

Deep Empathic Design

Abstract

Empathic design is often described as a creative process that translates observations - typically of people and their behaviours into design ideas. Another similar and closely related expression is *user centred design*, which attempts to turn the attention away from an object or product towards its usefulness and useability.

The central premise of empathic design is that the best-designed products and services result from understanding the needs of the people who will use them. User-centred designers engage actively with end-users to gather insights that drive design from the earliest stages of product and service development, right through the design process.ⁱ

Our standard definitions and understanding of empathic design or user centred design are well recognised and widely practiced, particularly taught in design schools and in professional creative business. This paper extends and explores a deeper understanding of empathy within a systems thinking framework where the observer and subject are both components of empathic design. It proposes that empathy can be described as the bonds of connection with others (in its traditional interpretation), but also with an ecological, social and economic context.

Corresponding Author: Roberto Fraquelli, R.Fraquelli@plymouth.ac.uk

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Classical Empathic design

Designers inspire, provoke, validate, entertain and provide utility for people. To truly connect, designers need to have compassion and empathy for their audiences. Designers need to understand the relationship between what they produce and the meaning their product has for others.ⁱⁱ

Since man first picked up and shaped a flint his innovations have been functional, artistic and intuitive. With the onset of the industrial revolution came definitions for designers and engineers who adopted, fashioned and developed technology as it evolved to provide new and exciting innovations. The acceleration of technology, the accessibility to manufacture, distribute and market have driven and created multi complex meanings and opportunities for products and services. The model T ford is a great early example where Henry Ford developed and streamlined a production process to make possible an affordable means of mobility for the emerging social American. A truly remarkable innovation, that has propagated a certain lifestyle expectation and insatiable appetite for consumerism.



Empathic design is not a substitute for a technological or functional orientated approach to design but complements it by placing the *user* and their interactions (and behaviours) at the centre. A pioneer for empathic design was British designer Bill Moggridge who cofounded the design company IDEO. He was a great advocate for a human-centred approach in design and championed interaction design as a mainstream design discipline. His company developed the first laptop computer for GRID enabling mobile computing. During the late 80s and 90's Moggridge Associates and then IDEO developed and refined an ethnographical design methodology based on user observations & produced IDEO method cards.ⁱⁱⁱ

Figure 1. User centred design © 2015 (Roberto Fraquelli).

This ethnographical design methodology has been well documented, developed, morphed and integrated across many disciplines of design. Central to the process lies an ability to empathise or understand the latent needs of people - not necessarily their words and actions but how they feel or think. A fundamental ingredient to develop our empathic competence is our capacity and natural tendency towards sensitivity. This is explored a little more in subsequent chapters.

Design empathy is an approach that draws upon people's real-world experiences to address modern challenges. When companies allow a deep emotional understanding of people's needs to inspire them - and transform their work, their teams, and even their organization at large - they unlock the creative capacity for innovation.^{iv}

Designing in the Dark – empathic exercise to inspire design for our non visual senses^v highlights a number of easy to follow examples of how designers can develop their sensitivity. A 4-day workshop was held at The School of Design Helsinki that encouraged students to experience this first-hand by learning a series of empathic exercises. Examples of these exercises include: acting out a scenario in safe dark place, using non visual cues to learn about a product, activities involving aromatic cues, limiting the sensory experience of a familiar journey. Although these were somewhat simulated classroom exercises guided by Human Factors specialist they do generate new perspectives and creative opportunities for designers.

From a user-centred approach to an empathy with ecology.

Economic growth has become the default. All nations want the production of more stuff or to 'spread the privilege around' as David Cameron states. The consequences of this mindset and trappings of putting the GDP first is unsustainable. Our appetite to consume is phenomenal and often leads to catastrophic outcomes. Finding clarity or a way forward is perhaps the biggest dilemma facing us today between encouraging economic growth and an empathy with living systems. This is a challenge facing everyone whether they realise it or not. How designers tackle this dilemma depends on their viewpoint, experience and response to the opportunities placed in front of them.

