BEYOND KNOWLEDGE TO UNDERSTANDING:

A GOETHEAN PERSPECTIVE ON DESIGN EDUCATION AS LIVING PROCESS

Cape Peninsula
University of Technology

BEYOND KNOWLEDGE TO UNDERSTANDING:
A GOETHEAN PERSPECTIVE ON DESIGN EDUCATION AS LIVING PROCESS

by

KAREN LEIGH SUSKIN

Thesis submitted in fulfilment of the requirements for the degree
Magister Technologiae in the Faculty of Informatics and Design
at the Cape Peninsula University of Technology

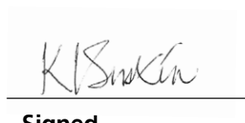
Supervisor: Dr Alettia Vorster Chisin
Co-Supervisor: Dr Elsabe Pepler

Cape Town

April 2016

DECLARATION

I, Karen Leigh Suskin, declare that the contents of this thesis represent my own unaided work, and that the thesis has not previously been submitted for academic examination towards any qualification. Furthermore, it represents my own opinions and not necessarily those of the Cape Peninsula University of Technology.



Signed

8 April 2016

Date

ABSTRACT

This study explores appropriate responses to some of the challenges inherent to life today, and how a holistic design education can bring about a new reality. The approach to design learning advocated here acknowledges the present reality of fragmentation and reductionism as the fundamental and pervasive mode of understanding our world and ourselves, and seeks to develop instead a design approach grounded in inclusion, context and connectedness.

Under the primary concept of profound engagement with self, culture and environment, I developed a complementary design education model exploring the role of designer as mediator between culture and nature. This model proposes future design knowing situated in environmental, social and self-awareness so as to offer a vital interface between ecology, public and the personal.

Three themes emerged during the research that helped me to approach and engage with complexity during particular experiences of teaching and learning. These themes are: *Wild*, representing quality; *Conversation*, representing experience; and *Transformation*, representing consciousness. With these themes in mind I entered into the untamed territory of my research seeking the dynamic connections and interrelationships of living processes in education.

The Ensembles or modules constituting this model evolved from the work of Rudolf Steiner's concepts of higher perception: Imagination, Inspiration and Intuition, made clear through following Johann Wolfgang von Goethe's phenomenological method. Goethe's phenomenological method – "delicate empiricism" – is essentially a participatory, perceptive practice with which to harness qualitative ways of knowing. The methodology supports students to cross the divide between abstraction and holistic relational modes of knowing that are context-sensitive.

The research study reconsiders the current worldview and determines ways in which to develop relational awareness through deliberate learning experiences. These ways imply re-focusing existing awareness with personal qualities and active participation. The Ensembles open up new ways of perceiving emergent process rooted in integrated, flexible and evolutionary processes.

Students' learning experiences are traced as they develop their capacity for interconnected decision making modelled on living processes. This in turn helps develop the model further, so that in the future designers may embrace ways of thinking and doing design that are more flexible, mobile, delicate and sustainable.

The radical humanist perspective and qualitative methods used in the study advance the pedagogical approach embedded in human engagement and interaction, and encompass logic, intellect, creativity, imagination and philosophical reflection. Thus the critical shift, from perceiving the world as abstract and as "something out there" to a deeper inner knowing and understanding, is embedded in the education model as an opus of Ensembles reflecting a pedagogy of lived experience, grounded in embodied creative practice.

ACKNOWLEDGEMENTS

I wish to thank:

- **Alettia Chisin,** who acknowledged my different style of practice in teaching design, and my relentless search to ground experience in written form. No matter how provocative my ideas, she remained at my side, as a loyal friend and committed mentor.
- **Elsabe Pepler** whose inner faith and outer steadfastness drew out of a warren of dense thoughts the inherent pattern, who organized and helped me articulate complex ideas in simple language.
- The financial assistance of the **Cape Peninsula University of Technology** Research Funding towards this research is acknowledged.
- **Allan Kaplan and Sue Davidoff** who immeasurably deepened my thoughts and practise of a Goethean methodology. Your living teaching inspired this thesis.
- **Helen van Zyl** as a conversation partner, Bridging Polarities through art practitioner, special friend and co-facilitator, who wholeheartedly and with unerring dedication has enhanced my work.
- **Yvette Worrall**, friend and wise wordsmith, my deepest appreciation for all the care you gave to the content and flow of the text. Inspiration was drawn out of our conversations and in particular, the TEDx presentation. The thesis is now ready for the broader public.
- **Cecilia Solis-Peralta**, dear friend in the deepest sense of the word, thank you for supporting me in life and for easing the thesis into this beautiful form. I have been blessed to work with you.
- **Claire Clark**, thank you for your generosity, love and continual support in recognizing the importance of this work and graphically for giving care to workshop proposals and flyers.
- To my three children, **Joshwa, Keziah and Josiah,** each a unique gift, thank you for your perfect love, space and encouragement. To **Anthony**, my beloved husband, for his trust and confidence; you never for a moment let me give up on any one of my aspirations, and are always at my side.
- **Alice Ashwell, Cyril Coetzee and Alexandra Dodd**, my gratitude goes to you for your generosity of spirit, attention to detail and countless hours of reading, all of which gave rise to this thesis.
- **Rolf Proske and Liz van Aswegen** for your support, valuable comments, suggestions and professional advice ensuring all who were referenced were given their due.
- To all the many unlisted contributors who formed insights and viewpoints and in particular the students, I thank you all.
- I have made every effort to trace, quote and reference accurately; however the research is based primarily on fieldwork, reading, workshops and conversations over a period of many years.

DEDICATION

To my Mother and Father, for giving me the stars.

And to all those who seek a new paradigm in life and education through conscious participation, may it be our shared purpose to develop new ways of thinking and doing design in the world today.

GLOSSARY

BEHOLDING:

Beholding is used in the text to mean staying with the phenomenon, as a direct encounter, as well as holding the phenomenon in mind and envisioning it (Schilling, 2007:5).

CHAOS:

"This "chaos" is the Greek chaos, where the potentials for a new order lay hidden, waiting to be expressed" (Perlas, 2011:11).

CONCEPT AND PERCEPT:

To understand concept and percept and their meaning in the text it is essential to refer to Steiner's description. Steiner describes the inter-relations of the object, the image or percept, the concept and the ego below, as relevant to understanding the meaning of concept and percept in the text. "In the ordinary sense knowledge, four elements are to be considered: (1) *the object*, which makes an impression upon the senses; (2) *the image*, which the human being forms of this object; (3) *the concept*, through which the human being arrives at spiritual [soul] comprehension of an object or event; (4) *the ego*, which forms for itself the image and concept based on the impression of the object (Steiner, 1974:4). This description makes explicit the phenomenological approach and Goethe's methodology.

ENSEMBLES/MODULES:

These terms will be used interchangeably throughout to describe educational interventions. I have used the words participant and student interchangeably, although in *The Cross-Pollination Workshop* I will refer only to participants.

GESTALT FIGURES:

Gestalt psychology posits that "the parts are determined by the whole, and that all experience is related to certain basic structures which cannot be subdivided" (Lucie-Smith, 1984:88).

HERMENEUTICS:

Most broadly, hermeneutics is the theory and practice of interpretation, particularly the interpretation of texts, which may be any material object or tangible expression imbued in some way with human meaning. The approach is iterative and an important feature of a holistic framework (Mugerauer, 1994:4).

IMAGINATION:

Imagination is the ability to form mental images of what has not been experienced, and more "precisely the ability to think in moving, living pictures" (Piening & Lyons 1979:161). Imagination in the text refers to the ability to "look beneath the surface of outer facts" (Steiner, 1974:33) as a practice with which to open our eyes to what exists in the invisible, non-sensory world.

IMAGINATION, INSPIRATION AND INTUITION:

Imagination, Inspiration and Intuition are considered in the text as a "nondiscursive form of seeing connections that is comparable to the experience one can have most purely in mathematical insight" (Holdrege, 2005:50). All three demand that we are "inwardly active on a much higher level than in the case of outer cognition" (Steiner, 1974:34) and can lead to "facts [that] are not revealed in the physical world" (Steiner, 1974:53).

KNOWING:

Knowing is used in the text as a verb, as process in action-getting to know. It can also suggest that we already know and simply need to re-member.

LIVING THINKING:

Perceiving the moving, unfolding processes through a living relation to the world through active participation.

MAN:

Has been substituted from the original texts with human being.

OPENNESS:

Permits us to experience the unknown with an open mind, without judgment or criticism.

PROTEUS:

"Proteus, in Greek mythology, the prophetic old man of the sea and shepherd of the sea's flocks (e.g., seals). His dwelling place was either the island of Pharos, near the mouth of the Nile, or the island of Carpathus, between Crete and Rhodes. He knew all things—past, present, and future—but disliked telling what he knew. Those who wished to consult him had first to surprise and bind him during his noonday slumber. Even when caught he would try

GLOSSARY (continued)

to escape by assuming all sorts of shapes. But if his captor held him fast, the god at last returned to his proper shape, gave the wished-for answer, and plunged into the sea. He was subject to Poseidon. From his power of assuming whatever shape he pleased, Proteus came to be regarded by some as a symbol of the original matter from which the world was created" (Encyclopaedia Britannica, 1974:251).

RATIONALITY:

"Rationality is a systematic way of thinking that generates a number of linked propositions which the thinker later tries to transform into general, regular assumptions and abstract theories. The thinker works with demonstrable truths and untruths and tries to find intelligibility and control in our existence in known conditions" (Birgerstam, 2002:432).

REDUCTIONISM:

"A reductionist believes that a complex system is nothing but the sum of its parts. An account of it can be reduced to accounts of individual constituents. An antireductionist believes that the whole is more than the sum of its parts. There are holistic properties that cannot be described in purely constituent terms" (Polkinghorne, 2002:1).

ÜR PHENOMENON:

Bortoft describes the Ür Phenomenon as "the authentic whole, which is reached by going into the parts" (Bortoft, 1996:22). It is otherwise referred to as the archetypal phenomenon and is the essential meaning (Schilling, 2007:5) which is intuited through repetitive observation. Goethe's "*Ür Phenomenon"* implies that the phenomenon is an event or happening, a process of becoming, in which actuality and possibility are fused and gathered by the thing as it is revealed to the perceiver within the context of the life world (Robbins, 2005:121). The term is usually spelled with an umlaut on the "U", but not by all authors.

ABBREVIATIONS AND ACRONYMS

BTECH: Bachelor of Technology

CP: Cross-Pollination workshop participant

CPUT: Cape Peninsula University of Technology

F: Fashion Design Original thinking – biography seminar participant

G: Graphic Design Original thinking – biography seminar participant

I: Industrial Design Original thinking – biography seminar participant

J: Jewellery Design Original thinking – biography seminar participant

S: Surface Design Original thinking – biography seminar participant

IDEO: An innovation and design company that uses a human-centered, design-based approach to help organizations in business, government and education sectors

Table of Contents

"The major problems in the world are the result of the difference between the way nature works and the way people think" (Bateson, 1972).

