End of the Beginning:
Complimentary educational perspectives in the collaborative design environment

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Introduction

An Irishman and a Mexican come together to talk about a 'practice- based' educational framework for students completing a three-year Bachelor degree in Communication Design. O'Dwyer, born and educated in Ireland and Barnum, born and educated in Mexico City, specialise in problem 'framing' although the design problem and its process, for each, is different. The conversation begins with the comment, "there are many roads to a solution," followed by the observation that "any problem is a challenge that can be mastered by experimenting with various views…" It is these remarks by design thinker Dorst (2003:15), that initiate the discussion.

Barnum first approached O'Dwyer, attracted by the differences his method was defined by, a set of clear and distinct steps that invariably led to formulating the outcome. Her process on the other hand, was non prescriptive, still following a set of protocols, but reliant on a more experimental methodology approaching the serendipitous qualities endorsed by designer and academic, Grocott (Laurel, 2003:84-93).

Teaching designers to work through a design problem can be approached a number of ways. Most recently, design thinkers have been guided by examples such as Brown's IDEO model of *inspiration, ideation* and *implementation* (Fig. 1)*,* or challenged, by business academic Martin's, *Knowledge Funnel* (Fig. 2), two of O'Dwyer's favourites. Other methods such as those illustrated by architectural theorist Lawson (*How Designers Think*, 2006), give varying views of problem solving but are inflexible as are the research models illustrated by American designer, Cooke, for his clients (Fig. 3).

Figure 1: Tim Brown's Design Thinking Model (Harvard Business Review, 2008: 88,89)

Cumulatively, models make known possibilities and have common and relevant features, and combined, make for an effective representation of problem resolution. But separately, they still only speak of explicit parts of the design process instead of the implicit authenticity sought by design practice (Barnum, 2011).

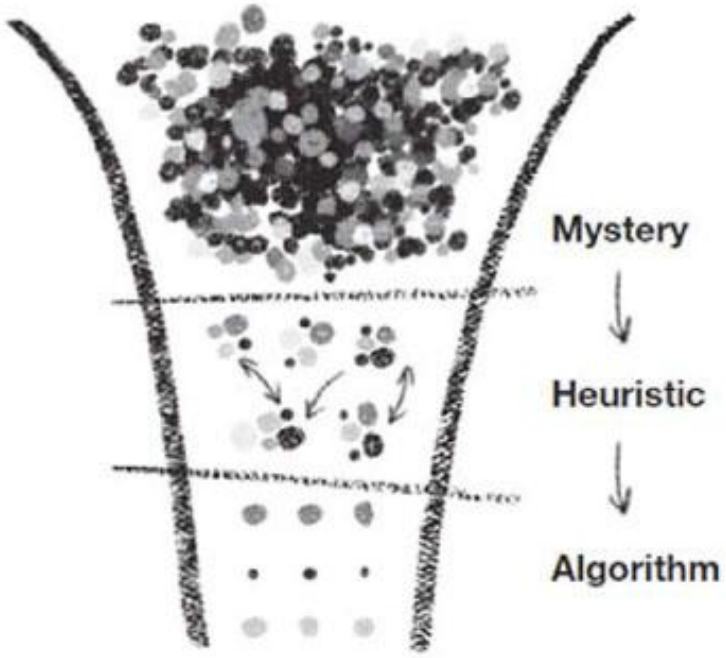

Figure 2: The knowledge funnel (The Design of Business, 2009:8)

In order for design pedagogy to have any relevance to practice, it must represent both the pragmatics of business and the 'feeling' of design process. This story revolves around the Irishman and the Mexican initiating and mapping a new teaching model combining seemingly, disparate styles. They bring to light inspirations they both rely on and are equally challenged by. Their perspectives are found to be complimentary, and by collaborating on a combined framework, are able to focus on the client/designer relationship emergent in the 'applied' design space. The result is reminiscent of a transformative design (thinking) model, with an added 'felt' flavour. Here is the first summary of their five considered stages.