Tim Brown (CEO of IDEO) describes a Design Thinking approach as a way forward.vi He explains a number of design factors: *desirability* so that the product or service is attractive to the consumer (empathy), *viability* in terms of maintaining a sustainable business proposition and *feasibility* in terms of the organization’s know-how. Both the problem and the solution are complex. Making a car that travels 100 miles per gallon instead of 50 miles per gallon doesn’t make sense if the consumer simply drives his or her car twice as much. Similarly if a well-known Swedish Furniture manufacture wishes to obtain 50% of all their materials from renewable sustainable sources by 2015 but doubles their production within the same time frame, then the same issue remains. Empathic design is all very well, but it has to lead to empathic manufacturing (sustainability) in terms of energy consumption and material sourcing.

Clearly behavioural change on a global scale is required and the demand on Designers, Engineers and Scientists to provide truly ecological solutions has never been more urgent. John Thackara (designer, commentator and founder of ‘Doors of Perception’) is a strong advocate towards *eco-design* and highlights that we are perhaps now at a tipping point where radical and absolute change is necessary and that current rates of economic growth are unsustainable. In his lecture at the RSA September 2012 he described a number of *ecozoic*vii design characteristics or ‘bio-empathies’ to include:

- stewardship *not mastering*
- all-of-life centred *not man-centred*
- regenerative *not extractive*
- time-intensive *not resource intensive*
- ecozoic *not anthropogenic - extent of human activities that impact on the Earth’s ecosystems.*



These characteristics are simple to describe and recognize but very difficult to practically implement. At Plymouth University we have been developing these characteristics into a set of guidelines based around *New Economies* *New Ecologies* and integrating them into our approach to creative activities. These include: designing with a *Regenerative mindset*, being resourceful through *Juggard* innovation, looking for *Open source* opportunities, turning our current linear economy of consumerism into a *Circular Economic* system of users.

Figure 2. An all-of-life approach to design © 2015 (Roberto Fraquelli).

Broader contextual empathies

When we think of design landmarks or design visionaries of the past we might remember some of the classical design movements: Arts and Crafts, Art Deco, Memphis, Bauhaus etc. The characteristics (radical and absolute) of these movements came about by designers responding to the situations they found themselves in; the moment in time, culture, fashion and politics. In other words the context of their environment has a major influence and affects a designer's mindset both consciously and unconsciously.

There are many 'ways of design' and correspondingly many 'ways of empathy'. Visionaries or radical designers don't tend to follow established prescribed processes because they are user centred or otherwise. Their identification is a direct response to themselves; a quality or a capability not necessarily valued or developed any more in design education or practice. The post modern Memphis movement came about because a group of designers led by Ettore Sottsass had the opportunity to respond to their environment and research with a desire to change society.

Empathy with yourself	Empathy with others
Visionary	Process
Finding a design voice through research	Applying design thinking (brainstorming)
Intuition	Co designing for the broad world
Poetic	Economic growth
Connectivity is deep	Connectivity is broad
Radical	Creative
Convergent	Divergent
Passion connectivity	Passion media
Apprenticeship skills	Social skills
Holistic	Reductionism deconstruction

Figure 3. Comparative ways of design.

Designing is by default an empathic or 'sensitivity dependent' activity. It is about molding or shaping a creative idea into some form of outcome or proposition. It very often involves identifying and considering a number of interconnected elements and influences and trying to make some sense or order from them. This is achieved by looking at the qualities, patterns and relationship of the 'system' components and making conscious and sometimes unconscious non-linear insights. We should not isolate the designer's own perspective (phenomenology) from the process as empathy is a consequence of composite relationships between the observer and subject.

