

Stillness as a Competence of Design Intelligence

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Abstract

According to Cross (2006), designing can be viewed as a form of intelligence so that its competences can be identified, clarified and cultivated. This paper reviews and extends existing design literature by refining the language that describes design-intelligence and the identification, clarification and cultivation of design-intelligence competences. This document also reports on an initial study that used an Enhanced Reflective Practice Reporting Template within the context of professional practice to highlight: a) the value of improving a designer's professional inner self-awareness through reflective practice enhanced with non-analytical mental training techniques, and b) that such processes can aid access to a range of mental states helpful for coping with design uncertainty. Furthermore, the concept of 'stillness' as a competence of design-intelligence to manage the experience of the effects of design uncertainty resolution is introduced and discussed. This paper concludes that increased inner self-awareness and the ability to access mental states of stillness can help designers to become present to the possibility of transforming both themselves and the world through design. Thus enabling a fuller appreciation of the creative potential in design situations. It is also proposed that deeper aspects of the experience of stillness may extend its reach to wider social contexts.

Keywords: stillness, reflective practice, design intelligence, uncertainty

1.0 Introduction

Living in the mud of a design problem produces both pleasure and pain. Currently, design research recognizes the diverse experiences arising from designing in ill-structured and ambiguous professional situations of practice. However, currently there is no empirical design research that has sought to investigate the relationship between how situations of practice are experienced and the influence of this for designers' professional self-awareness.

This discursive paper aims to improve understanding about the dynamic development of designers' professional self-awareness. This research focuses on the experience of designing: specifically, on the experience of managing the effects of uncertainty in design practice situations. As such, the research is not bounded by design practice phases or stages, or by domain specialism. This work contributes to the understanding of Design Epistemology (Cross, 1999) and the understanding of the Reflective Practice model of the designer (Schön, 1987), by refining the language for describing design-intelligence and stimulating debate on the identification, clarification and cultivation of design-intelligence competences.

According to Cross (2011) it is useful to view designing as a form of intelligence so that its competences can be identified, clarified and cultivated. This paper highlights that design literature suggests numerous aspects of design-intelligence that spread across the multiple intelligences as proposed by psychologist Howard Gardner (2011). It is also illustrated that there is currently little understanding or discussion about how to clarify and cultivate specific design-intelligence competences.

This paper also reports on insights arising out of a pilot study. This study considered structured cycles of Reflective Practice from a Visual Communication professional practitioner during engagement with a Design Practice Master of Arts. The intention was to identify possible barriers to professional practice harmony and accomplishment. Insights arising from this pilot study point to the value of improving a designer's professional inner self-awareness through reflective practice enhanced with non-analytical mental training techniques. It is also suggested that such a process can aid in accessing a range of mental states potentially helpful for coping with designing's inherent uncertainty.

Furthermore, 'stillness' is introduced as a competence of design-intelligence that can be identified, clarified and cultivated to manage the experience of the effects of design uncertainty resolution. It is suggested that the experience of stillness can reduce habitual reaction to ruminating streams of thought and promote mindful awareness of the present circumstances, thus promoting confidence when engaging with uncertain situations of design practice.

2.0 Theoretical Context

This research investigates the role, benefits and cultivation of 'stillness' in the experience of design practice. It is argued that stillness is a personal way of knowing that supports successful display of design-intelligence elements. Stillness is understood as the ability to access a range of mental states that are characterized by considerably reduced habitual reaction and non-attachment to uncontrolled streams of thought; and by mindful awareness and acceptance of the present circumstances. In this section stillness will be

positioned in relation to discussions about Design Intelligence, Uncertainty in Design and Reflective Practice.

2.1 Design Intelligence

If, in a broad sense, intelligence¹ can be understood as an umbrella-term for a superior mental ability to interact with an environment; and if environment includes the physical and social aspects of situations of professional practice; then, it can be argued that design-intelligence encompasses the mental abilities that afford success within the 'environment of design'. Many researchers within the design research community have acknowledged and discussed intelligence characteristics that designing combines: thinking and feeling (Papamichael & Protzen, 1993), the rational and the non-rational (Cross, A., 1986), and the logical and the intuitive (Swann, 2002; Cross, 2006). Papamichael and Protzen (1993) offer a theory of design-intelligence as being only partially rational. They suggest that designing is thinking and feeling while acting, and that designers feel the relative importance of design criteria, reformulating it as they compromise between what is desired and what is possible. Swann (2002) refers to elements of design problem solving as 'the traditional root of intuition', 'inspired guesswork', and 'holistic thinking'.