Visual Table of Contents

Ensembles

Leadership 6
– Inner leadership as necessity for sustainable and responsible design practice

The Nature of Design 5
– Sustainable practice

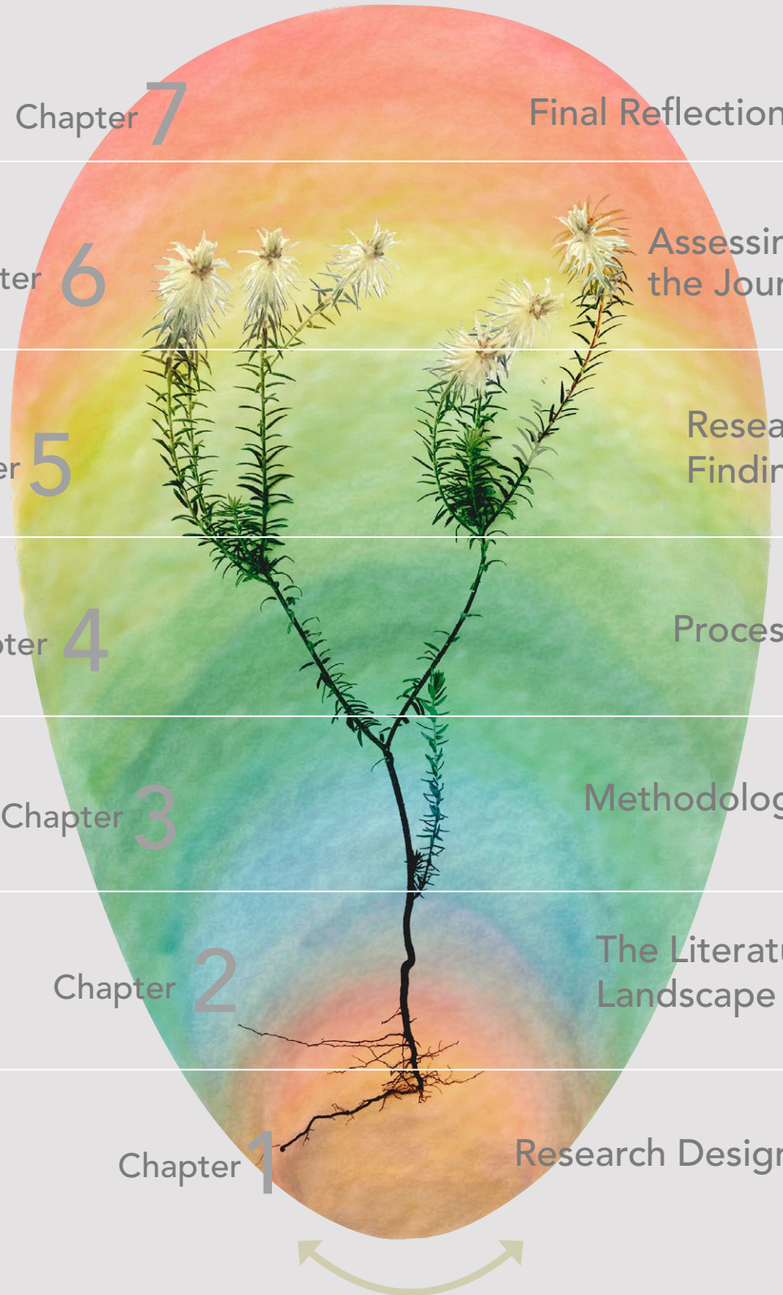
The Archetype 4
– The generative idea

Advancing Design 3
Conceptualization
– Through the four elements

An Inner and Outer Dialogue 2
– Through the seasons of nature

Towards Original Thinking 1
– Art history and biography

Chapters



Values

RESPONSE
- Conscious responsiveness
- Integrity and purpose
- Interdependence

SELF-WORLD
- Dynamic cognition
- Metamorphosis – transformation
- Sustaining the laws of life

PARTICIPANT
- Receptive attentiveness
- Perceiving holistically
- Observing underlying patterns

AWARENESS
- Contextual awareness
- Integrated design
- Empathetic/ethical consideration

EXPERIENCE
- Participation and conversation
- Polarity – relationship
- Sensory/non-sensory awareness

INDIVIDUAL
- Self-realization
- Understanding evolutionary process
- Questioning attitude

Chapter 1
Research Design

CHAPTER ONE

> *"Be patient toward all that is unsolved in your heart and try to love the questions themselves, like locked rooms and like books that are now written in a very foreign tongue. Do not now seek the answers, which cannot be given you because you would not be able to live them. And the point is, to live everything. Live the questions now. Perhaps you will then gradually, without noticing it, live along some distant day into the answer"* (Rilke, 1903).

RESEARCH DESIGN

1.1 Introduction

My study of Anthroposophy has grown organically over the past thirty years. From the first twitches of internal recognition and awareness upon reading first the work of Rudolf Steiner, and then Johann Wolfgang von Goethe, I found a domicile. Art and design have been the basis of my knowledge, in both an applied, practical sense as well as theoretical academic sense. Anthroposophy, art and design have formed a triumvirate, which continues to support my teaching and creative practices.

The centrality of the *question* is at the heart of both Anthroposophic practice and Humanist philosophy. In pursuing the questions generated by this study, I consciously pushed the boundaries of self, and discovered a multitude of ways in which to facilitate the type of learning that I consider to be in deficit, and that I would like to have experienced when I was a young, idealistic designer entering into world of ideas and practice.

There is an element of tentative exploration in all research, yet Goethe pushed for an even more receptive, ambiguous mode of exploration and research by which a kind of radical openness or prolonged empathetic observation is cultivated as a way of navigating and making sense of uncharted experiences and previously unknown things. I adopted Goethe's method of "delicate empiricism" (Goethe cited in Miller, 1995:303), which meant embarking on an explorative, qualitative, phenomenological journey. All the while, I heeded Bohemian-Austrian poet Rainer Maria Rilke's timeless counsel, "to live into everything" (Rilke 1903).

In this study, I aimed to address my research questions through an exploration of qualitative phenomenology, while integrating some of the most catalysing ideas in Anthroposophy – a spiritual philosophy or world-view that has given me an inner compass.

Following my inner compass it was clear that the effects of materialistic thinking and consumerism have rippled through all aspects of modern life. Materialistic thinking, triggered by reductionism, detachment and abstraction, has left us with little or no relation to ourselves, or to the world in which we live. With this attitude of indifference and illusion, it is no surprise that the planet is suffering from environmental degradation, social impoverishment and isolationist thinking.

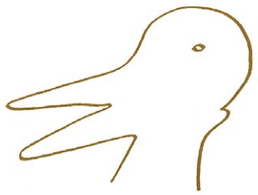
Design education is not immune to what is described above as materialistic disassociation and manipulation, and certainly needs more rigour, more science and more attention to the social and behavioural sciences, to modern technology, and to business (Piening& Lyons, 1979:141) – but from a holistic perspective. These authors maintain that the dominant focus on rational thought and intellect has limited our ability to know in different ways. In this regard (Pietak, 2011:249) argues: "Consequently we are limited in our capacity to develop actions capable of integrating human interest with the ways nature ultimately functions." It is my hope that this research will provide a new paradigm in design allowing for more effective understanding, valuation and sustainable integration of human activities with the natural world

Advances in new educational methods that include a whole human experience, are some of the most critical prerequisites we face in teaching today. To see design "in relation to ourselves and the whole of society" designers will be "less apt to thrust into the present what will become a danger or pollution in the future" (Piening & Lyons, 1979:141). Therefore design can no longer "consider the world as a set of solid objects", but must recognise the liminal space, the interweaving of tangible and intangible relationships (Kaplan, 2002:25). It is the *relationships*, which determine the complexity and vitality of the phenomenon. A visual example of this interweaving is illustrated in the multispectival figures on page 3.

Fig 1.1 **Multispectival, giraffe figure**

The above image appears at first to be an unintelligible pattern of black and white random shapes. Although the sensory experience – image, remains the same it is possible to shift perception and organise the random shapes into an image of a giraffe's head and neck (Wittgenstein, 1968). This shifting between variants, evidences that "meaning is not on the page" (Bortoft, 1996:52) but in our ability to see, and make meaning from how we see, and what we see.

Old/young



Duck/rabbit

Fig 1.2 **Multispectival gestalt figures**

The gestalt figure by William Ely Hill, 1915, pictured above, challenges us to move between one image and another, adjusting our seeing so that we can see both the old woman and the young woman, or, as in the right hand figure, the duck or the rabbit (Wittgenstein, 1968).

The multispectival figures force us to pay attention to how we organise seeing through our thinking, and how in order to see two different images a shift must take place. This shift depends on which perspective we take. The image is fixed on the page and yet the image produces in us different ways of seeing. This points to using "our conceptual ability [and] holistic consciousness, to see the whole, the meaning in itself" (Kaplan, 2002:25).

If we are to move beyond the dominant materialistic habit and mindset of "object thinking", to one of reading the invisible fields and relationships, and what is referred to in the text as a "living thinking", we must cultivate modes of perception that can embrace the whole and the parts simultaneously – a type of twofold seeing. This "twofold seeing" will respond to the sensibility of a living process and inevitably lead to imaginatively perceiving the dynamic unity of the whole.

Tamar Shafir (2011:8) brings attention to the superficial quality of many products produced today, and believes that "people are desperate for meaningful moments in their lives, whether they are found in built environments, communication tools, modes of movement, or protocols of eating and drinking". This leads to a quest in which designers can develop "value assets in the physically manifested future". The "incidental effects of industrial design" have largely had an alienating influence on humanity (ibid.).

In a sense, this is the thrust of the entire study: How do I become a more effective, responsive and integrated design teacher, design student, and ultimately, designer, through the integration of concept and percept so that "together they disclose the whole"? (Bortoft, 1996:9).

As an antidote or radical design tactic in response to alienation by design, Robert Nelson (2009:46) proposes an approach he describes as a "kind of anti-method", which entails an engagement with many methodologies, diverse views and in particular playful experiential, action research. Nelson's "anti-method" proposition echoes the qualitative phenomenological approach embedded in Goethe's "delicate empiricism" in that they both argue for a kind of radical receptivity on behalf of the thinker/maker so as to impart a living quality to the object or system being designed. I describe Goethe's "delicate empiricism" in greater detail in Chapter 3.