'The Systems View of Life,'^{viii} a book by Professor Fritjof Capra and Pier Luigi Luisi, presents a number of scientific observations that demonstrate how common 'properties' can be found to exist across many disciplines: science, business, sociology and also design. This hypothesis, around cognition and the emergence of ideas is based on a premise described by Capra and Luisi that patterns and relationships are somewhat generic and transferable across different systems and is central to my research. One chapter that is particularly relevant to design is around cognition (the process of knowing) and the emergence of ideas. In particular conscious cognition where we actively encourage our minds to make sense of things, but also unconscious cognition where solutions arise without thought or are somewhat automatic or random. My experience as an academic and designer indicate that empathy crosses both these cognitive states.

I have recently come across the theory of *Autopoiesis*^{ix} - the self-generation of living networks and am exploring it as a framework or model to describe the process or network of creating ideas. In particular how understanding aspects of empathy might inform our creativity that could resonate with designers. Although I am taking a little artistic license I am substituting the regeneration, metamorphosis or evolution of living cells in the form of (i) gene trading (DNA), (ii) symbiosis, and (iii) random mutations - all as metaphors for designing.

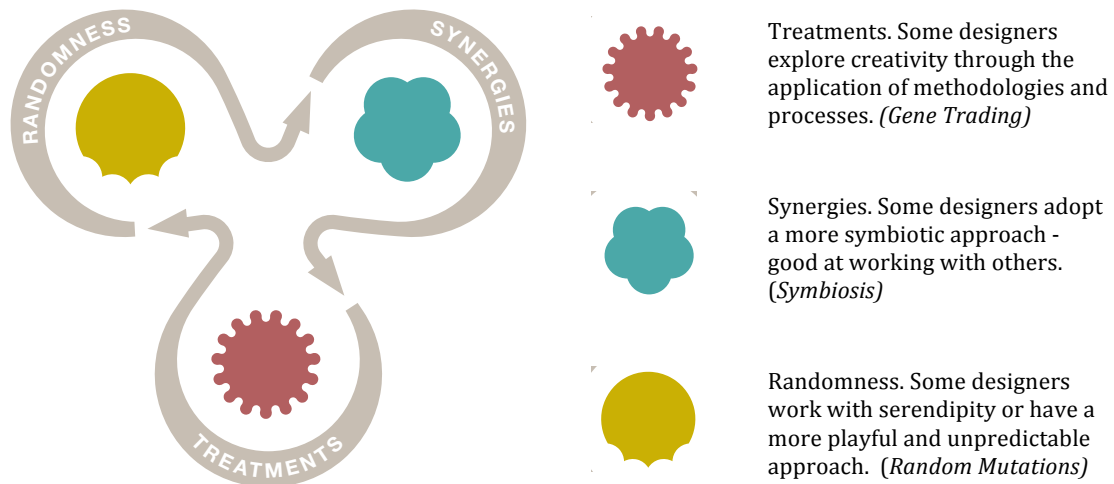


Figure 4. Idea generation arrangement. © 2015 (Roberto Fraquelli).

Some designers explore creativity through the application of methodologies, cultural influences, technologies, social trends and market forces that might encode creativity in a particular manner. In this aspect of creativity one tends to find more logical, mechanistic and process driven outcomes where rational argument is underpinned by robust methodologies and strong qualitative and quantitative analysis. Through the accumulation of information, knowledge and understanding decisions are made. Many commercial industrial design processes lean towards this creative orientation, as the outcomes are more predictable, reliable, repeatable and often unfortunately anthropogenic.



However, there are encouraging examples of good practice. Grånsfoss Bruks have been manufacturing hand-made Axes in Sweden for over 100 years. Their products are guaranteed for life and portray a sense of harmony with the environment and longevity. Their approach to design is driven by a strong understanding of material (steel and hickory), production processes and fit-for-purpose ergonomics. Their business culture does not appear driven by a commercial self-importance but portrays a sense of trust, honesty and integrity.