As Cross (2006: p. 41) highlights, there appear to be aspects of design ability that can spread through the six forms of intelligence that Gardner (1983) distinguishes - linguistic, logical-mathematical, spatial, musical, bodily-kinesthetic, personal - which does not always give a satisfactory understanding of designing from the perspective of intelligence. In this paper, we are not aligned to Spearman's (1904) concept of General Intelligence: intelligence as a single entity. Gardner's (2011) theory of multiple intelligences, Sternberg's (1988 & 2000) work on the three fundamental aspects to intelligence and Goleman's work on 'emotional intelligence' (1996 & 1998) and 'social intelligence' (2007) can be more useful for thinking about designing as a form of intelligence. It is, however, important that in an effort toward pluralization that intelligence is not confounded with other virtues. In this light, Gardner (1999) makes a distinction between intelligence and creativity. In describing the difference, he states that:

Creativity includes the additional category of asking new questions – something that is not expected of someone who is “merely” intelligent... the creative person is always operating in a domain or discipline or craft... the creative individual does something that is initially novel, but the contribution does not end with novelty... Rather, what defines the creative act or actor is the ultimate acceptance of that novelty (pp. 116-117).

This view places the evaluation of creativity externally to the individual, with the field, the market or with society as a whole. This is useful as it helps make a distinction between: a) the use of imagination and intelligence in the creative event to transform the individual in the development of an object of design, and b) the transformation of a field by the introduction of a novel or creative object of design.

Cross (2006) makes the argument to separate out design ability as a form of intelligence in its own right. He does this using Gardener's (1983) work on multiple intelligences as a framework, and appears to use the concepts design-ability and design-intelligence interchangeably. He further states that 'viewing designing as a form of intelligence is productive, it helps to identify and clarify features of the nature of design ability, and it

¹ The authors find that for clarity it will be useful to expand the context of intelligence as far as it relates to this paper. One of the definitions of 'intelligence' appearing in the Merriam-Webster's Dictionary, and useful for substantiating the meaning terrain of this paper, is: 'the ability to learn or understand or to deal with new or trying situations'. 'Ability' is defined as 'competence in doing', and several related words are used interchangeably to define each other: 'ability', 'competence', 'capacity' and 'skill'.

offers a framework for understanding and developing the nurture of design ability' (2006: p. 43). He does not offer guidance on how to develop understanding specific to the identification, clarification or development of design ability, which is a clear area for further research. Cross (1990 & 2006) describes design features that can be considered aspects of design-intelligence. He states that designers must be able to: 'produce novel, unexpected solutions'; apply 'imagination and constructive forethought to practical problems'; use 'drawings and other modeling media as a means of problem solving'; 'deal with uncertainty and decision making on the basis of limited information'; 'resolve ill-defined, 'wicked' problems'; adopt 'solution-focused strategies'.

If we accept the position of Cross and if design-intelligence has such features, then, what are the personal competencies, skills or traits that are the markers for successful displays of design-intelligence? What, for example, are the personal competences, skills or traits that allow one to deal with uncertainty and decision making on the basis of limited information? This is the one ability described by Cross, that the authors understand as referring to personal knowledge, the way designers relate to their experience, or the management of their reactions.

When considering success in the environment of design, it is fundamental to regard the context within which uncertainty operates in design literature. Defining features of an environment of design and the context for design-intelligence are that: designing always involves engagement in uncertain, ill-defined and ambiguous situations of practice; that these situations are continuously reformulated through solution-focused approaches; and that mental states and bodily sensations inform rational and non-rational cognition (Rowland, 1992; Cross, 2006; Schön 1983 & 1987; Spencer, 2008). In this light, if design-intelligence encompasses mental abilities that afford success within the 'environment of design', then the overarching framework of design-intelligence must consider competences that designers display in uncertain situations. Therefore, any competence that can be identified, clarified and cultivated must address some aspect of uncertainty resolution within the design experience.

If, accessing a range of mental states, and managing the uncertainty of designing, can be considered within the context of design-intelligence, then it is useful to conduct research regarding the development of those abilities. This leads to a research question: is stillness an effective mental ability for helping a designer deal with uncertainty and decision making on the basis of limited information?

2.2 Uncertainty in Design

Research suggests that the way uncertainty is assessed by a designer is through a felt emotional experience. Spencer states:

As expert designers engage with a professional context that is uncertain, ill structured and ambiguous they personally experience uncertainty. As the uncertainty of the challenge is grasped, fear develops about their ability to resolve the design problem's issues and exploit its opportunities (Spencer, 2008: p. 285).

It can be argued that emotional peaks and valleys have to be directly related to a designer's point of view of the circumstances of the situation at hand. All designers will not react the same way to the same characteristics of a design situation. Yet, it can be stated that, albeit in different degrees and for different reasons, uncertainty has an effect in designers. Cross (2011) suggests that coping with uncertainty is a key factor in design ability, and that:

In order to cope with the uncertainty of dealing with ill-defined problems, a designer has to have the self-confidence to define, redefine and change the problem as given, in the light of solutions that emerge in the very process of designing (p. 148).

Cross refers to the aspect of the design experience that is shaped by design problem and solution generation cycles. There are, nonetheless, other uncertain situations of design practice that are just as present in a designer's experience. Beyond doubts about the possibility of arriving to a creative solution or attachment to a solution concept; there might be doubts about recognition and approval by clients, peers or users; doubts about the ability to satisfy time or economical constraints; doubts about legal and production feasibility; doubts about the separation between the project's purpose and reach and the designer's own values and principles. Lawson (1997) makes a similar point stating that the designer has worries and uncertainties about a future that is beyond the proposed design solution. Worries beyond solution propositions include, but are not exclusive to, client approval, legislator and regulator endorsement, economics and market popularity.