1.2 The development of design needs and skills

I live in Cape Town, South Africa, which, in 2014 hosted the World Design Capital – a designation bestowed on selected cities biennially by the International Council of Societies of Industrial Design. Even from the bidding phase of this year-long programme of events, pressing questions about the essence of design and the social value of designers were brought to the forefront of

popular attention and inquiry. The motto chosen to give expression to Cape Town as the World Design Capital was: *Live Design. Transform Life.*

Fig 1.3 World Design Capital 2014 – logo.

For designers in every sphere, this was an exciting time as it promised the dawn of a new era. That design thinking as an academic field had won ground over the past decade is attributable in no small part to the many different approaches that have been explored, analysed, suggested and applied to the development of a new kind of thinking (Buchanan, 2000 & Friedman, 2003). The main drive behind these different approaches is the quest for the elusive qualities of creativity, a quest that is apparent in many fields of teaching and education.

Increasingly, more authors are publishing their thoughts and ideas around new ways of creative thinking relevant to design, and about the relevance of the design process to artists, designers and even 'ordinary' people. Right-brained "creatives" appear to be gaining ground in all fields. In 2000, Rosamund and Benjamin Zander's ground-breaking book, *The Art of Possibility*, was published. They proposed a move away from the world of particular measurement, to a universe of possibility, and how this change can be affected by observing the world in different ways. In 2005 Daniel Pink published his book *A Whole New Mind*, in which he unequivocally stated that "[d]esign is a classic whole-minded aptitude … as more people develop a design sensibility, we will increasingly be able to deploy design for its ultimate purpose: changing the world" (Pink,2005:70). Pink calls design "the third industrial revolution". He makes reference to the Charter High School for Architecture and Design established in 1999 in the USA, whose aim was not merely to train a new generation of designers and to diversify a largely middle class profession – but to use design to teach core academic subjects, and to empower people to think holistically.

In his book *Glimmer* (2009:5), Warren Berger states: "The notion that design can solve the world's problems is actually an old idea that has become new again." More recently, design has shifted its focus towards improving life for the larger population. Design, according to Berger, "has been democratized" (ibid.).

The challenge of "improving life" for the larger population is central to the future of design education in South Africa. While the outcomes and effects of design are espoused by many, the challenge remains: How does one teach the optimal designer, the sensitive artist, the design thinker, in a competitive, mechanistic and materialistic world that mostly points to status, to possessions, to lack of time, to overload of technological stimuli? Even more importantly, what are the attributes of a balanced teacher, who can cultivate vital skills and competencies? What life-engendering learning processes can be taught to the young generations who survive on unbalanced media diets and instant solutions to sharpen their skills during this, the "third industrial revolution?" asks Pink (2005).

In 1975, hungarian psychologist, Mihaly Csikszentmihalyi became immersed in a study around this very issue. He investigated creative people who find themselves in a space, which he calls "flow", and devised a model according to which this state of artistic expression can be achieved. He included the skills of harnessing the emotions in service of performing and learning, the merging of action and awareness, and the purposeful distortion or alteration of objective temporal experience to allow for a more subjective experience of time. Goethe's reflections on his preferred mode of thinking or perception are very much in keeping with Csikszentmihalyi's thoughts concerning the concept and practice of "flow". Goethe writes:

> "… Dr. Henroth speaks favourably of my work; in fact, he calls my approach unique, for he says that my thinking works objectively. Here he means that my thinking is not separate from objects; that the elements of the object, the perceptions of the object, flow into my thinking and are fully permeated by it; that my perception itself is a thinking, and my thinking a perception" (Goethe cited in Miller, 1995:39).

Both Goethe and Steiner were "objectively" able, through the means of thinking to enter into the living flow of movement and countermovement, between themselves – as the observer, and that being observed – the phenomenon and bring forth the living idea or "whole". Muschalle (2009) noted that Rudolf Steiner adopted Goethe's worldview as his philosophical point of departure in developing spiritual science. Goethe broke through the barriers of limited materialist understandings of the world to achieve a new depth of awareness, by working with acute scientific observation, merged with artistic imagination. This delicate balance of the scientific and artistic modes of cognition Goethe termed "delicate empiricism" – "that [which] makes itself utterly identical with the object, thereby becoming true theory" (Goethe cited in Miller, 1988:307).

1.3 Positioning students within an emerging framework of meta-learning

Foregrounding the Goethean perspective in design education entails a clear emphasis on the very processes of thinking. In championing thinking as a kind of creative activism, emphasis is placed on the phenomenon of thinking, and therefore learning itself (Maudsley, 1979). In order to contribute to a flourishing future designers too, need to develop their innate capacity to perceive their own thinking, connect patterns and authenticate competencies for an aesthetic congruence of form and content.

Through direct, sensorial, lived and empathetic experiences in the living world students may discover deep meaning within such a framework of meta-learning (Maudsley, 1979). A process in which, learners adopt new habits of perception by becoming aware of their thought processes, and in turn transform themselves. In the words of Kaplan (2002:48), this positions the student as an "active adventurer" with the possibility of transcending established norms and discovering the new. The student explorer therefore is at the heart of his/her exploration and willingly enters the unknown, untamed, wild experience of "not-knowing" with the curiosity to observe phenomena anchored in life. By engaging and stretching the students' imagination they may develop an ability to perceive the living, dynamic interrelationships, the transitions and the metamorphosing characteristics inherent to living organisms. The task, as I see it, is to create learning environments, and facilitate processes whereby students' senses are awakened. In this way they can become conscious interpreters of the world, forming a bridge between the world of conceptions and the world of perceptions (Robbins, 2005:124).

1.4 The role of the researcher and the learning journey in phenomenology

True to the emergent, phenomenological approach applied and followed in this study, I avoided any predetermined rigid goals or conditions; rather I followed a "conversational" approach to the emerging research where the text started to "talk back". Throughout my research I took on Rilke's injunction to "live the questions". Such a research position is typical of the phenomenological approach, which is highly qualitative and explorative in nature.

The intention of a pure, phenomenological study is to characterise the "lived experience" of the phenomenon. Every discovery, insight, imagination, inspiration, intuition and memory adds to the narrative, and thus any manner of response is open to further pursuit. Phenomenology in this context links to emergent strategies, and makes holistic sense through allowing the method of analysis/exploration to reflect or mirror the very nature of the data itself (Waters, 2014).

Themes crystallised into essential elements, moments or time frames. It is important to note that only those elements or moments that contributed to the meaning of the emerging narrative were explored. In addition, as observer-participant I became a central character in the conversations and explorations pertaining to the content and form of an ideal educational model for design, founded on my lived experience.

Lived experience resounds in the words of Isadora Duncan (1877-1927) when she writes the following about the genre of dance: "[i]f I could tell you what [the dance means], there would be no point in dancing it" (Duncan cited in Seeley, 2006:13). In the unknown terrain of my research it was vital to be receptive to each and every moment as it unfolded. A spontaneous, improvisational attitude, whereby the content or the "dance" could emerge out of the process of "doing" resonated with Goethe's methodology. I describe this in later chapters, and how the research beckoned me to "dance" in the fluid interchange between knowing and not knowing as a "changeable, deviant, ambiguous, and often contradictory" (Birgerstam, 2002:431) place in which to be.

With my growing concern for cultural and ecological sustainability it became evident to me that in order to see "comprehensively and not selectively" (Bortoft, 1996:293), I would need to explore both "physical and non-physical aspects at work within the world" (Piening & Lyons 1979: 6). I had to shift from the linear, dominant paradigm of cause and effect to balancing conceptual and perceptive intelligence in the pursuit of an integrated approach – the pursuit of an empirical approach of delicacy.

My role as researcher therefore, was to discover an appropriate methodology or methodologies with which to balance the concept–percept dichotomy, and expand the student's learning experience "conditioned by interest" (Nelson, 2009:74). The expanded intention was to tap into each student's creative reserves and unlock capacity for intensive and expansive, implicit and explicit ways of knowing. The research advances from a philosophical background towards balancing logical thinking with perceptive activity. The medium for this journey of exploration is Goethe's "methodology" with which I scaffold the research. Davis, (2006) states: "Goethe never constructed his approach as a "method", although he described in many places how he approached his scientific studies". "Holdrege argues that 'there is no *the* Goethean method' because of the necessary human dimension in the process" (Holdrege cited in Davis 2006:7). I have chosen to use the words "approach" and "method" interchangeably throughout the research.

The learning journey encapsulates past–future, observer–participant, teacher–learner, and acknowledges an insider approach to the research as dialogic rather than analytic, although at times analytical processes have been employed. I have, to the best of my ability remained open, intentionally avoiding predetermined goals and pedantic methods. The "conversational" approach I

adopted therefore made space for the text to, "talk back" and be a true "conversation partner". Motifs such as music and dance were used as metaphors in weaving the text together, true to an emergent, phenomenological approach.

1.5 Rationale for the study

Design is my medium and the rationale of this study is to explore the potential of design knowing through creative practices rooted in a Goethean approach. This approach advocates finding immersive and relational ways in which to explore the differentiated, but intrinsically interrelated characteristics of "concept" (an abstract idea or general notion) and "percept" (the object of perception).

Unity in the context of "concept-percept" challenges the notions of fragmentation and reductionism, highlighting dichotomies, such as "self-world", "object-subject", and "inner-outer". The Ensembles or creative processes are designed to engage students in dynamic and vital ways of knowing, through hands-on experiences that give rise to more holistic ways of seeing and understanding the physical world.

My methods are embedded in sensory experience and aim to realign the designer to a "self-world" orientation through embodied experience. All the processes were designed to build capacity to "read" the living phenomenon and promote vital ways with which to practise design. By becoming more aware of the complex interdependencies that underlie all life forms, the student may learn to uncover multiple layers of meaning, enabling him/her to design with greater sensitivity and responsiveness to the contexts in which they engage.

1.5.1 Theoretical orientation

The main theoretical underpinning and source of inspiration for the study has evolved from the interpretation of the world presented in the scientific works of Johann Wolfgang von Goethe (1749 – 1832), edited and further elucidated by the works of Rudolf Steiner (1861 – 1925). In addition to this, the search was undertaken in solidarity with integrated thinkers, past and present. All endeavored to bring more balanced ways of thinking and being into the world that balance theory with practice. My research effectively drew on their inputs in an attempt to reposition design knowing as human agency and promote responsible design action in the future. Therefore the learning task was to seek the "idea" through Goethe's methodologies, absorb Steiner's understandings of the unity of science, art and philosophy, and stimulate, as Scharmer (2007:362) states, each student's "deepest source of knowing and being".