Figure 5. Forging steel at Grånsfoss Bruks

Some designers adopt a more symbiotic approach recognising the effect of bringing together complementary but often unrelated things or entities to create new forms. Frans Johansson (author and economist) describes the most ground-breaking ideas are found at the intersections of diverse fields, industries and disciplines. He coined the phrase *The Medici Effect*^x acknowledging that symbiosis was one of Da Vinci's and his contemporary's strongest creative allies. Team working, co-designing and empathy (with others) are all symbiotic opportunities of creativity where the association and relationship affects or determines the result. Design of the Times (Dott) a Department of Trade and Industry initiative run in the north-east and south-west of the UK in 2007 and 2011 respectively was set up to encourage local social design activities and sustainable development programmes, to foster better lifestyle choices and promote community cohesion. An inclusive symbiotic process that draws on citizens and communities with direct contextual knowledge as a critical resource in exploring challenges and identifying innovative *Gestalt*^{xi} outcomes.



Figure 6. Pernilla Molander and Anna Kristensson. *Bright of Sweden*.

Pernilla Molander and Anna Kristensson had a late night conversation about Pernilla's son. She wanted to help her son, who is visually impaired to understand the atomic model. Together they devised a model made from a round plastic box and wax threads. When he took this home made prototype to school many of his friends wanted to borrow it as it made the science so much easier to understand. The teacher immediately saw and relayed the pedagogical potential. Pernilla and Anna never regarded themselves as inventors but realised they had struck gold and 3 years later formed a company *Bright of Sweden* that makes it easier to understand mechanism of atoms, ions and isotopes all over the world.

Some designers work with serendipity or have a more playful and unpredictable approach, where solutions are random and sometimes revealed through an 'innocence' or awe and wonder. Sir Ken Robinson (educationalist) describes this as a natural curiosity attribute that needs to be expressed, valued and encouraged much more. Some designers instinctively play more as part of their creative performance so that something unexpected might emerge. Being open to unforeseen ideas, serendipity and letting your mind wander are activities sometimes classed as unproductive or at best un-focused? Awe and wonder are characteristics not often celebrated or developed within traditional lifestyles and can be sometimes encumbered by excess information or creative control. This particular orientation of creativity relies on notions of vulnerability and is open to disturbances.



Figure 7. *Aizone*. Stefan Sagmeister © 2015

Stefan Sagmeister (graphic designer) practices the notion of *Unconscious plasticity* (an aptitude to let the brain wander to perceive) and to free curiosity, unpredictability and openness. At the Cheltenham Design Festival 2012 Stefan spoke about concepts of time and happiness, and the mechanism he adopts to maintain freshness in his work. In order to 'reset' himself and his studio he closes down every 7 years for a year to allow himself and his team to start again.

These empathies are not proposed as discrete stand-alone traits nor is it suggested that they are mutually exclusive; but perhaps maybe more aligned towards our natural tendencies or the unconscious self. C. G. Jung the 20th century Swiss Physiologist (also artist, alchemist and philosopher), devoted a lot of his energy to understand the nature of unconsciousness. He proposes some interesting models on considering this characteristic of our being, and similar to the art of design attaches his theories to the aspect of perception. Designing is very much about perception and how we see things, but also how they are interpreted and expressed. One of his theories relates to 4 aspects of seeing known as '*quaternity*' that refers to four psychic functions: sensing, thinking, feeling, and intuiting.