It is clear that in design, uncertainty is a recognized element; that coping with uncertainty is considered key in design ability; that beyond arriving at a final creative solution there are a series of additional uncertain situations of practice; and that uncertainty can generate emotional fluctuation. In fact the design experience has been described in various ways that illustrate this point. Lawson (1994) says that design is 'painful and frustrating, but ultimately extremely satisfying'; and Cross (2006) points out that 'it is risky, it is not comfortable and it is not easy'. Davies & Talbot (1987) speak of a certain knowing when an idea is right where feelings are pleasurable and ecstatic. Cravino (2009) indicated that highly creative people are not necessarily the most intelligent, but those who possess a high level of self-esteem, with no fear of being the object of criticism and scoffing. Spencer and Hilton (2010) highlight the value of 'the designer's ability to engage uncertainty and manage mental and emotional states' (p. 3). These mental states range from chaos and the experience of uncertainty and fear, to high levels of excitement and 'euphoric buzz' that may induce loss of perspective and disrupt good design practice (Spencer, 2008: p. 216). Sensed perception of these states as they relate to current circumstances, constitutes the condition of the inner-environment or experience of the designer while they perform in an environment of design.

Design research has made progress in describing the environment of design, the ill-structured and ambiguous nature of design problems and the experience of uncertainty in design. What is needed is further understanding about the personal competences, skills and traits that lead to successful and less-successful design performances. If coping with uncertainty is a key factor of design-intelligence, and if uncertainty is usually associated with the experience of emotional fluctuation and disquiet, then stillness may offer a way to potentially build the confidence to engage design uncertainty.

2.3 Reflective Practice

Schön (1987) considers Reflective Practice as important for the acquisition of professional artistry and skill and regards 'artistry' as 'an exercise of intelligence' and 'a kind of knowing'. Within the framework of Reflective Practice he describes intelligent action that is skillful and tacit as 'knowing-in-action'. Then, akin to the concept of solution-focused design problem solving, he introduces 'reflection-in-action' as on-the-spot experimenting in an action-present when unexpected results arise. According to him, the recognition of uncertainty provides the opportunity to respond with reflection, which transforms knowing-in-action to reflection-in-action. This synthesis is, in our view, the paradigm of design-intelligence. Cross (2011) regards reflection-in-action as the

intelligence that guides intuitive behavior and considers the intuitive features of design ability as the most relevant to the nature of design. If by intuitive, Cross, means that there is little or no rational thought associated with the process and that action is guided by the qualities of one's sensations, then, stillness and the skill of being mindful, attentive and present to one's feelings is important within Reflective Practice inquiries. In this light then, stillness, would make a positive contribution if considered part of the structure of solution-focused solving of ill-defined problems.

Spencer and Hilton (2010) highlight abilities that they claim influence the effectiveness of a Reflective Practice inquiry. One of those abilities is:

The designer's ability to engage uncertainty and manage mental and emotional states – the confidence to feel the discomfort of uncertainty; the willingness to repeatedly explore alternative frames and solutions and expose the coherence of the thinking structure to criticism, time allowing, or to commit – i.e., appropriate application of the practitioner's mental and emotional resources' (p. 3).

This analysis by Spencer and Hilton provides a further framework for positioning stillness as a competence of design-intelligence. Stillness, as a mental state that allows the designer to be present to, and content with, the discomfort of uncertainty, would allow a practitioner to engage repeatedly in the exploration of alternative frames and solutions. Mental stillness would, therefore, support design practitioners in the appropriate application of mental and emotional resources, and promote confidence during Reflective Practice inquiries.

English (2011) suggests that reflection in multiple perspectives, as part of Reflective Practice, has benefits that can potentially be expanded to deeper aspects of a designer's self-knowledge. Multiple perspective reflection informs about process through hindsight description and analysis; and can transform professional self-awareness and thus future actions, by shedding light upon habitual actions that can be modified - as English (2008) suggests - to 'remove barriers to accomplishment'. Non-analytical meditative techniques, integrated as part of multiple perspective reflective cycles to encourage stillness, can potentially improve self-awareness further, by informing about, and transforming a designer's inner environment. It could be argued that a designer's inner condition is the source of a designer's actions, and that those actions are as habitual or as mindful, as the level of a designer's inner self-awareness. We contend that, how designers perceive their experiences of uncertainty resolution is an important factor for determining a designer's quality of professional self-awareness.

3.0 Pilot Study Insights

The aim of the pilot study was to identify possible barriers to design professional practice harmony and accomplishment through cycles of reflective practice reporting. The study's thesis was that: a) the depth of the connections between 'being'; meaningful philosophical world-views and values, and 'doing'; design practice principles and actions relate directly to perceived levels of positive professional self-awareness and fulfillment; and b) that deep positive connections result in design professional practice harmony. The purpose was to inform understanding about a range of mental states that support management of design uncertainty. The study sought to answer the following research question: What are

the personal competences, skills or traits that allow one to deal with uncertainty and decision making on the basis of limited information?