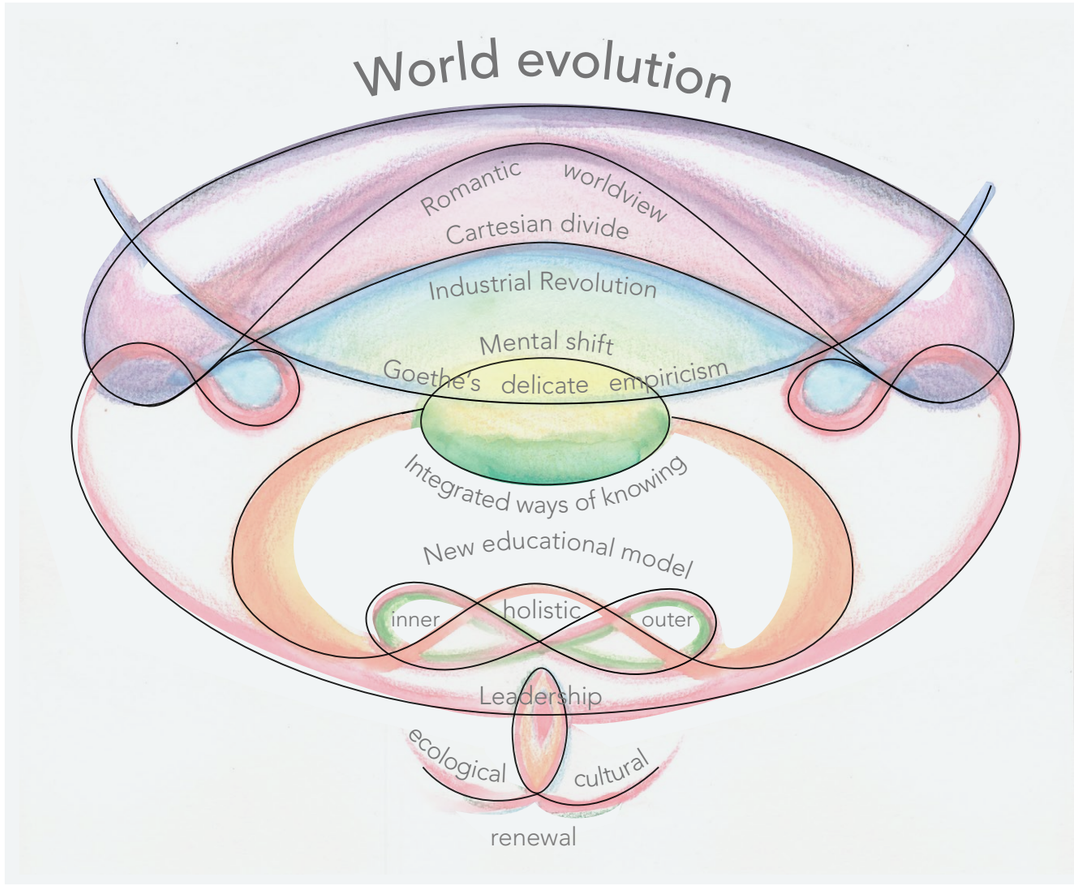


Fig 1.4 World evolution – beyond reductionism to cultural renewal and ecological sustainability. An integrated path of design knowing. Organogram: Suskin, 2014

In the organogram (Fig 1.4), I present the overarching idea of world evolution and successively unpack the themes that informed my trajectory. Starting with the Pre-Enlightenment era I follow humanity's path through the Industrial Revolution and the Cartesian split. Informed by Goethe's delicate empiricism I then approached design learning as an integrated methodology, whereby inner, non-sensory and outer, sensory knowing can be brought into a conscious balance. The learning strives to bring about a context-sensitive approach to design, inner leadership, and participation in cultural and ecological renewal.

As part of a rich and descriptive literature landscape, I discuss a range of concepts in Chapter 2, many of which originated with Goethe. In this rather wide narrative I pay specific attention to the

phenomenological research and explorative method that Goethe espoused, starting with Seamon and Zajonc's views on Goethe's methodology:

> In our postmodern time of fragmentation and relativity, we must somehow find ways to bring our thoughts, feelings, and actions into harmony both with ourselves and with the world in which we live… Goethean science provides a rich, intuitive approach to meeting nature and discovering patterns and relationships that are not only stimulating intellectually but also satisfying emotionally and spiritually. Goethe's method teaches a mode of interaction between people and environment that involves reciprocity, wonderment and gratitude. He wished us to encounter nature respectfully and to discover how all its parts, including ourselves, belong. In this way, perhaps, we come to feel more care for the natural world, which answers back with meaning (Seamon & Zajonc, 1998:10).

With my emphasis on an interrelational, holistic system, the interdisciplinary study aims to elucidate principles which are broadly applied across the disciplinary spectrum – Systems Theory – which was devised by Ludwig von Bertalanffy in the 1940s, might be considered a related field of thought. Bertalanffy's theory constitutes an interdependent, inter-relational holistic system, which is accepted by many academics, and values a cohesive approach over the silos of discipline-specific analysis. Fritjof Capra (1939) on the other hand, provides this account in referring to the likes of the physicist Niels Bohr (1885) and other holistic thinkers:

> The material world they observed no longer appeared as a machine made up of a multitude of separate objects, but rather an indivisible whole; a network of relationships that included the human observer in an essential way (Capra, 1989:15).

The same argument underlies much of Goethean science and Anthroposophical philosophy: that the involvement of all cognitive faculties is vital to comprehending the innate porousness of our relationship to all things apparently external to ourselves, and in turn, overcoming the materialistic worldview and balancing the subject-object divide in Western thought.

1.6 Research problem statement and focus of the study

Design can be viewed as a considerable developmental tool and pervasive force for shaping society. It is inherently evolutionary in its nature and is "concerned with innovation, [and] with making changes happen" (Krippendorf, 2006:210). Following Krippendorf, the research strives to draw forth qualities of conceptual and perceptual cognition, leading to holistic, innovative learning processes for change. Buchanan's (2001) concern that design education and knowing have become fragmented, is still valid today, and therefore the core inquiry of the research explores a philosophical and contextual approach with which to transcend de-contextualised and disjointed learning in design.

The focus of the study explores the interdependency and unity of concept and percept as complementary to the design thinking process. Furthermore, the notion of this quality of thinking raises the question of how to sustain civilization and our environment through design.

Throughout, the study involves mastering the practice of *presencing* (Scharmer, 2007), which implies being both present and at one with the phenomenon. As a conscious practice, presencing demands a surrender of old, familiar ways of seeing and doing things in order to arrive at new insight and knowledge. According to Dahlman (2007) this valued capacity, and the ability to formulate and solve problems through imagining different dimensions and interdependencies, enables us to change our relationship to the world. This assertion concurs with Steiner's claim that "self-knowledge becomes world-knowledge and world-knowledge, self-knowledge" (Steiner, 1909:177). Van Manen proposes that this is not an approach of "thinking the world" but of "grasping the world" (2007:20). With a whole-systems attitude and mindful relationship to the world students may gain the sense of finding themselves through participation.

My aspiration, in concord with Birgerstam (2002:432), was to link pedagogical and philosophical "ideas with some concrete didactic applications … tried out in [various] university course[s] … and [which] are to be seen as experiments and examples, not solutions". My intention was to lift students to greater capabilities of knowing, for countless ways of discovering their "ingenuity and originality" (Piening & Lyons, 1979:174). Within the ecology of design I strove to enkindle courage in the student with which they could participate in the unknown, make space for the unexpected, and discover the richness of complexity. In the process my hope was that the students would make a deep connection to nature, and human solidarity.

Although the research design is highly personal and individualised, the qualitative exploration is rooted in intellectual reliability. As it is such a radical exploration, I want to assure the reader that the research questions are answered, both subjectively and objectively, throughout the chapters in a cascading manner.

1.7 Objectives of the study

Informed by my research questions concerning the nature of design and design education, as well as Goethe's approach of delicate empiricism, the objectives of the study was to develop a new empathetic learning model or theory for design education. I set out to explore Goethean

literature and the writings of kindred thinkers such as Steiner, as well as other leaders in holistic design knowing with the aim of devising a context-sensitive educational model.

My core objectives were to:

- develop an opus of holistic Ensembles, developmental units or modules in a tertiary education context; that is, a new learning model;
- shape an alternative learning model for design, merging theoretical knowledge and practical skill, framed by a philosophical Goethean underpinning;
- transfer thinking away from the passive stance of "looking at things" to a participatory and engaging way of "seeing" the underlying patterns of things, according to a phenomenology of the senses (Van Manen, 1989; Nelson, 2009);
- help students find their authentic voices in the ongoing process of self-discovery by recognising the "idea of thinking as situated in the act of being" and as "the precondition for consciousness" (Heidegger cited in Macklin, 2006:551);
- promote design activism as a crucial leadership tool that may also contribute to an ethos of sustainable and responsible living.

1.8 Research questions

I have followed a traditional approach to empirical research impelled by the articulation of a primary research question, which arose out of my urgent sense (as a design educator) of inherent deficiency or misdirection in the existing academic field of design education. Through a personal interest in Goethe's science and philosophy I discovered an approach by which to foster a deep sense of care for the world. I began considering how Goethe's "delicate empiricism" could be extended into the arena of design education – particularly as regards to the design of artefacts, services and human activity. These reflections, coupled by extensive reading, were principal to the development of my primary and secondary research questions:

1.8.1 Primary research question

How can a Goethean perspective in design contribute to the development of a context-sensitive educational model based on living process?

1.8.2 Secondary research questions

Research question 1

What are the identifiable knowledge methods, skills and deciding moments of the educational model?

Research question 2

How can Goethe's "delicate empiricism" be included in the embodiment process of the design educator and student to promote integrated learning?

Research question 3

Why would a set of interrelated modules, which include a natural and rational approach, benefit young designers in acquiring awareness, knowing and understanding?

1.9 Research paradigm and methodology

I elected to immerse myself in the literary landscape of Goethe and explored how a Goethean perspective could expand design knowing. Following Goethe's approach of "delicate empiricism" (Goethe cited in Miller, 1988:307), which advocates qualitative approaches of deep inquiry as a holistic understanding of the phenomena, I was intrigued to know how Goethe's delicate attitude could augment design education.

Certain theorists alluded to the fact that Phenomenology and Grounded Theory were similar in many respects. I however elected to focus strictly on Phenomenology as my methodology and a phenomenological approach to writing up the research. This included various methods of data gathering and analysis (Orbe, 2009).

Upon mapping the study, my exploration fell into the quadrant of the Radical Humanist (subjective-radical change). This position purports that researchers are mainly concerned with releasing social constraints that limit human potential. They see the current dominant ideologies as separating people from their "true selves". The authors believe that researchers in this quadrant need to justify their desire for revolutionary change (Burrell & Morgan, 1979, 1-37).