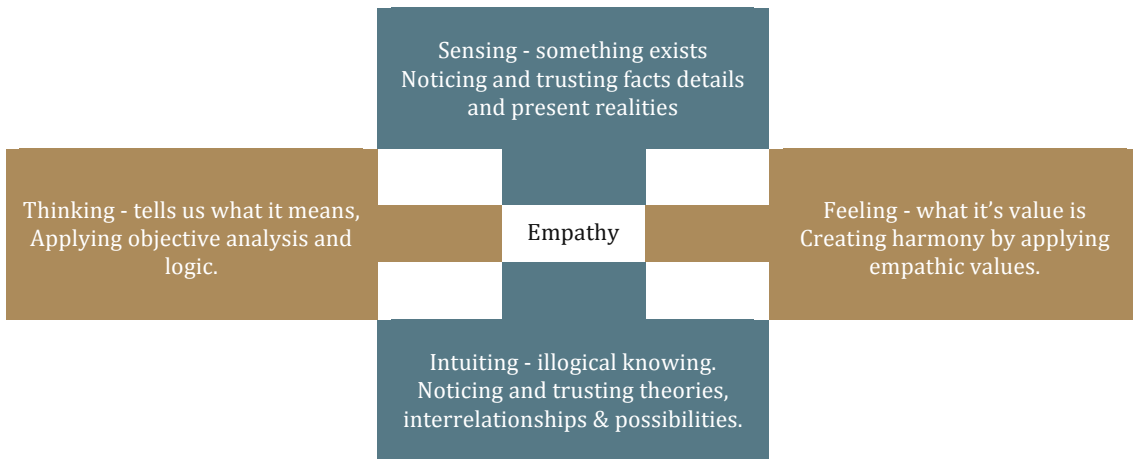


Figure 8. Carl Jung's 4 aspects of seeing.

The generation of ideas is personal, diverse and can often be difficult to analyse, define and consciously apply. The uncertainty and unpredictability of creativity is not always comfortable. It is a maze full of dead ends and convoluted routes. It is susceptible to moments of turbulence or frustration where our efforts often appear unproductive. I am offering the term *Creative Empathies* as a way to describe a systems-view that looks at the manner and iterative journey in which ideas might emerge.

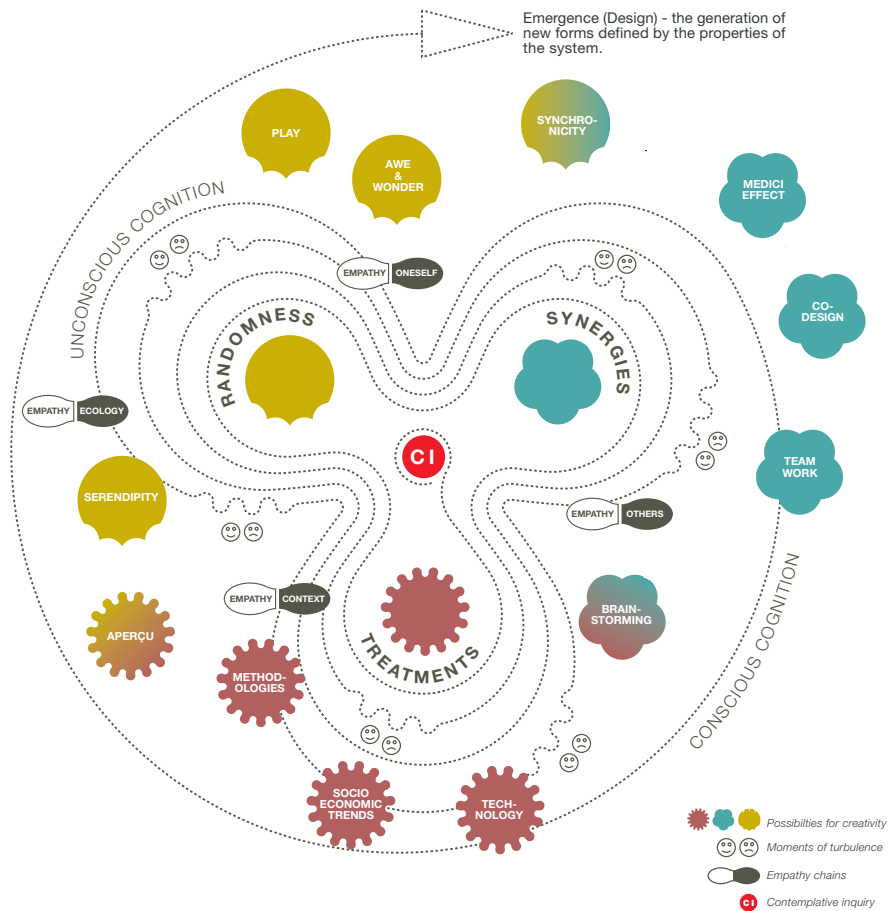


Figure 9. Schematic showing an iterative journey and relationship between Creative empathies and a process for design.
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empathy is : sensitivity : perception : identification : connection : understanding : sympathy : responsiveness