The research and its reflective cycles were undertaken while completing a Master of Arts program (Rojas, 2011) that holds Schön's (1987) view that professional education should enhance a practitioner's ability to reflect. Furthermore, it encourages its students to develop a structured Reflective Practice reporting discipline by implementing action research reflective cycles (English, 2008). This study's reflective output demonstrated that the practitioner favored engaging with reflection in moments of emotional peaks and higher turmoil. Moreover, the narrative sought to consider possibilities of better management of such moments. Two important aspects of this reporting were observed: a) the effects of uncertainty were a frequent source of reflective output; and b) the very discipline of reflection seemed to fulfill both the purpose of informing about such uncertainty effects, while at the same time hold the potential of transforming the designer's perception of them.

Over a 6-month period, the research evolved an Enhanced Reflective Practice Model Template incorporating analytical multiple perspective reflection; and non-analytical techniques inspired by meditative-disciplines [for an example, refer to Figure 1]. The integration of non-analytical mental techniques within a Reflective Practice process was inspired by literature on the concept of meditation and its potential benefits (Nhat Hanh, 1979; Austin, 1999; Wallace, 1999; Spencer 2010). Spencer states that 'meditation is a gentle effort to be still', and that 'central to the experience of gradual stillness is acceptance' (2010: pp. 261, 262). He further maintains that 'being still is an experience where the mind appears not to react to the content of experience, where one does not actively and willfully generate 'deliberate thought' (p. 262). A narrative analysis of this study's data indicated the value and potential impact that this form of Enhanced Reflective Practice reporting could have upon a designer's professional practice and professional self-awareness. And also how this self-awareness can directly influence professional decision-making. From this analysis, the following insight was developed:

- **Insight 1** - Action research, through reflective practice reporting, can be enhanced with mental training techniques inspired by Wisdom Traditions² leading to improve professional self-awareness.

The potential of acting on Insight 1 is that practitioners may learn to concurrently hold, observe and consider multiple points of view with non-attachment to their reactions. If more possibilities of framing a situation are available in a designer's consciousness, it may be possible for that individual to avoid mental attachment to, and favoring of, a particular perspective or point of view; or mental aversion to, and avoiding of, a particular perspective or point of view.

² These are understood as meditation-inspired disciplines for the development of inner self-awareness, such as Mindfulness and Self-Observation. The inclusion of practices inspired by these disciplines illustrates the attempt to honor and integrate personal aspects of the self in professional practice scenarios, yet they are not considered for their religious or philosophical adherence. Rather, they are regarded for their potential utilitarian benefits and as tools for improving practice. Having said that, it is believed that eco-centric tendencies (which seem to be one of several side-effects of meditative disciplines) are human qualities necessary in contemporary design practice. Meditation approaches (especially Mindfulness) have been the subject of many serious research studies with a variety of published benefits. In the spirit of maintaining clear context, these meditative-disciplines as they relate to the pilot study, are understood as promoting self-aware states of mind where habitual reaction and attachment to uncontrolled streams of thought is reduced considerably, and a state of mindful awareness, non-resistance and acceptance of the present circumstances, or presence, is achieved.