1.10 Ethics approval

Ethics approval procedures were followed as determined by the Cape Peninsula University of Technology. "The ethical considerations of fairness, honesty, openness of intent, disclosure of methods, the ends for which the research is executed [was in] respect to the voluntary participation of all involved in the research activity" (Leedy, 1997:116). Collaboration happened within a mutually acceptable, ethical framework. I followed the research guidelines of the Faculty of Informatics and Design ethics committee and my proposal and ethical clearance were accepted and approved in May 2009.

1.11 Delimitation of the research

I have used Harvard Referencing in the study. Because there is so much "popular" material on Goethe and the topic of phenomenology I decided to make use of a bibliography rather than a delimited List of References. There were certain incidents or sources which guided my thinking, and on which I merely reflected in the study without citing directly, primarily those of Allan Kaplan and Sue Davidoff.

I have chosen to use lower case initial letters in referring to the concepts of design, design education, design culture and design movement, since these do not belong to any specific field, authors or organizations, even time-periods, and I have put a lot of thought into whether a concept such as a future Design Educational Field should be capitalised. I have standardised these practices throughout.

While this entire study makes reference to design education and the teaching of design, it does not imply that the first priority and line of analysis was taken from the field of education and pedagogy as such, but rather how design knowing and practice can be enriched by the many aspects otherwise ascribed in the research. While a pertinent issue is also that of design instruction and the role of the design educator, the emphasis is on self-development and life-long learning. It is also worth noting that, for the purpose of this study, the principles of art and design education are not considered separate, as these disciplines, processes and outcomes often overlap.

1.12 The significance of the research and outline of chapters

In the course of my research, I demonstrate how Goethe's phenomenological contribution to science can be applied to design learning. The significance of this lies in part, in balancing analytical and intuitive ways of knowing and experiencing living phenomena. This process-based contemplative pedagogy embraces both freedom and responsibility, while consciously embedding different ways of approaching and responding to unprecedented design challenges. The learning environments described are essential to practising this method and their significance lies in developing perceptive capacity, the courage to envision a new reality, the confidence to find meaning, and learning how to design in an unpredictable world.

The Chapters and their headings are depicted in the central motif of the Visual Table of Contents on page xiii.

Chapter 1, **"Background to the Study"**, is positioned at the root of the plant image and represents the research design. It introduces the research, lays down the background and theoretical orientation of the study, the objectives of the study, and the significance of the research.

Chapter 2, **"The Literature Landscape"**, offers a detailed literature review, unpacking some of the key terms and concepts germane to my thesis. Some of my key texts are Henri Bortoft's *The Wholeness of Nature: Goethe's Way of Science* (1996), Craig Holdrege's *Thinking like a Plant: A Living Science for Life* (2013), Allan Kaplan's *Development Practitioners and Social Process: Artists of the Invisible* (2002) and Otto Scharmer's *Theory U: Leading from the Future as it Emerges* (2007).

Chapter 3, **"Metholodology"**, outlines the methodological approaches I adopted so as to equip students to perceive any context or phenomenon they are called on to study in ways that orientate their thinking toward living processes, and understanding the living context in which they design. In this chapter, I outline the two main methodologies; Goethe's method as articulated in his *Four Stages of Observation* by Bortoft (1998) and others, as well as Scharmer's theory and methodology for social change, described in *Theory U: Leading from the Future as it Emerges* (2007).

Chapter 4, **"Process"**, is a presentation and analysis of the opus of Ensembles that I created towards new knowledge acquisition, self-formation and transformation. The Ensembles are listed in the left-hand column of the Visual Table of Contents on page xiii, as follows: Ensemble 1: *Towards Original Thinking*, Ensemble 2: *An Inner and Outer Dialogue*, Ensemble 3: *Advancing Design Conceptualization*, Ensemble 4: *The Archetype,* Ensemble 5: *The Nature of Design* and Ensemble 6: *Leadership*. The values associated with each Ensemble are distilled in the right-hand column of the Visual Table of Contents.

Chapter 5, **"Research Findings",** begins with a critique of the standard approach, which tends to favour quantitative measurement of research outcomes to the exclusion of qualitative assessments. Drawing on the assertions of Goethe, who cautions against "[n]umber and measurement…

[which] banishes the spirit of living contemplation" (Goethe cited in Naydler 1996:66), I argue that the institutional need to control outcomes disparages the productive power of self-criticism and leaves students dependent on external authority, disbelieving of their own inner judgment. I then offer an analysis of the *Original Thinking – biography seminar.* In Point 5.5.5, the responses of the group of Baccalaureus Technologiae (BTech) students in Surface, Industrial, Fashion, Graphic and Jewellery Design, who participated in the seminar, have been crystallised and collated into the form of graphic matrices. This is followed by an analysis of *The Cross-Pollination Workshop*, featuring comments that were made by the participants during the workshop sessions. Additionally, in 5.8.1 and 5.8.2, I showcase, in narrative form, the work of two BTech students who participated in both the seminar and the workshop.

Chapter 6, **"Assessing the Journey"**, highlights my personal journey and desire to balance ideological knowledge with practical approaches in order to address real issues and real change through the teaching of design. In Point 6.2.4, I mention some of the organisations and groups for whom I have facilitated sessions based on the Ensembles described in this study. These include members of the Biodynamic Agricultural Association of Southern Africa; a group from the Alanus University of Arts and Social Sciences in Germany in conjunction with the Robben Island Primary School; and a gathering of leading African designers brought together under the auspices of Design Network Africa (a partnership between Source, South Africa and the Danish Centre for Culture and Development).

My study draws to a close in Chapter 7, **"A Final Reflection"** which offers a self-reflective review on the value of the research I have undertaken. In the Visual Table of Contents at the beginning of this manuscript, Chapter 7 is depicted as the moment of culmination and flowering, which is also a moment of seeding and regeneration.

1.13 Retrospection

In this chapter I have presented the mapping of my research. The motivation for the inherent choices I have made to solve the problem statement, and the way, in which I have progressed through the mostly inner landscape of the study, has also been introduced.

I started with a brief exploration of the terrain of Goethe's way of approaching phenomena and the subsequent development of Steiner's Anthroposophical perspective with the view to make philosophical connections to problems, and other challenges pertaining to modern life. Robbins (2005:124) argues that: "Goethe's method aims not merely to predict and control, but has its end, rather, in the aesthetic and morally responsive obligation to the observed", in other words to the inner-lawfulness, truth or genius of the phenomena.

I then considered how our uncritical appreciation of the current dominant paradigm has reinforced the division between concept-percept, subject-object, inner-outer, and this has had discernible consequences for development. An alternative approach requires that education strengthen the perceptual component of cognition and introduce qualitative ways of knowing, which are both analytic and synthetic.

The research question explores developmental tools for a context-sensitive educational model, secondly how delicate empiricism can be included to promote integrated learning, and lastly, how a set of interrelated learning modules can benefit young designers in acquiring awareness, knowing and understanding.

Chapter 2

The Literature Landscape

CHAPTER TWO

"… everything takes form according to the consciousness that shaped it"
David Whyte (2002).

THE LITERATURE LANDSCAPE: Traversing the past to a future-responsive design knowing

2.1 Introduction

This chapter encapsulates the secondary research into which I have delved over many years. I will discuss the broad applications of Johann Wolfgang von Goethe's work within the context of this thesis, with explicit reference to Rudolf Steiner's philosophy of Anthroposophy, which I closely identify with. The chapter outlines the fundamental importance and implications of certain Goethean principles and aspects for developing a more integrated design knowing. The educational model is discussed in Chapter 4.

The point of departure is a statement by architect, Juhani Pallasmaa (2009:112), that designers are quick to answer new challenges with preconceived ideas in today's press-button world of instant gratification. In line with the broad outlook of Anthroposophy, I concur with Pallasmaa that the design thinking process should be rather an act of waiting, listening, dialogue and collaboration; one where the design process – that I later define as "design knowing"– becomes the real journey (Pallasmaa, 2009:111). In this way the urge to come to hasty answers and solutions is deferred by deep relational knowing and learning to "read" the context. Later in the text I reconsider the context of design and attempt to re-frame design intentionality and the responsibility of the designer by referring to the interconnectedness of life. This interconnectedness can be intuitively felt, or as argued by Birgerstam (2002:431), improvised and divined:

> There are many important situations in life where what we know, or can know, is insufficient and where random guessing or blind faith is not desirable. We need instead to improvise, to divine what is possible and sense our way forward to what is reasonable. We need to learn to use our impressions, hunches and feelings.

As I explore and analyse this literature, I am critically selective in order to determine how to isolate main points in support of my primary research. In doing so I build, and expand on established education models and theories. I include different modes of knowing and offer broad social, political, economic and cultural influences relevant to the time in which we live, as key determinants in the design process, and the teaching of design. This journey is mostly a personal response to a state, which is absolutely articulated by Brown (2007) as he visualizes a bleak epoch of interconnected and interrelated crises, including climate change, pollution and the destruction of bio-diversity, poverty and excessive consumerism. On the other hand, "If however, we think of Nature as a product of the same creative power that gave rise to the human species, humanity will necessarily enter into a more profound participatory and co-creative relationship with Nature" (Perlas, 2011:26).

When proposing and supplementing a broader and differently oriented template for design education, I am motivated to cultivate a discerning spirit, and incorporate my perspective. This chapter thus, in essence, addresses the first of the secondary research questions as posed in Chapter 1. What are the identifiable knowledge methods, skills and deciding moments of the educational model?

2.2 Entering the research landscape

Upon entering any natural landscape we find ourselves, as both observer and participant, experiencing a twofold connection to the world through our sensorial, tactile experience, and also through thoughts and feelings. The literature in this chapter seeks to ground observable knowledge (world-content), expand intuitive thinking, and develop corresponding concepts (thought-content) in accordance to critical thinking.

Winkler's quote below, encouraged me to view the research landscape with each of its chapters as "corresponding points" based on the understanding that everything is connected.

> Living processes never move along straight lines; they weave in spirals and helices, and thoughts intended to strengthen the vitality of psychological activity must move accordingly. And so, I hope that the repetitions in this [research] represent corresponding points on a spiral staircase rather than identical dots on a circle. In certain places minor gaps had to be left between thoughts, challenging the reader to bridge them in active participation (Winkler, 1960:4).

This asked of me, the student, workshop participant, and now the reader too, in a very real and direct way to follow Mc Niff (2009), as she denotes that an active inquiry leads to a broad minded, multiplicity of paths, which inform and deepen the research.