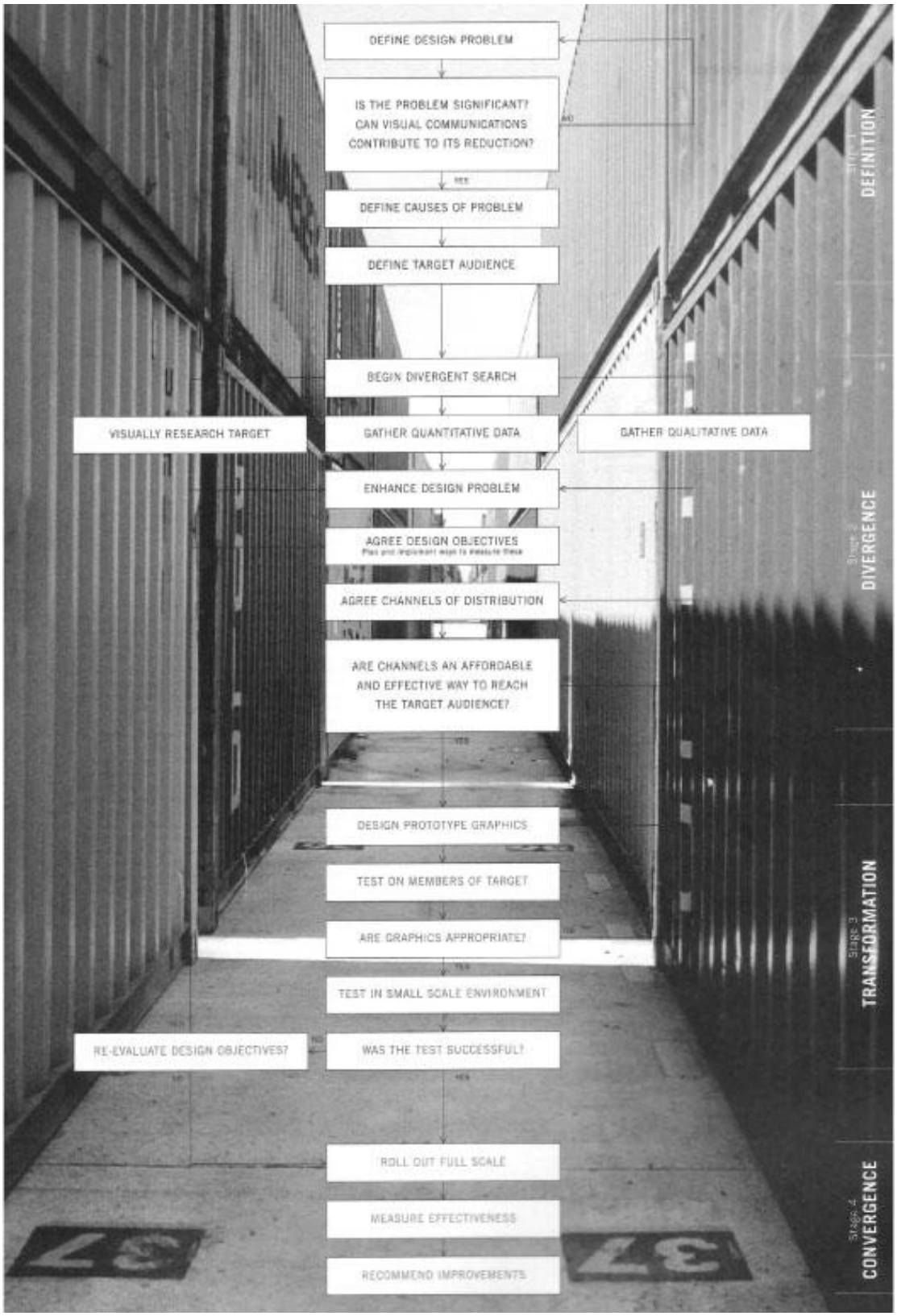

Figure 3: Cooke's Transferable Research Model (visual Research, 2005:31)

Stage 1:Mystery, Exploration and Intuition:
Combining heart and mind

Describing the 'mystery' of design to students, encouraging the necessary mistakes on the way to creating outcomes, engenders from the beginning, the heuristic notion that on the way to understanding a problem (and achieving a solution), trial and error are essential. Although scientifically a method dictates that a logical series of steps be followed – explaining a process that is largely dependant on 'reasoning', but has "freedom attached to the road that connects the design problem with the solution" (Dorst, 2003:23), allows mystery to be appreciated.

Martin includes 'mystery' in his *Knowledge Funnel,* as does Cooke, but Martin refers to it as the 'divergent stage' of his process where *exploration* is encouraged. *Divergence* is a term regularly featured in models, Brown for instance, also includes it as an opportunity to "create more choices," giving the design thinker more ideas to harvest from (2009:67) (Fig. 4). The concept of divergence then becomes a place to venture and explore.