Conclusion

I am keen to consider and extend empathic design beyond the boundary of a user (other than oneself) centred definition. Empathy in its strictest definition is the capacity to understand what another person is experiencing from within the other person's frame of reference. This perspective is limited for 2 key reasons:

From a holistic and systems standpoint one needs to consider the observer as part of the empathic process. Perception (aperçu) and understanding are influenced by the observer's experiences, be they rational 'feeling' and 'thinking' or irrational 'sensing' and 'intuiting' (Jung).

From an ecological perspective we cannot afford an arrogance to think of putting users (human requirements) at centre. If we are to adopt a regenerative mindset (Thackara) then we need to develop our sensitivity towards the planet's frame of reference too.

For these 2 reasons I am proposing to extend our understanding of empathic design. To move it forward and encourage education and professional practitioners to adopt a more complete and embracing inclusive empathy for others, our ecology and ourselves.

From theory to practice.

These following 2 artefacts are part of a series representing and extending aspects of empathy: empathy with others (in its classical interpretation), but also empathy with context and with oneself. Designing is very much about perception and how we see things, but also how these perceptions are interpreted and expressed. Love Bite and Perch are personal representations that express a development and interpolation of a broader understanding of empathy.



Perch. *Machined Aluminium and Walnut.*
Perch is a seat stick designed for public use in museums and exhibitions. It encourages visitors to pause, dwell and to afford a better chance of absorbing the essence of what they are looking at.



Love Bite. *Machined Aluminium and Bamboo.*
Love Bite is a 'mezze' or 'tapas' table and chair set for two. Diners sit diagonally opposite and are encouraged to choose how much (or how little) they wish to converse, sympathise and share with each other.

Fig. 10 & 11 Design work exhibited at SaloneSatellite, Milano April 2015. Roberto Fraquelli

Figures:

Figure 1. User centred design © 2015 (Roberto Fraquelli).

Figure 2. An all-of-life approach to design © 2015 (Roberto Fraquelli).

Figure 3. Comparative ways of design.

Figure 4. Idea generation arrangement. © 2015 (Roberto Fraquelli).

Figure 5. Forging steel at Grånsfoss Bruks.

Figure 6. Pernilla Molander and Anna Kristensson. Bright of Sweden

Figure 7. Aizone. Stefan Sagmeister. Photographer Henry Hargreaves © 2015.

Figure 8. Carl Jung's 4 aspects of seeing.

Figure 9. Schematic showing an iterative journey and relationship between Creative empathies and a process for design. © 2015 Roberto Fraquelli. First show at Insight 2015, Bangalore.

Fig. 10 & 11 Design work exhibited at SaloneSatellite, Milano April 2015. (Roberto Fraquelli).

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^{viii} Capra, F. & and Luisi, P.L. (2014) *The Systems View of life – a unifying Vision*. Cambridge University Press. UK

^{ix} Autopoiesis was first described in 1972 by Chilean biologists Humberto Maturana and Francisico Varela to define the self-maintaining chemistry of living cell. Their theory on cognition known as the Santiago theory was first published in their monograph *Autopoiesis and Cognition* 1980.

^x Johansson, F. (2004) *The Medici Effect*. Harvard Business School Press. USA.

^{xi} The 'Gestalt' principle (psychology of the mind established by Carl Stumpf) suggests that the human mind considers objects in their entirety before, or in parallel with, perception of their individual parts; suggesting the whole is other than the sum of its parts – a bit like Magic.