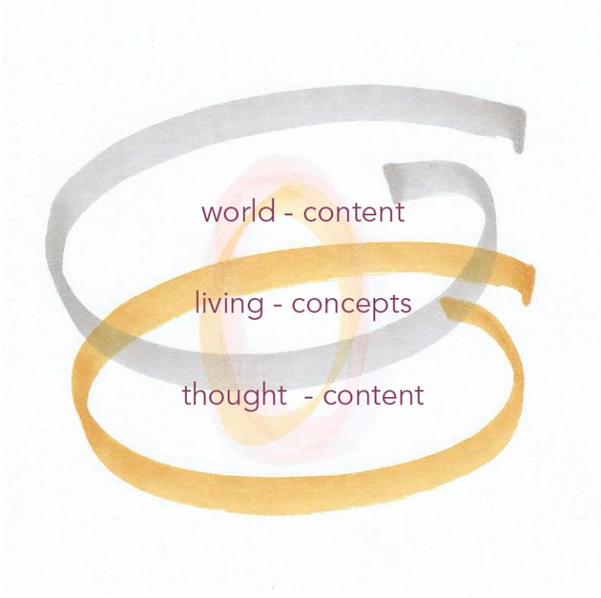


Fig 2.1 **Interweaving, living concepts with connecting fields of awareness.**
Diagram: Suskin, 2014

The Fig 2.1 above illustrates world-content as universal and infinite, and how by developing our perceptive faculties we can make "observations, that are not [limited] to the compass of our intellect" (Steiner, 2005:1) and therefore gain a more comprehensive understanding of the life-world.

Throughout my education in fine arts and my professional design career, I searched to nurture my own, and students' imagination so as to understand connectivity, systems, relationships, self-world and interdependency. I found that there was even a name for this field of study – Anthroposophy. Anthroposophy, as a philosophy and science, has consequently been a compass in my quest to develop a greater understanding of the world and self. I have also spent the past few years intentionally practising a Goethean approach with Kaplan and Davidoff, both social development practitioners, and authors of the following publications: *The Development Practitioner's Handbook* (1996) and *Artists of the Invisible* (2002). What I have learnt from Kaplan and Davidoff is to attend to the constant movement of things through action and reflection and opening of the heart space. Mc Niff (2009) describes action and reflection in her book on action research and offers an illustration of which Fig 2.2 is based.

Fig 2.2 **Weaving action and reflection into the creative round of design practice.**
Diagram: Suskin, 2014

Figure 2.2 was adapted from Mc Niff's illustration of: "A generative transformational representation of evolutionary systems" (Mc Niff, 2009) to indicate a generative research epistemology of action research and reflective practice.

2.2.1 Anthroposophy as an integrated philosophy of thinking and knowing

As stated before, the philosophy that underpins the research was primarily derived from and inspired by the philosophical works of Rudolf Steiner (1861-1925), whose broad body of thought and experience he named Anthroposophy (the wisdom of the human being). In turn, Steiner was inspired by the scientific works of Johann Wolfgang von Goethe (1749-1832), whose methodology and insights, achieved while observing the natural world, awoke in Steiner the recognition and development of his own innate understanding of how we, as human beings, acquire knowledge.

Goethe posited an alternative science to the mainstream Cartesian-Newtonian approach by regarding: "Everything, in one sense or another, is connected with everything else, and (whereby) the narrow focus of the microscope cannot ultimately help us to see things whole" (Steiner cited in Barton, 2008:29). Goethe sought to encounter the phenomena in nature intimately.

He argued that each phenomenon, rightly observed has the potential to awaken in us a new organ of inner understanding.

Goethe's mode of investigation is characterized by participatory awareness, and can be considered as one route to knowledge through direct experience with phenomena. According to Goethe, this direct experience of phenomena starts with exact sense-perception" by way of an apprenticeship with the world of material things" (Hoffmann, 2007:25) and requires an understanding of process and relationships that form between things.

The "organs of perception" (Goethe cited in Bortoft, 1998:244) that Goethe refers to here are not "sitting there waiting to be activated" (Bortoft, 1998:245), but formed by ourselves, for ourselves, we must activate them. If we are to elicit new ways of seeing, thinking and knowing, we need to exercise the necessary muscles with which to see in ways that peel away the outer layers of the phenomenon and reveal the inner-lawfulness. This peeling away will reveal the "gap between natural science and the humanities since both come to share the tasks of schooling our faculties of observation and cultivating wisdom" (Robbins, 2005:125). Both Goethe and Steiner emphasise the need to develop these alternative modes of seeing so as to better understand the material world and make meaning. Meaning is found in the liminal and luminous, in-between space – the "gap".

Goethe's mostly unnoticed approach to science was in direct contradiction to the conventional scientists of his time. It was only centuries later that a new interest in his work emerged through the research of Jochen Bockenmühl (1986), Nigel Hoffmann (2007), Henri Bortoft (1996) Shelly Sacks (2002) and Craig Holdrege (2013), to mention just a few contemporary researchers. Researchers like Allan Kaplan and Sue Davidoff (2009) have taken Goethe's work into the field of social development.

Important to Goethe's approach is to ensure a receptivity to the phenomena through our senses and to be open to the "evolution of self which, places the process [not outcome] at the heart of the … endeavour" (Zajonc, 1993:186). Design students, therefore are required to position themselves "in" their own becoming, and make meaning of the world around them. It has not been necessary for me to engage with the full scope of Steiner's works in order to develop clarity regarding Goethe's method. It was nevertheless necessary to reference some of Steiner's earlier philosophical books that pre-date Anthroposophy. These books, *A Theory of Knowledge Implicit in Goethe's World Conception* (1886) and *The Philosophy of Freedom* (1894), were particularly helpful in understanding Goethe's ideas. In the introduction to Steiner's book, *The Philosophy of Freedom*, Wilson comments that Steiner "was able to bring a new understanding to Goethe's scientific work", and pointed to Goethe's scientific works as being a "philosophy of Life" (Wilson cited in Steiner, 1964:vii).

Steiner's philosophy goes yet beyond the barriers of intellectual, logical experience and includes direct perceptual experience, seeking a comprehensive understanding of the relationship between science, spirit and life; Anthroposophy approaches spiritual science as a research characteristic. Although there are parallels drawn from the Goethean methodology with Phenomenology, the term Phenomenology was only used by Edward Husserl in the early twentieth century. Nonetheless, both draw on qualitative methods, reflective of a thorough and even methodological unpacking of the phenomena. Winkler, (1960:239) posits that:

> although the process of intuitive awakening is laborious and slow, its rewards are noticeable from the very-first. If pursued through the course of years, something will begin to stir In the human soul, a sense of kinship with the forces of life and consciousness which rule the world of plants and animals, and with the powers which determine the laws of matter. While analytical Intellect may well be called the most precious fruit of the Modern Age, it must not be allowed to rule supreme in matters of cognition. If science is to bring happiness and real progress to the world, it needs the warmth of man's heart just as much as the cold inquisitiveness of his brain.

This type of intense qualitative seeing outlined by Winkler (1960) is available to us as long as we discontinue applying an either, or, approach to knowing, and learn to move seamlessly between the modes of scientist, artist and philosopher.

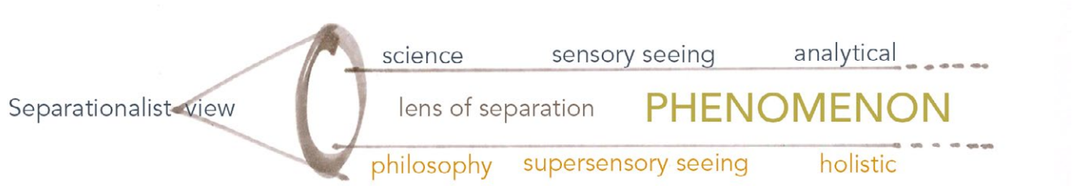


Fig 2.3 Parallel modes of seeing the world. Diagram: Suskin, 2014

The figure above presents a parallel seeing: on the one hand a scientific, sensory, analytical seeing and on the other hand a philosophical, artistic, super-sensory, holistic mode of seeing. Goethe's methodology is a way in which to bridge these two modes of seeing "to better realize a more sustainable practice of living with nature and with each other" (Robbins, 2005:125).

Kaplan (2007:27) insists that we value both kinds of seeing: with our sensory eyes and with our "super-sensory eyes". To use both modes of cognition, analytic and holistic, is important, and it is through this combined engagement that a phenomenon can emerge. Shotter (2005:134) posits, that we become "active, living embodied participants", not mere spectators of this world, and

can engage with the dynamic, changeable world in all its intrinsic internal relations. This is what is necessary if we are to develop a true willingness to change through the encounter.

Integrative thinker and philosopher Ken Wilber, states that the inner (individual) and outer (environmental) are only separate "if we view the world through the lens of separation" (Wilber cited in Scharmer, 2007: 373-374). "Rather, we have to regard the universe as an *undivided and unbroken whole*" (Bohm, 1980:158). This incites us to expand the way that we see and experience self and world. Ancient wisdom holds, that the human body is a microcosm of the macrocosm and Talbot states that all entities of the holographic world are manifestations of unbroken wholeness, "one enormous something that has extended its uncountable arms and appendages into all the apparent objects, atoms, restless oceans, and twinkling stars in the cosmos" (Talbot, 1992:48).

Talbot (1992) further states that the minimizing, quantitative and abstract stance we have adopted tends to obscure the phenomena, thereby preventing us from perceiving it in its wholeness. Cautioning against a purely quantitative mode in solving today's problems, Capra cites Schumacher: "The guidance we need for solving the problems of our time cannot be found in science… Physics cannot have any philosophical impact because it cannot entertain the qualitative notion of higher and lower levels of being" (Schumacher cited in Capra, 1989:228). Similarly, Steiner's Anthroposophy insists on the human capacity to develop and draw on "Imagination", "Inspiration" and "Intuition" as key elements of the holistic cognitive path. (Steiner valorises these three stages of higher perception by giving them capital letters, which I adhere to here. I further expand on these three stages in Point 2.5.) In the introduction to Steiner's book, *Intuitive Thinking As a Spiritual Path*, Hughes states that Steiner did not only devise "an elegant argument against determinism, but was sounding a challenge to live responsibly with urgent [questioning] about the conduct of our life [sensibility]" (Hughes cited in Steiner, 1995:XIV).

2.2.2 A Goethean approach and the discovery of meaning

Silke Schilling (2007:3) states, Goethe and Steiner's approach "is not only an approach to philosophy and science, but also an exploration of the whole spectrum of human experience". As an educator this presents the challenge and opportunity to deepen the relationship between the student and the world, and help them discover meaning in everyday encounters. In seeking more interactive and authentic methods with which to do this, and respond to the imperatives arising out of change, the study commanded that I enter into the unknown, uncharted territory of working in emergent ways. Goethe's method, based on the mutual interaction between the observer and the observed, supported my objective. A method that develops an overall awareness through the back and forth relationship of between-ness.