Although the idea of 'research' is abhorrent to student designers, it is essential to consolidate the mystery stage of the design process and have each exercise their sense of discovery. The use of Smith's *How to be an Explorer of the World (*2008) helps re-establish the element of *surprise* for (what they are yet to uncover). Collecting and examining samples to activate the next few steps of the research process i.e. analysis and evaluation, also takes the relevance of mystery back to the notion of 'curiosity', establishing in the heart (and mind) of the designer, a state of 'wonder.'

The connection to heart and mind surfaces as a final feature in this first stage and helps activate the sixth sense of *intuition,* instinctive knowledge set in motion through mystery. Both Martin (2009:8) and Smith (2008:5), refer to intuition as a re-awakening of the senses. In his funnel, Martin alludes to the connection between heart, mind and intuition, leaving the mechanics of the process to more pragmatic stages later in his methodology. These touch-points are those we will refer to as 'tacit' - implicit characteristics in the designer's practice, activated through his/her experience, and often, not reflected or spoken about in design thinking models.

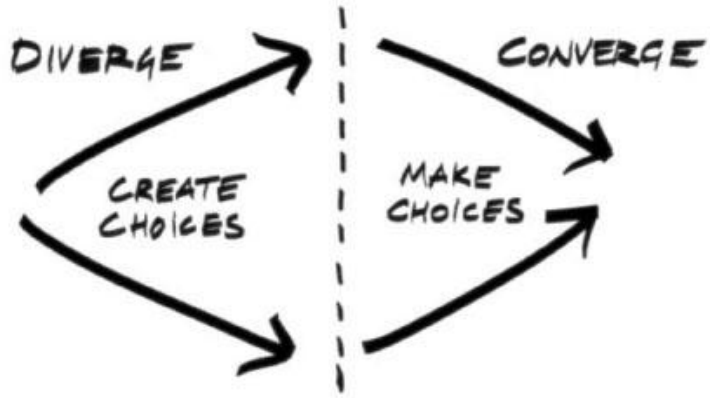

Figure 4: Tim Brown, Convergent and divergent thinking (Change by Design 2009:67)

STAGE 2:Balancing Boundaries and Constraints: Identifying the design problem through an iterative process

From heart and mind, O'Dwyer and Barnum move on to framing the design problem by applying 'boundaries' and 'constraints' – elements necessary for students' own understanding of where problem solving truly begins. Brown reminds us of Eames pronouncement "to embrace constraints" (2009:17).

Dorst and others refer to design problems as 'wicked' - described as more complex than regular problems as no true structure exists to solve them. There are no set rules since, "we design in the real world," and outside forces (constraints) regularly influence the evolution of the solution (2003:22).

This might strangle some of the operative models designed by theorists. The formula recommended by Martin's algorithmic stage for instance, requires the problem to be synthesised in order to meet the requirements of a brief (2009:9). In essence the designer must attempt to simplify the problem in order to frame it, knowing well that in time there will be another shift brought about by stakeholder interpretation/s.

This calls for problem re-framing, and where the term *iteration* is defined and explained. The student is enlightened to the fact that repetition of processes, i.e iteration, is essential to the refinement process and is also a good way to respond to subsequent shifts that will emerge - (Fig. 4). Martin too refers to the iterative in his use of the term "cycling process" alluding to re-visiting processes within the structure of his knowledge funnel.

Both the Irishman and the Mexican agree on the value of students learning early on, of shifts, boundaries and constraints – and in the opportunity to regularly re-frame the design problem.

STAGE 3: Analysis: Intrinsically felt, not explicitly diluted

Grocott's research into speculative environments where designers are given a more contemplative space to build personal bodies of work (2003:87) inspires Barnum to implement more humanist qualities into the analysis stage of the framework. Intrinsic characteristics such as 'disappointment,' that arise say, out of 'not' receiving the expected results from one's research, could instead be considered 'positive' as it might enhance the designer's perspective on the design problem. One would not be applying scientific methods of examination to the data, instead qualitative 'felt' criteria to evaluate information. Rarely is there a range of human qualities voiced - tacit elements of human activity which contribute to framing the circumstances of a problem, bringing authenticity to the elements rather than diluting them.

In Martin and Brown, we notice they also work towards implementing what Martin refers to as "the next salient mystery"(2009:23). In his desire to break a standard business approach to re-structure, he encourages venturing into more flexible domains of inquiry accommodating the prospect of feeling your way through analysis to the next significant adventure.

