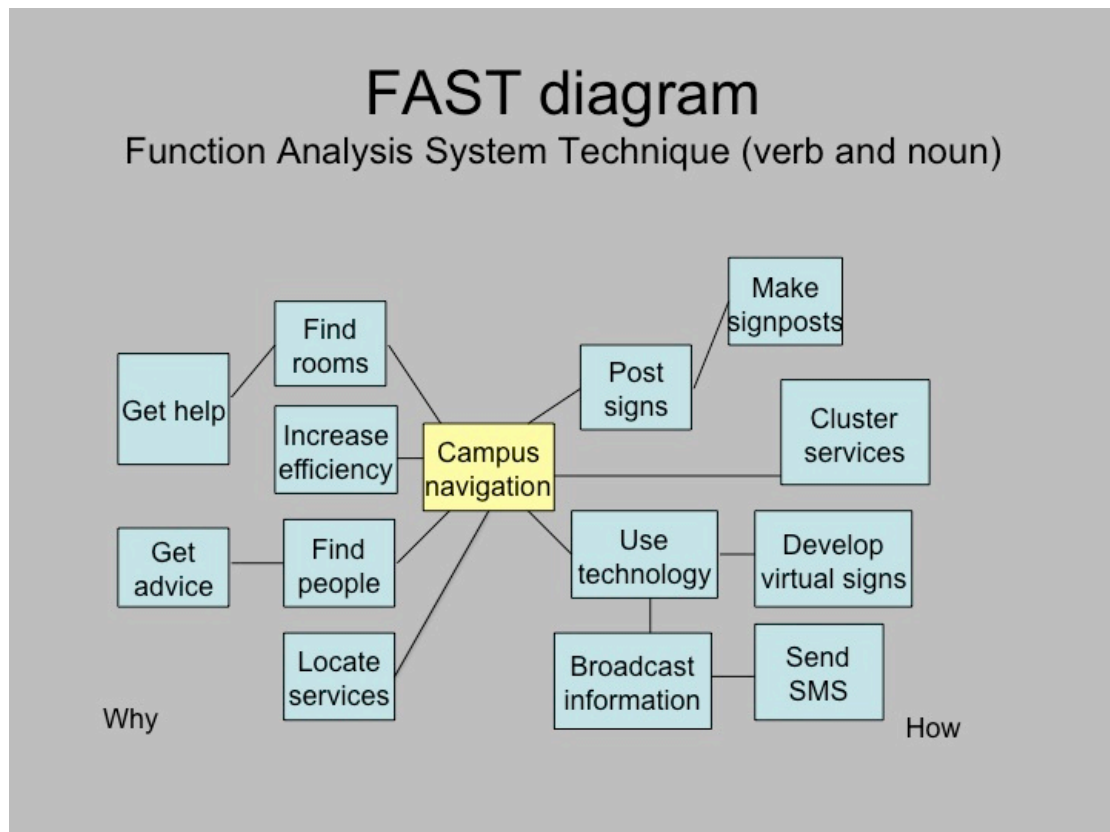


Figure 1

The next stage is usually Creativity or Idea Generating. Taking the functions identified and guided by the potential solutions, participants employ idea generation methods such as brainstorming, mind mapping or synectics to re-think the problem and look for creative solutions. This creativity step should be where the closest associations are found between DT and VM.

The next steps include Evaluation – the selection of ideas – Refinement – where the design is developed – followed by Presentation and Implementation stages.

From this outline it is clear that VM can be seen as a form of DT; it looks at problems holistically and uses creative processes to achieve outcomes across a range of domains.

This highlights a possible second danger in DT: it competes with existing processes and methods that have significant traction within the community. In Australia various state governments identify VM as a requisite process in the development of

agencies' projects. The New South Wales Government's Treasury Department issues guidelines for the application of a VM process in all funding applications.

Projects less than \$5 million: No formal requirements exist in terms of project submissions to Treasury. However, Value Management techniques should be applied, particularly in establishing the project rationale and considering options.

Projects of \$5 million and over: Formal Value Management Studies are required and submissions to Treasury require a summary of the Value Management Study outcomes, copies of the Value Management Study reports, and the agency's preferred direction and implementation strategy. (NSW Treasury, 2004).