The Goethean approach is generally associated with "direct observation and experience in knowing the world" (Davis, 2006:2) and makes every effort to bring the world to expression through the reciprocal nature of inner dialogue. Problem solving in design is a process of going back and forth through hundreds of ideas, repeatedly revisiting, fusing and testing ideas so as to meet the criteria of the design brief. But design is broader than this. "It is also a metaphysical proposition that expresses the maker's mental world and his/her understanding of the human life world. The design process [in this regard] simultaneously [weaves] together the inner and the outer worlds and intertwines the two universes" (Pallasmaa, 2009:108), and as Kaplan maintains, is done "in the service of life" (Kaplan, 1996:27). This demands a new, process-based pedagogy attuned to life, and supportive of making meaning.

2.2.3 Shaping future questions about design and knowing

In finding ways to negotiate complexity and approach multi-dimensional design problems the designer must gain a comprehensive and positive vision for what the intervention requires. Since it appears we know very little about the inner place of primary knowing, the true apprentice needs to exercise different muscles in order to unravel the phenomenon (Sepper, 1988). Goethe studied the phenomenon in its totality with a comprehension which, "… does not take the form of a theory abstracted from the phenomena but rather the form of a seeing embedded in the fullness of the phenomena. This seeing allows the phenomenon to show itself fully, and 'is' the theory according to Goethe" (Goethe cited in Sepper, 1988:70).

In education, it is vital that the students' design methodology develops from their personal phenomenological experience, much like Heidegger's (1962) concept of "Dasein" or "Being", which points to the internal experience of presence and consciousness. The phenomenological experience demands the discipline of staying *with* the phenomenon, returning to it again and again, until our thoughts are consistent with the reality:

> [Phenomena] have something to say to us - this is common knowledge among poets and painters. Therefore, poets and painters are born phenomenologists. Or rather, we are all born phenomenologists; the poets and painters among us, however, understand very well their task of sharing, by means of word and image, their insights with others - an artfulness that is also laboriously practised by the professional phenomenologist (Van den Berg cited in Groenewald, 2004:44).

Goethe cautioned the investigation of the phenomena should not suit the observer's "fantasy" (Goethe, 1971:57) but rather as Wilber (2000) and Pogacnik (1996) posit: address the subject with sincerity in order to acquire knowledge with interpretive accuracy. Participatory involvement has everything to do with a "qualitative relationship between the knower and the thing" (Hoffman, 2007:21) – the "scientist" must embrace discrepancy to ensure that the knowledge acquired, arises out of what the phenomenon really is (Seamon, 2005:87).

If we are to design sustainably, we must turn to Life as our teacher and practise a thinking that is equally alive. The unsustainability and inherent contradictions of contemporary life demand that designers explore new geographies, which no longer view the natural world as resource, and human life as commodity. In the same way that the world is subject to change, so too is the design profession subject to change in all areas: economic, social, cultural and environmental. For a shift to happen in learning and teaching, which is focused on the social perspectives of what and how students learn, we, as teachers, must stimulate the students' creative faculties rather than clutter their minds with information and explanation. Seen in this light, education is more than the development of professional skills, and as Goethe suggests, is more about developing credible perceptive organs.

Where previously design was viewed as an exquisite covering for an idea, more recently, according to Brown (2008), contemporary design revolves around qualities of perception, and of knowledge. Design is broadening its horizons and in many instances has already made a move away from the area of industrial manufacturing to incorporate the knowledge economy and service delivery, areas which display new processes, new services, and new networks of communication and interaction (Brown, 2008).

The shift advocates new faculties and capacities in the learner, which ought to be formed in design education. In meeting the challenges of an uncertain future educators will have to participate in processes, which counterbalance analytical fragmentation, and re-configure and integrate internal and external learning deliberation as an educational endeavour. The emphasis on quality is imperative in education today.

2.3 A qualitative path of emergent knowing in design education: from Modernism to futures thinking

If one attempts to trace a trajectory of holistic design practice back to a point of philosophical initiation, a seminal moment at which to begin is with the Bauhaus movement, which grew out of an art school which existed in three German cities – Weimar, Dessau and Berlin – under three different architect directors – Walter Gropius, Hannes Meyer and Ludwig Mies van der Rohe – spanning the years 1919 until 1933. Combining craft and fine art under the new-wave Modernist principle of creating a "total" work of art, the Bauhaus had a profound influence on subsequent developments in art, architecture, graphic design, interior design, industrial design and typography. Radically simplified forms, rationality and functionality, and the idea that mass-production could be reconciled with the individual artistic spirit were the key Bauhaus design innovations. Productively interrogating the relationship between usefulness and beauty, form and function, or the practical purpose of formal beauty in everyday objects was at the essence of Bauhaus thinking. This remains core to a particular strain of design discourse today and is certainly relevant as a guiding impulse in my research.

In entering this qualitative path of emergent knowing, educators need to prepare their students for new ways of thinking, not by simply re-working mental concepts/representations, but by making space for new concepts never imagined. Gregory Bateson (1979), draws our attention to a life-oriented approach as being an improvisatory, which combines familiar and unfamiliar constituents in response to new conditions. This way of "thinking – life" must merge with our teaching as a basis for a new learning in which we – teachers and students – can begin to see through our befogged landscape and gain a progressively clearer vision. In this way we can sensitively re-orientate ourselves. If, one can understand the learning process as a musical or ecological system of interconnected scores and processes as opposed to a linear and mechanical trajectory only, then education has the capacity to fill the student with a love for learning and an understanding of the living, dynamic connections in life. This type of interstitial learning – a desire to comprehend what lies "in- between" – emboldens curious and continuous immersion in the processes of knowing.

According to Mary Richards (1973), the inner world of the student *is* the new territory in which to develop an alternative curriculum. As educators, we must recognise how perceptions are internalized and that they in turn create ideas about how we perceive the world (Arber cited in Flannery, 2005:275). The initiating responsibility lies with the teacher and by starting with our own path of self-actualization "we will be more effective helping students to find themselves if we have started on the path" (Richards, 1973:69).

Through qualitative methods of experience and participative knowing, Holdrege (2005:47) suggests a different type of questioning and new means of knowing that " … illuminate the phenomena in ways that science has largely neglected (or even deemed unscientific)". Pursuing a similar trajectory, Steve Talbot (2007:29) probes: "Do you think the product [you are] working on will help to heal our society or instead debilitate it?" Rather than treating designers as "onlookers" who "take the world for granted" (Bortoft, 1997:138) and who see the world as separate, fixed

and finished, this type of different inquiry encourages us to respond as engaged, conscious, active participants. Whereas conventional analytical knowledge understands the world "as a set of separate objects [and circumstances], and the human mind as a machine that isolates, stores, and retrieves knowledge as an indirect representation of the world and oneself", Rosch argues that it is essential "to know by means of interconnected wholes" (Rosch cited in Scharmer, 2007:167-168). Through authentic interpretation, we may come to recognise "the way in which the whole … comes to presence in the parts" (Bortoft, 1996:13).

Hoffmann (2007) speaks of this kind of holistic knowing as a qualitative relationship between the knower and the thing, as if between two partners in a unique conversation. Kaplan (2002:7-8) highlights the importance of developing an abiliyt to *see* relationships, as well as the interactions between component parts, so as to gain a clear understanding of the underlying integrity and coherence of the "whole". Both Hoffmann and Kaplan claim a more participatory approach to science, and a methodology in which the observer is sensitized through the experience of observing. As participatory scientists, we become conscious of our own participation and transformation through the discipline of immersive observation. If the world is to be understood from multiple perspectives, it is not enough for the student to merely refine his/her intellect or develop him/herself as a mere instrument of observation. The student is required to operate from a place that enables him/her to experience him/herself "as part of the system" he/she is observing (Scharmer, 2007:169), as well as to experience the "phenomenon [as its] own explanation" (Bortoft, 1997:73). Goethe posits that by dwelling in the phenomenon the participant can develop a sense of the ideal whole (Goethe cited in Holdrege, 2005:50) by the means of reciprocal knowing.

Through the practice of "indwelling", which literally means to climb inside the phenomenon, we can get to know it from the inside out, just as actors do when portraying their characters. By attending to the integration of particulars we can learn to dwell within the generative potential of the phenomenon. This is no small accomplishment. If, as Beuys states, "our vision of the world must be extended to encompass all the invisible energies with which we have lost contact" (Beuys cited in Tisdall, 2010:37), or, as Robbins states, we must find our way back to becoming "relationally responsive to things" (Robbins, 2005: 124), we have quite a task ahead of us. Part of this task as an educator is to help students understand that if we only perceive analytically, we will fall short of relating and making the connections (Bortoft, 1997:136–7) that are critical to this way of seeing and being. Openness is needed in order to cultivate the ability to "stay closely attuned to the way the phenomena claim us" (Robbins, 2005:123). This is all part of a delicate empiricism.

In choreographing change, the realization invariably emerges that within chaos exists order. It is here on this edge that designers are most at home and sense their greatest creative potential. It is here, in this liminal space between chaos and order, the known and the unknown, the seen and the unseen, that the student must navigate and incubate new ideas. To navigate through the outer flux of a multitude of unpredictable changing elements in the world requires an "inner condition" (Orr, 1992:40) that is receptive, perceptive, flexible and agile.

Too often, problem solving is approached with the mentality of needing to "fix things" without paying enough attention to "systems ecology" (Orr, 1992:175), which means taking a deep look at the phenomenon itself. At the same time, in this era of late capitalism, contemporary society suffers from a type of "affluenza" (Oliver, 2007), the all-consuming epidemic of overconsumption and materialism, which has in general had a devastating effect on the world – perhaps even more so in developing world contexts.

The widening gap between rich and poor has done nothing to ameliorate the hunger for trappings and symbols of material wealth associated with branded products. Schön states unequivocally that future thinking must "centre the act" of designing "in the person of the designer" (Schön, 1983:103). This intimate and embodied stance could play a critical part in developing a personal method and philosophy, and more likely to result in context-sensitive, sustainable solutions meeting the needs of all, and not the "wants" of a privileged few.

2.4 An integrated approach: live the questions

In pursuit of new ways of knowing, new questions need to be "lived", just as new answers need to be realised. While the achievements of conventional science, technology, humanistic scholarship, artistic production, and social science are impressive, more is called for (Zajonc, 2008). Colquhoun (1996) states that, the answer is to be found in science – a kind of science, which belongs to our daily activity and with which every human being engages every day as a basic reality. It began when, as children, we set out to explore the world around us – to wonder at and be interested in our surroundings. This, in turn, led to questions and to seeking out the answers. In this sense, we are all scientists, she argues, in that such activity entails the acquisition of knowledge (Colquhoun, 1996:13).