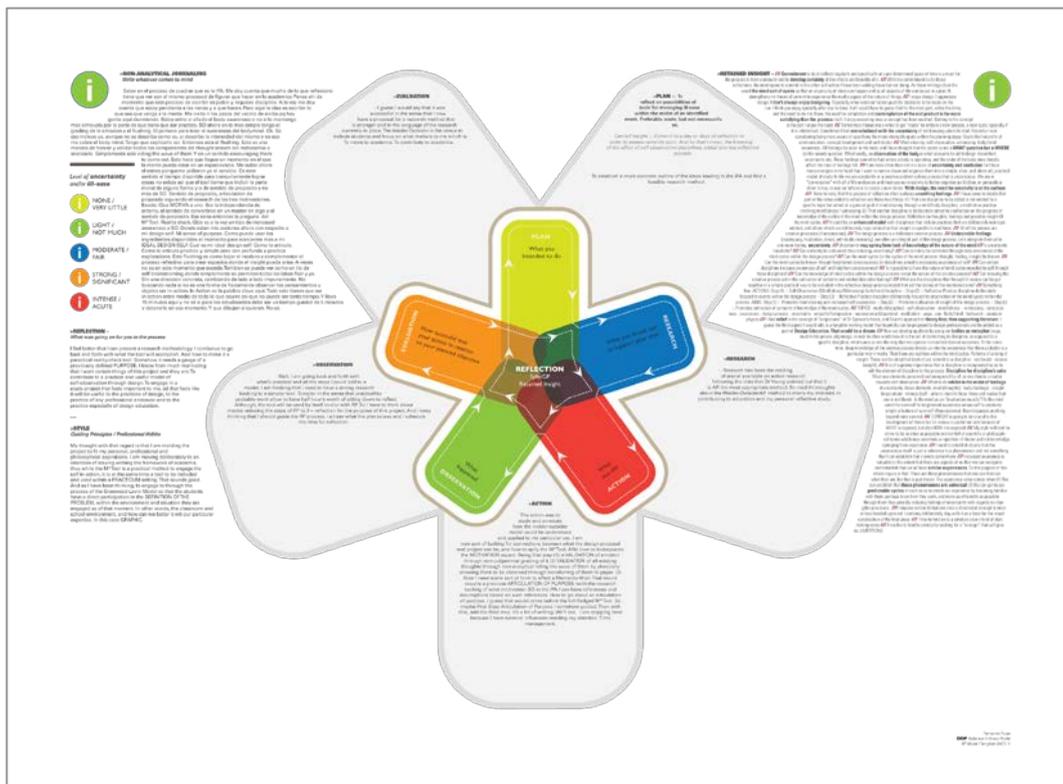


Figure 1

Enhanced Reflective Practice Model Template incorporating mental training techniques inspired by Wisdom Traditions. The original reflective moments as presented in the structure of the MA are: plan, research, action, observation, evaluation, and reflection. These are all analytical. The meditative techniques incorporated are: (1) Non-analytical journaling; a cathartic approach to quickly writing whatever comes to mind; and, (2) Self-observation of the perceived level of emotional fluctuation as an effect of uncertainty before and after reflection. The addition of these non-analytical techniques allowed for self-observation of the designer's inner environment and offered the possibility of experiencing self-aware states of mental stillness.

It may appear that this is to recommend avoiding or countering intuition but that is not the case. This approach is concerned with unconscious habitual reactions that may inhibit exploration and investigation. Therefore, the environment of design, and a consideration of the multiple perspectives of a design situation, should include a designer's mindful awareness, assessment and potential transformation of their own inner environments.

The pilot study's narrative evidenced the observation of emotional peaks related to design uncertainty emerging as a repeating theme. As a consequence a mapping tool was developed to facilitate awareness and reflection [for an example of design practice emotional mapping, refer to Figure 2]. Use of this tool allowed the reflective practitioner to: recognize the variants and different qualities of emotional peaks; gain awareness of the areas of the design process that constitute significant physiological responses; and to develop a sense of familiarity and reduced resistance and mental attachment to them.

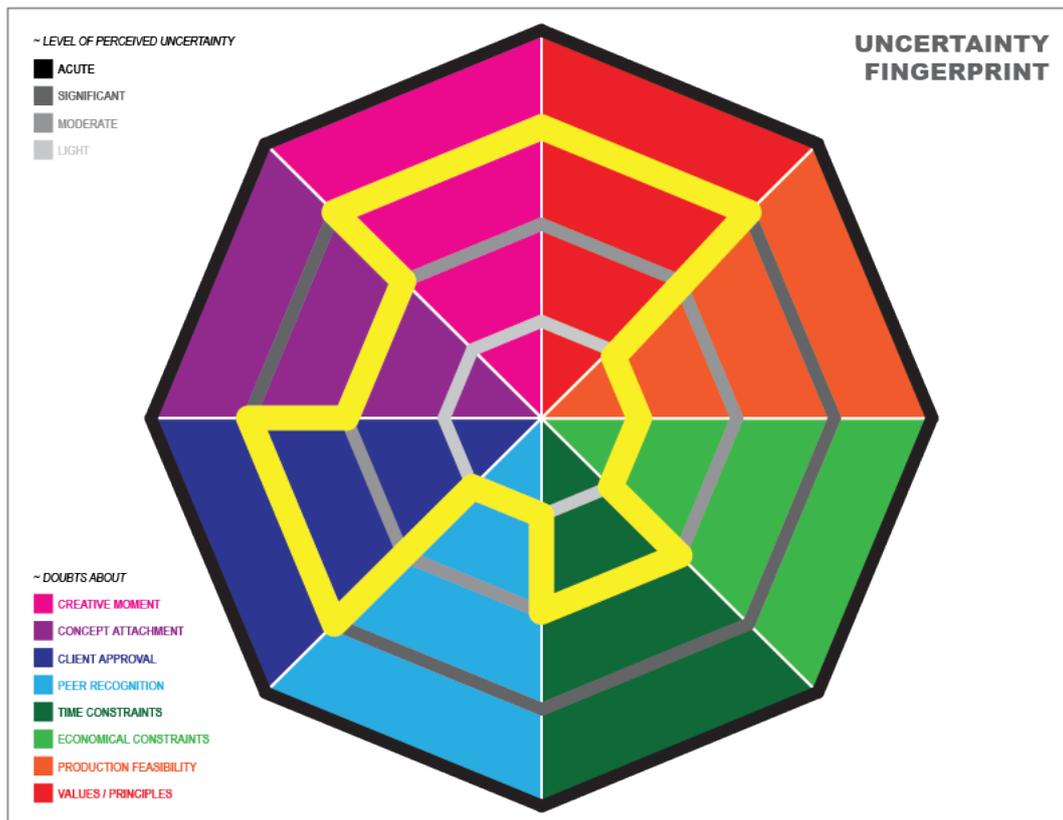


Figure 2

Awareness fingerprint of a designer's physiological response as it relates to uncertain situations of practice. This model was created upon reflective hindsight on the views presented in the pilot study's reflective narrative. This figure aims to visually represent levels of generally perceived emotional fluctuation while engaged with different aspects of the design experience.