As an industrial designer, Brown already includes a human-centred approach to his solutions, adding 'felt' qualities to his process, but in his stage of analysis, he is still practical, employing analytical tools to break apart problems to understand them (2009:69). The status of his divergent/convergent thinking model (fig. 4), rests however in the belief that design learning draw in equal measure on both types of thinking, *art* and *feeling* as the divergent and *engineering (practical making)* as the convergent - the explorative with the rational (p. 68) – intrinsically felt, then practically approached and built. Again, not systematically diluted.

STAGE 4: Synthesis: The building and implementation of a story

Brown states that the creative process relies on synthesis "the collective act of putting the pieces together to create whole ideas" (2009:69). The notion that ideas just happen, is a myth and its worth highlighting to students that 'creativity' is due to the formulation of well substantiated stories and narratives.

Stories are something we rely on to put our ideas into context and give them meaning. Brown argues that we have already seen hints of storytelling at work: through ethnographic research and in the design of experiences. When we create multiple touch points along a customer journey, we are structuring a sequence of events that build upon one another, across time. So

it should be no surprise that the human capacity for storytelling plays an important role in the human-centred approach to problem solving and *design thinking.* Storyboards, improvisations, and scenarios are among the many narrative techniques students can apply to help visualise an idea as it unfolds over time. Brown suggests designing with time means thinking of people as living, growing and thinking beings who can help write their own stories. An experience that unfolds over time, engages participants, and allows them to tell their own stories. This will resolve two of the biggest obstacles facing any new idea: gaining acceptance and getting it out into the world (p.132).

Should an idea manage to survive its journey out into the market, storytelling can play another vital role: communicating its values to its intended audience in such a way that some will engage and want to buy it. But from the perspective of a design thinker, Brown argues a new idea will have to tell a compelling story in a compelling way if it is to give resonance and make itself heard (p.142).

Building layers of meaning into narratives that resonate of human experience is ultimately what forms the basis of a successful artefact.

STAGE 5: Presentation: usability and testing.
Gauging success, through communication and feedback

The testing stage is presented as part of the research process and is applied with regularity throughout the design process. Presenting and testing one's development, encourages communication and makes less of complications even though mistakes are encouraged as part of learning. O'Dwyer and Barnum agree that informing student designers about the practicalities of failure is necessary, and as part of iterative practice, minimizes the impact on the relationship with the client. Regular communication and feedback creates transparency internally within the team and externally with stakeholders. Making refinements along the way, re-framing and revising through a series of iterations, then testing to gauge success, is not only essential to the client/designer relationship but also establishes a level of professionalism and trust despite any warranted mistakes.

Testing and experimentation is another part of the process that can accelerate learning through the execution of iterations, creating prototypes to gain usable feedback. 'We build in order to think instead of thinking in order to build' (Brown, 2009: 89) Since design thinking is focused more on radical than on incremental innovation, the more experimentation and prototyping the better to help grasp the potential before resources are spent on development. Often the goal is to fail quickly and frequently so that learning can occur.

This is only a summary of stages – a conversation that collects O'Dwyer and Barnum's favourite theorists. The idea of the framework is that it remain flexible - that it be taken up in sections and that processes be repeated in or out of sequence depending on what is required. Fig. 6 is a first attempt to illustrate the components.