Other agencies, including Western Australian Government departments, also routinely use the VM approach. Other countries also have VM built into legislation.

The third danger that can be identified in and to DT is the power of the word in the process. In running DT and VM workshops with design students, DT recently and VM over the past ten years, it has been noticeable that participants quickly learn to use techniques such as 'card sorts' and FAST diagrams that require problems and information to be framed in words. Some recent examples from a first year Collaborative Design unit highlight this issue. Collaborative Design is a unit that sets out to teach students some skills for working with others. The syllabus includes: asking effective questions; negotiation; group process skills, including card sorts; running meetings; group dynamics and other basics of working with others. The focus of the unit is working with others. Students learn by using techniques, methods and processes that help facilitate teamwork and working with client groups.

Learning in the unit is both by research into the topics and by applying processes to tasks. There are two assignments: the first is to run a focus group on a piece of design work. The design could be a poster, a piece of furniture, a space, or any designed artefact. The second assignment asks students to take on a broad unframed challenge, a 'wicked problem' (Buchanan, 1992). The topic for this assignment was 'The First Year Experience'. For most universities the first year

experience dictates a range of things such as retention, and pass-fail rates, and is an important area for monitoring and improving.

To carry out the first assignment, students will need to be able to manage groups, ask effective questions and be able to be objective in assessing a design's effectiveness. This assignment helps develop their organisational and team working skills. It teaches them to ask questions using basic questioning frameworks such as SWOT (Strengths, Weaknesses, Opportunities and Threats) and ORID (Objective, Reflective, Interpretive and Decisional) (Hogan, 1999).

In the second assignment students are introduced to the school's First Year Coordinator and also the Dean of Teaching and Learning. They are asked to consider these as part of their information gathering. By this time we've covered some basics of questioning and students use questions to gain information on the dimensions of the problem. This forms part of the first stage of the VM design process. This step is also important in any co design process. Identification of stakeholders and their inclusion into the design process is important to most DT approaches. This is another danger with DT: it does not always demand the inclusion of all stakeholders. The Stanford model advocates both,

Focus on Human Values (Empathy for the people you are designing for and feedback from these users is fundamental to good design), and Radical Collaboration (Bring together innovators with varied backgrounds and viewpoints. Enable breakthrough insights and solutions to emerge from the diversity).

Both these imperatives suggest that users and other stakeholders could be included in the process, but there is still the opportunity to interpret DT as a 'designerly' way of working, where a designer simply considers others and works with fellow experts. Where VM has an advantage over DT is that it builds stakeholders into the first steps of the design process.

What VM does not always have is good visualisation of issues. VM teams do not always include visual thinkers and sometimes, even in the creativity stage, problems are stated in words not diagrams and pictures. In using VM with design students I

have noticed a tendency to rely heavily on words. Some DT processes that I've seen in action also rely on words; this is sometimes an outcome of the process used. Tools such as card sorts rely on participants writing down issues or information on single pieces of card, or more usually sticky notes. There is a tendency to continue with the word-based version of the problem and sometimes there is no circuit breaker to bring things back to a visual domain until the actual designing takes place.

This is a danger in the use of DT: that it's possible to avoid a key skill set of designers in the creative process. This has the tendency to make the process similar, if not exactly the same as other methods such as VM or any one of a number of design methods used by organisations. J. C. Jones's book 'Design Methods' (1992) contains a catalogue of possible methods. Methods advocated by Jones include VM and thirty-four other methods for use in design, such as Innovation by Boundary Shifting and Machet's Fundamental Design Method. Each of the methods described can be related to DT.

Future directions

The next stage in the development of the Collaborative Design unit is to find ways of building in visual thinking, returning to Robert McKim's work 'Experiences in Visual Thinking' (1972) and looking at ways to draw out ideas (McKim was also from Stanford). Ideas that have previously had currency in design schools include the endless roll exercise, where students work on a long roll of paper, continually adding to and expanding on ideas.

What seems to be key, if DT is not to blend into other business school processes and leave out the designer altogether, is to reinforce the visual thinking component. It's what designers should be good at and it's what we can bring to the party.

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