Through the reporting process and further reflection it was concluded that, while in the acts of practice, these emotional peaks could often distract from the design task at hand and if experienced intensely debilitate. It may be argued that these reactions to the situation of practice are the body's mechanism for insisting on a break or for drawing the practitioner's attention to something important. The authors' view is that, beyond the specific reason and in different degrees, emotional fluctuation is a tangible experience of all uncertainty resolution. This lead to:

- **Insight 2** - Design practitioners would benefit from the development of tools that promote new conditions of inner self-awareness as a method for accessing a range of mental states that could help with coping with emotional fluctuation derived from design uncertainty while in the midst of it.

Meditation literature further supports this insight. Spencer (2010) speaks of the relationship of meditative practice with the arising of new conditions:

Meditation shows us that our desires arise out of conditions and are constantly changing when new conditions come along. Therefore desire is not a 'thing' we need to either follow or reject – it is just the arising of conditions in the moment. When this realization is experienced clearly and repeatedly it allows equanimity to develop (Spencer, 2010: pp. 563-564).

He further reports on attributes resulting from meditative activity such as clarity, calm, focus, equanimity, confidence, sympathy and compassion. Moore (2011) maintains that

mindfulness meditation training makes you better at focusing by allowing better regulation of how things that arise will impact you. Other reported effects of these disciplines are: spontaneous, non-egocentric action (Rosch, 1997); social connectedness (Hutcherson et al., 2008); compassion, eco-centricity, alteration of the brain structure (Austin, 1999); cognitive change and a reduction to habitual responding (Wenk-Sormaz, 2005).

Founded on the meditation literature it would be reasonable to suggest that these practices are non-analytical and aim: to promote mind experiences of being still, of being present and of non-attachment to thought; to utilize deliberate mindful attention in order to increase self-awareness and to promote a state of conscious stillness where such self-awareness is evident, where no thoughts are needed to validate such recognition, and where actions are non-reactive. Furthermore, such disciplines may: reduce uncontrolled streams of thought and attachment to them; advance spontaneous non-egocentric action, empathic capacity, sympathy and compassion; and cultivate clarity, calm, focus, equanimity and confidence, which can be considered highly effective when facing emotional peaks.

The pilot study demonstrated that the mental ability to develop stillness is valuable for the management of the effects of uncertainty and decision making on the basis of limited information.

4.0 Discussion

It would be useful for design research to assess data for when designers experience greatest turmoil, however there appears to be greater value in nurturing designers to become self-aware and better prepared to face these situations. Spencer (2008) suggests that 'the role of a designer's awareness and their mental and emotional conditions is a potentially fruitful area of investigation in relation to Reflective Practice' (p. 34). This research seeks to further understanding on the ability of designers to cultivate stillness, and on the tools to support this competence.

Thus, this paper proposes the term 'stillness' as a design-intelligence competence. Beyond the described attributes, stillness also suggests a phenomenon that can be further described as space between thoughts, words and actions. Carter (2011) describes 'basho', a concept akin to stillness by Japanese philosopher Watsuji Tetsurô, as 'emptiness of betweenness'. Parallel to the concept of basho, it is suggested that upon deliberate mindful attention, spaces of emptiness, of stillness, could be found framing every manifested thought, word or action cycle. So ruminating streams of thought, which link directly to automatic emotional reactions, are embedded with a complementary amount of moments of stillness available to be recognized within a designer's self-awareness.

While it may be possible to deem the effects of uncertainty as undesirable, the authors contend that an efficient approach to such effects is not resistance, but increased awareness of them. Michalko (2006) says that 'nothing is more harmful to a positive creative attitude than fears, uncertainties and doubts' (p. 3). Yet, he explains that you do not ignore them or become paralyzed. Following the incident 'you do not allow it to monopolize your thoughts' (ibid). This, in the authors' view, is the experience of non-attachment to thoughts. The authors propose that designing is framed by a radical constructivist epistemology and that the value of stillness is that it helps make the construction of knowledge less fixed in the mind of a designer whose professional self-awareness is an ever-evolving, open source of infinite possibilities. If a designer's awareness is less contaminated by unobserved judgments it could potentially lead to

more creative outcomes and to higher quality output. Based on this study's findings, the authors suggest that:

- Increasing a designer's inner self-awareness through enhanced reflective practice can expand professional self-awareness to include previously tacit elements of a designer's inner-environment.
- Increasing a designer's inner self-awareness through enhanced reflective practice can make the evolution of a design-intelligence competence explicit.
- Increasing a designer's inner self-awareness through enhanced reflective practice can aid the access to, and recognition of, mental states of stillness.
- Experiencing stillness - characterized by mindful awareness and acceptance of the present circumstances; and by non-attachment to ruminating streams of thought - can result in skillful management of the effects of uncertain situations of practice.
- Experiencing stillness can lead to increased self-confidence and professional self-fulfillment through an expanded sense of professional self-awareness.
- Experiencing stillness can lead to less fixated considerations of multiple perspectives in a design situation thereby expanding the potential of transformation.