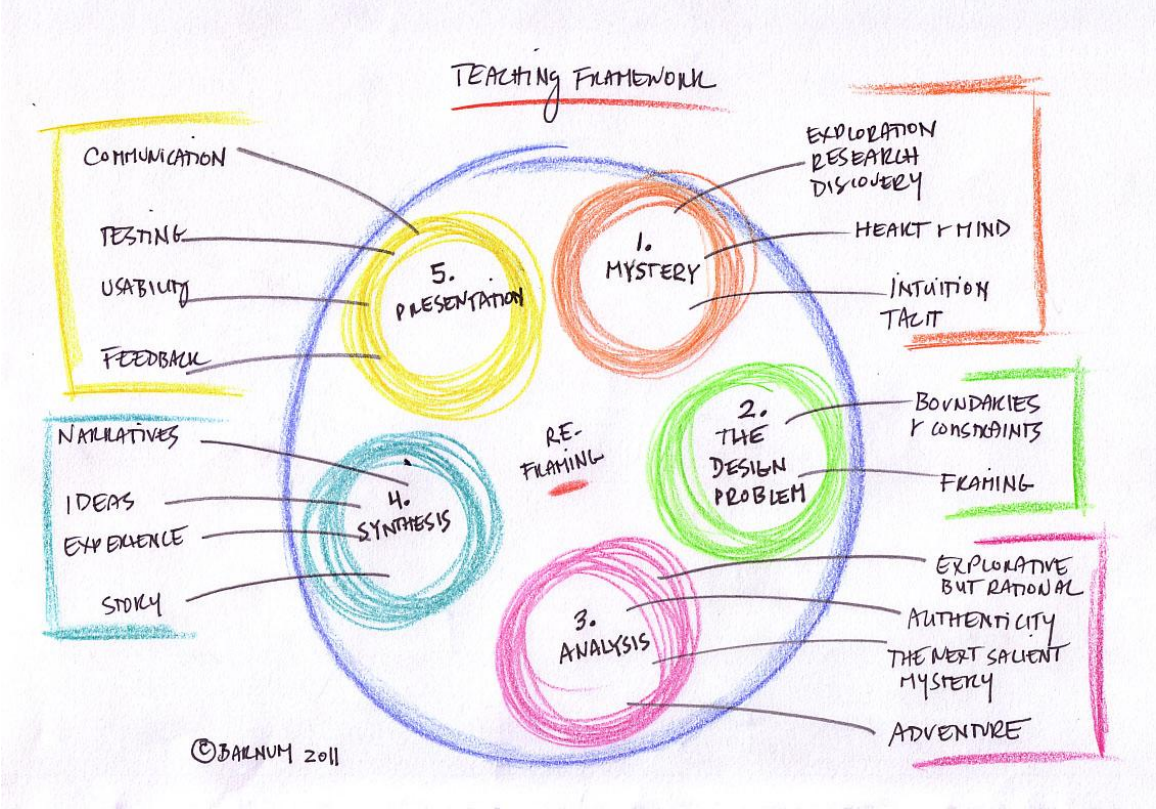

Figure 5: The teaching framework

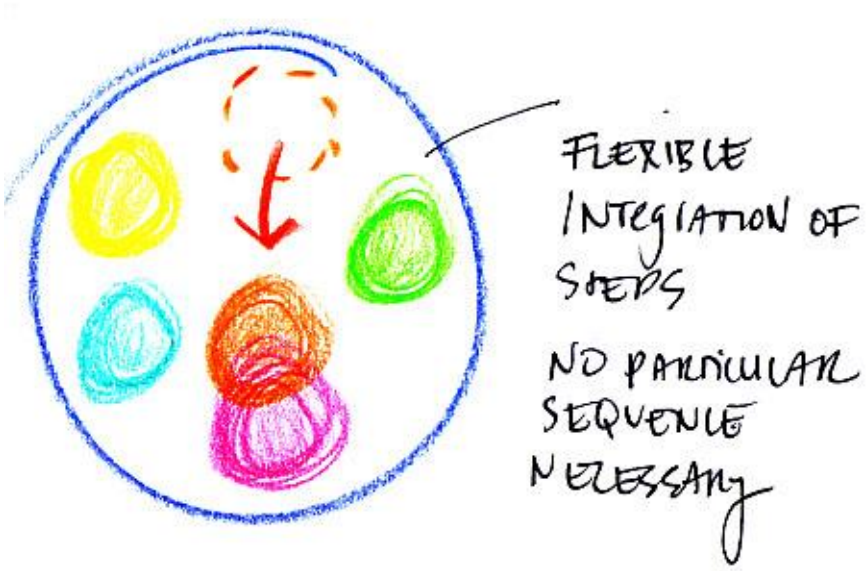

Figure 6: Integrated steps, Flexible visualisation of teaching framework

Conclusion

There is no real invention in assimilating existing thinking styles. The inspiration here was the cooperation between practitioners who combined their experience in practice to enhance their own teaching and learning. Inspired by their favourite sources, invention eventuated in the actual process of initiating the conversation.

Their 'blended' styles is the Platypus effect defined by Dorst, uniting creativity to problem solving, styles said to be so intimately connected and which "designers flow fluently from one to the other" (2003:75). This integrated thought can also be attributed to thinkers like Martin who softened the inflexible journey of business venturing into a non-linear way of problem solving. Martin takes the initiative by re-assessing standard business schemes and integrating a 'designerly' (Cross in Lawson, 2004:1) approach to solving outcomes. He recognizes that 'exploration' is integral to the design thinker and adds flexibility to organisational models. Innovative organisational models are important to the designer, because design is business – in the applied design space, client and designer have a bond which takes them both through the exploration of a problem.

Ultimately, the Irishman and the Mexican have complimentary styles. Their own approaches to teaching are also aligned to how they create and problem solve in their own practice. Systematic or otherwise, the framework can appease many of the terms and notions that exist in the theory that inspires them.

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