To study and validate such phenomenology, reflective practice reporting, through reflective practice templates enhanced with non-analytical meditative disciplines, is proposed as a tool to generate data on this view from within. The methods supporting this research are being adapted from Scharmer (2007), Varela and Shear (1999) and validated meditation and mindfulness research. The authors propose that, just as the typical moments of action research can be expanded and enhanced, that Reflective Practice Models can be further developed to focus and elicit reporting on specific aspects of self-assessment and transformation.

5.0 Conclusion

Reflective Practice has many reported benefits and uses for making tacit aspects of design practice explicit. This paper discusses the way that a reflective approach could be narrowed and enhanced to enlighten aspects of a designer's inner-environment. Designers' inner-conditions are framed by their sensed perception of emotional fluctuation cycles resulting from their experience of the resolution of uncertain situations of practice. It is suggested that aspects of this experience are tacit. Enhanced reflective disciplines, as proposed herein, aim to increase designers' awareness of their inner-condition thus expanding their level of professional self-awareness.

This paper finds that the qualities of mental non-attachment and mindful awareness can reduce habitual reaction to ruminating streams of thought, thus promoting confidence when engaging with uncertain situations of design practice. Whilst the issues and relationships of design attention vary relative to situation and purpose, a designer's self-awareness can be considered as a constant datum for the framing of design space, since the designer is always part of that space. Finally, this paper proposes that by developing stillness of mind, the designer can become omnipresent and witness an experience less fixated by concrete models of thought, thus becoming fully open to the potential of design situations.

6.0 Further Research

Further research will investigate if inserting non-analytical meditative tools into the reflective cycles can lead to more effective transformation of a designer's inner-awareness. It will also seek to establish if the experience of stillness is a consequence of this transformation. It is anticipated that stillness, experienced as: clarity, calm, focus, equanimity and confidence during uncertainty-resolution of design practice situations, can be validated as a competence of design-intelligence.

Prospective studies will also consider deeper aspects of stillness. Young, Cooper & Blair (2001) say that there is an irony to design and ask:

How is it that we can produce so many wonderful looking artifacts yet utterly fail to create real connection, peace, harmony, balance with each other and the world we stand on (p. 2)?

They further suggest that designers are unconsciously part of a design world in turmoil where they create 'amazing things for the world, seemingly at the cost of the world' (p. 3). If cultivation of stillness can advance spontaneous non-egocentric action, empathic capacity, sympathy and compassion in a designer, then its reach, as a competence of design-intelligence, can expand to meaningful roles in broader social contexts.

References

- Austin, J. (1999), 'Zen and the Brain'. MIT Press. Massachusetts, US.
- Catherine E. Kerr, Stephanie R. Jones, Qian Wan, Dominique L. Pritchett, Rachel H. Wasserman, Anna Wexler, Joel J. Villanueva, Jessica R. Shaw, Sara W. Lazar, Ted J. Kaptchuk, Ronnie Littenberg, Matti S. Hamalainen, Christopher I. Moore, (2011), 'Effects of mindfulness meditation training on anticipatory alpha modulation in primary somatosensory cortex', *Brain Research Bulletin*, Volume 85, Issues 3-4, Pages 96-103, ISSN 0361-9230, DOI: 10.1016/j.brainresbull.2011.03.026. (<http://www.sciencedirect.com/science/article/pii/S0361923011001341>)
- Cravino, A. (2009), 'Releyendo a Donald Schön'. (Trad. 'Re-reading Donald Schön') *Reflexión Académica en Diseño y Comunicación N°XI* [ISSN: 1668-1673]. XVII Jornadas de Reflexión Académica en Diseño y Comunicación 2009. Año X, Vol. 11. Buenos Aires, Argentina.
- Carter, R. (2011), "Watsuji Tetsurō", *The Stanford Encyclopedia of Philosophy* (Spring Edition), Edward N. Zalta (ed.), URL = <<http://plato.stanford.edu/archives/spr2011/entries/watsuji-tetsuro/>>.
- Cross, A. (1986), 'Design intelligence: the use of codes and language systems in design', *Design Studies*, Volume 7, Issue 1, January 1986, Pages 14-19, ISSN 0142-694X, 10.1016/0142-694X(86)90003-7.
- Cross, N. (1990), 'The Nature and Nurture of Design Ability', *Design Studies*, Vol. 11, No. 3, pp. 127-140.
- Cross, N. (1999), 'Natural Intelligence in Design', *Design Studies*, Vol. 20, No. 1, pp. 25-39.
- Cross, N. (2006), 'Designerly ways of knowing'. Berlin. Springer.
- Cross, N. (2011), 'Design Thinking: Understanding How Designers Think and Work'. New York. Berg.
- Davies, R. & Talbot, R.J. (1987), 'Experiencing ideas: identity, insight and the imago', *Design Studies*, Volume 8, Issue 1, Pages 17-25, ISSN 0142-694X, DOI: 10.1016/0142-694X(87)90027-5. (<http://www.sciencedirect.com/science/article/pii/0142694X87900275>)
- English, S. (2011), 'Multiple Perspective Problem Framing: How do Designers Think About Situations to Reveal Hidden Opportunities'. PhD thesis, University of Northumbria at Newcastle. Newcastle Upon Tyne, UK.
- English, S. (2008), 'Enhancing the Reflective Capabilities of Professional Design Practitioners'. Proceedings of the Design Research Society Conference 2008. Sheffield, UK.
- Gardner, H. (2011), 'Frames of Mind: The Theory of Multiple Intelligences'. 3rd edn. New York, Basic Books.
- Gardner, H. (1999), 'Intelligence Reframed: Multiple Intelligences for the 21st Century'. New York, Basic Books.
- Gardner, H. (2011), 'Frames of Mind: The Theory of Multiple Intelligences'. New York, Basic Books.
- Goleman, D. (1996), 'Emotional Intelligence: Why It Can Matter More Than IQ'. New York, Bantam Books.
- Goleman, D. (1998), 'Working with Emotional Intelligence'. New York, Bantam Books.
- Goleman, D. (2006), 'Social Intelligence: The New Science of Social Relationships'. New York, Bantam Books.
- Hutcherson, C., Seppala, E., Gross, J. (2008), 'Loving-Kindness Meditation Increases Social Connectedness', *Emotion*, American Psychological Association. October 2008, Vol. 8, No. 5, p 720-724.
- Lawson, B. (1994), 'Design in Mind'. Oxford, Butterworth.
- Lawson, B. (1997), 'How Designers Think: The Design Process Demystified'. 3rd edn. Oxford, Architecture Press.
- Michalko, M (2006), 'A Handbook of Creative-Thinking Techniques'. Ten Speed Press. California US.
- Nhat Hanh, T. (1976), 'The Miracle of Mindfulness'. Beacon Press. Boston, US.
- Papamichael, K. & Protzen, J.P. (1993), 'The Limits of Intelligence in Design', Presented at the Focus Symposium on Computer-Assisted Building Design Systems, of the Fourth International Symposium on System Research, Informatics and Cybernetics. Baden-Baden, Germany.
- Rojas, F. (2011), 'Self-Observation & Reflective Practice', *Design Professional Practice MA Thesis*. Northumbria University, Newcastle Upon Tyne, UK.
- Rosch, E. (1997), 'Mindfulness Meditation and the Private (?) Self'. In: Ulric N. & Jopling, D.A. Ed. *The Conceptual Self in Context: Culture, Experience, Self-Understanding*. Cambridge University Press: New York, NY, USA, 1997. pp. 185-202.

- Rowland, G. (1992), 'What do instructional designers actually do? An initial investigation of expert practice', *Performance Improvement Quarterly*, 5(2), pp. 65-86.
- Scharmer, O. (2007) *Theory U: Leading from the Future as it Emerges*. The Society for Organizational Learning, Cambridge, USA.
- Schön, D. (1983), 'The Reflective Practitioner: How Professionals Think in Action'. New York, Basic Books.
- Schön, D. (1987), 'Educating the Reflective Practitioner'. California, Jossey-Bass.
- Spearman, C. (1904). 'General Intelligence: Objectively Determined and Measured', *The American Journal of Psychology* 15 (2): pp. 201–292.
- Spencer, N. (2008), 'An Investigation into the Experience of Designing', PhD thesis, University of Northumbria at Newcastle. Newcastle Upon Tyne, UK.
- Spencer, N., & Hilton, K. H. (2010), 'The Value of Stimulated Dissatisfaction'. In D. Durling, R. Bousbaci, L. Chen, P. Gauthier, T. Poldma, S. Roworth-Stokes, and E. Stolterman. (Eds.) *Design and Complexity*. Design Research Society International Conference, digital proceedings, paper 113.
- Spencer, N. (2010), 'Confirming Experience: Being Present During Reflective Conversations', *Design Principles and Practices: An International Journal*. Vol. 4, Issue 3, pp. 355-366.
- Sternberg, R. J. (1988) 'The Triarchic Mind: A New Theory of Human Intelligence'. New York, Penguin Books.
- Sternberg, R. J. (Ed) (2010) 'Handbook of Intelligence'. New York, Cambridge University Press.
- Swann, C. (2002), 'Action Research and the Practice of Design', *Design Issues* Winter 2002, Vol. 18, No. 1, Pages 49-61. Massachusetts Institute of Technology. Massachusetts, US.
- Varela, F. & Shear, J. (1999). 'The View from Within: First-person Approaches to the Study of Consciousness'. Imprint Academic.
- Wallace, B.A. (1999). 'The Buddhist Tradition of Samatha: Methods for refining and examining consciousness', *Journal of Consciousness Studies*, 6, pp. 175-187.
- Wenk-Sormaz, H. (2005), 'Meditation can Reduce Habitual Responding', *Alternative Therapies in Health and Medicine*, 11(2), pp. 42-58. Retrieved July 6, 2011, from ProQuest Nursing & Allied Health Source. (Document ID: 814058081).
- Young, R., Cooper, A. & Blair, S. (2001) 'Redesigning design education – the next bauhaus?', keynote address. In: ICSID Educational Seminar 2001 Seongnam, Korea, September 2001 and Book Chapter. In: *New Design Paradigm*, 2001