A "knowledge revolution" as articulated by Hoffmann (2007:7) would entail students being led to "see" and becoming more "responsible for life". As a designer, I believe that creative participation requires an acknowledgment of complicity – personal complicity in the world around us. This fundamental premise or commitment forms the basis from which I advance new forms and processes. By learning to "see" in integrated comprehensive ways, rather than accepting abstract fiction or fantasy, underlying questions may be revealed, questions which may lead to new facts, theories and practices. Henry David Thoreau alludes to this capacity to "see" in an 1851 entry in his journal

(of which selected annotations were published in 2007), stating: "The question is not what you look at, but what you see" (Thoreau, 2007:86). So what is this capacity to "see"?

This seeing suggests a direct link with higher forms of perception and in particlular, "[d]elicate empiricism", Goethe's (cited in Miller, 1988:307) term for an integrated approach to science. I approached the applied aspects of this study with the same delicacy in order to help emergent designers bring their thoughts, feelings and actions into greater harmony with themselves and with the world in which they live (Seamon & Zajonc, 1998:9). The theorists I draw from in my research are rooted in various aspects of holistic science, and more specifically, Goethean science. I have nevertheless also drawn on "Action Learning", as developed by Reginald Revans, "Systems Theory", as developed by Ludwig von Bertalanffy, and "Chaos Theory", as developed by Mitchell Feigenbaum and Albert J. Libchaber.

2.5 Higher forms of perception: Imagination, Inspiration, and Intuition

The four stages of Goethe's method of "delicate empiricism" are directly linked to developing deep ways of seeing (Refer to Fig 3.8). I will present them briefly below:

Exact sense perception – the initial careful examination of what the physical senses report.

Exact sensorial imagination – mobile picture-saturated thinking, or will-strengthened thinking.

Seeing is beholding – contemplative enquiry-receptivity, a sort of "inner listening" for the hidden interconnections between things.

Being at one with the phenomenon – whereby thoughts are experienced as co-creative with the world-intelligence implicit in phenomena.

Stage 1 of this process is related to ordinary sense-based empirical knowledge, while in Stages 2, 3 and 4 the individual's cognition rises as s/he becomes consciously operative on higher planes of perception, which are understood to interpenetrate the physical sense-world of which we are not normally conscious.

Goethe pioneered this path to higher states of knowledge, going as far as Stage 2, "Exact sensorial imagination", which he applied in relation to the metamorphosis of plants. Rudolf Steiner's Anthroposophy can be seen as an expansion of Goethe's science in that he took Goethe's explorations still deeper into the third and fourth stages, and clarified the implicit spiritual realities underlying them. In *The Theory of Knowledge Implicit in Goethe's World-Conception* (1886), Steiner gave the names "Imagination", "Inspiration" and "Intuition" to these three higher stages of cognition, which in Goethe's work were only provisionally apprehended.

It lies beyond the scope of this thesis to go into the details of Steiner's Anthroposophy, but let it suffice to mention that what is currently described as "Goethean methodology" could not really exist without Steiner's more detailed formulations having been transposed retrospectively into Goethe's terms of reference.

Steiner conceptualised each stage to the point of effectively creating a modern scientific equivalent of Rosicrucian Alchemy. (Steiner, like Goethe, was a student of Western esotericism.) "Imagination" involves a strenuous (meditative) transformation of "thinking" by means of the will, "Inspiration" a still more strenuous transformation of the life of feelings, and "Intuition" the ultimate challenge of awakening the full consciousness of thought within the life of the will, which is the most unconscious of our three soul-faculties. Specific exercises, referred to as the "six supplementary exercises" were devised by Steiner (1908) to achieve these faculties of higher perception and knowledge. Material concerning these stages may be found throughout Steiner's published work.

2.6 Oppositional yet complementary modes of knowing

Design can arise in two ways; through a "disconnect of emotional intelligence and alienation" (Bai, 2001:87) furthering environmental and human degradation, or through "bodily-sensorial understanding" and awareness, the disposition of which describes an integrated, life supporting outcome. This approach often calls for an exploration of polar opposites *"which actually belong together and complement each other"* (Colquhoun, 1996:113), for what would we understand of light if there were no darkness, winter without summer? To perceive the "mutual interaction" between apparent opposites is to gain a fuller picture of the "limitless" nature of connections and relationships that exist in the world. In exploring the potential of this in-between space, one becomes more awake to the intersecting qualities between things. This demands a heightened awareness – or, as Holdrege puts it, "treading a path of conscious development" (Holdrege, 2005:30) – pointing to fuller ways of knowing.

To bridge the polarity between theory and praxis in design requires an embodied approach in which original or abstract notions are tested and made manifest through lived experimentation and sustained practice. If design is the art of change that brings something new into existence – a

system, process, service or product – then I am interested in bringing greater awareness to these acts of initiation, through praxis.

2.6.1 Concept – percept

Sense impressions or percepts are inherently interdependent. However, percepts need concepts in order to make sense of the world. Kaplan explains this relationship as follows:

> Using our sense-organs alone, we can see only nature's shop window. But using our thinking we can move behind, go into the workshop itself, as it were, and see where nature is ceaselessly producing the items which finally end up as outer, discrete objects in the shop window. It is through our thinking that we are able to penetrate beyond the particulars into the wholes, the concepts which give the particulars their meaning (Kaplan, 2002:10–11).

The creative process requires thinking in two spheres: imagining in the right brain and reasoning in the left-brain. Percept and concept move seamlessly between these spheres and are as closely associated as "a bird flying" (Bortoft, 1996:64). This metaphor of "a bird flying" illustrates that there is "no fundamental difference between seeing objects and seeing facts and that seeing objects and seeing facts are purely different sides of the same coin" (ibid.).

In balancing concept and percept in design thinking, it is critical that the participant/designer works with his/her entire body and sense of self to arrive at a comprehensive understanding (Lindseth & Norberg, 2004:152), or contextual coherence. My quest in this regard is to develop the ability to see the whole in every part and ultimately to develop this capacity for deep perception into a more profound and enlivened kind of design teaching. In promoting engagement with the phenomenon as rigorously as possible, my aim is to discover and understand how the complementary confluence of concept and percept and other such dichotomies can bring conscious awareness to the creative act of knowing, and doing design in a balanced way.

2.6.2 Subject – object

Our cultural moment is not only determined by cultural inheritance but also by family and the greater family of humanity – "the global family" which, today is dominated by disjointed debate that highlights the lack of integrated approaches. Bohm (1996) asserts, that: "the inclination towards fragmentation is embedded in the subject-verb-object structure of our grammar, and is reflected at the personal and social levels" (Bohm cited in Jaworski, 1996:78). This is evident in our tendency to see individuals and groups as "other" than ourselves, which inevitably leads to isolation, selfishness and war. It is also apparent that this form of thinking has created technologies, which "wage war upon the living being of nature and have brought about an ecological crisis" (Hoffmann, 2007:35). Richards (1989:118), on the other hand, asserts that despite the disaster they wreak, these ecological cataclysms may serve some higher purpose in that they "compel us to return to nature, [that is] to rediscover life"– and to respond with greater consciousness and empathy.

In the 17th century, philosopher Rene Descartes positioned humankind as separate from the world by announcing: "I think, therefore I am", thereby, establishing a schism between ourselves, and a world of intrinsically unrelated things. By situating human beings as "spectators at a distance, not as involved participants" (Shotter, 2005:133-134), Descartes thus distinguished "a fundamental subject-object dichotomy, knower versus known, organism versus environment, human versus nature" (ibid.).

This legacy of materialist separateness, of "apart-heid" in the most direct, literal understanding of that word, continues to erode our relationship with self, other and the world itself and is, as Merleau-Ponty argues, "a bipolar divisive way of thinking that dominates Western scholarly phenomenology of perception" (Merleau-Ponty cited in Davis, 1997:8). Therefore to see things "embedded in a much larger array of issues" (Holdrege, 2013:23) promotes an integrated way of thinking.

Husserl conveys: "what" is seen, and "how" it is seen as *necessarily* correlated (Husserl cited in Bortoft, 1996:280) and replaces the subject-object separation of Cartesian dualism by dissolving the subject-object dichotomy (Davis, 2006). As the "whole is formed not of one or the other of the opposites, but through the relationship which arises between them", Kaplan offers two poles in the words "like" and "dislike". Between the two, he states, a new word emerges and that is, empathy. "Every well formed whole," Kaplan posits, "is created through such duality, yet transcends the duality by creating something threefold" (Kaplan, 2002:64) – like-*empathy*-dislike. We recognise here that perception is so much more than the laws of retinal science, it is rather the investigation of a personal response to something, and stresses relativity and subjectivity.

2.6.3 Observer – participant

As a way of knowing, Goethe's approach to empirical study is a participatory act (Heinemann cited in Seamon, 1998). In design education students accept that ideas or concepts are internal to

themselves and that wherever "s*urfaces or exteriors can be seen, interiors must be interpreted*" (Wilber cited in Schilling, 2007:9). Bateson refers to this inner-outer connection as "the pattern that connects" [as a pattern which] always includes both observer and observed, subject and object. Bateson agrees and states: "We are not outside the ecology for which we plan, we are always an inevitable part of it" (Bateson cited in Orr, 1997:37).

Scharmer (2007) established the term "presencing" to describe the state of being required for participatory involvement. This is the combination of the word "present" – to be present – and "sensing" – with our senses. He uses the analogy of "putting oneself in the shoes of another", so as to see the phenomena from many perspectives, and become one with it. Putting yourself in the other's shoes, from a design point of view, relies on a human-centred and participatory approach.

This human-centred, participatory approach comprises schooling powers of observation in ways that position us truly, in the activity or process of becoming, and by bringing attention to what we foreground we develop the ability to design with awareness. With an attitude of respect, presence and awareness, responsibility arises which, precedes "a moral act" (Kaplan, 2002:26). For "[i]f we cannot foreground activity and background the product, then we are left with the husks of things, and our world is fragmented and little more than dust" (Kaplan, 2005:327)."We are always participants in the world—every appearance (whether a thought, a thing or the effect of a deed) is something already participated in. When we "awaken to our participation" we no longer see ourselves as separate-observers-but connected and self-aware" (Holdrege, 2013:68). A mental agility is required in getting one's head around such apparently contradictory concepts. Alice Ashwell captured these contrasts and similarity with skilfulness in her poem, *Red-Green colour-blind*? (Refer to page 21).

2.6.4 Self – world: embodied space and nature

If design can arise from deep experiences of self then it must be capable of touching something human in others and the world itself. Victor Pasmore (1980:228), a leading figure in the promotion of abstract art and reform of the fine art education system, strived to develop new foundations for comprehensive schools of art and technology inspired by Bauhaus thinking. Pasmore advocates a move away from fragmented and separate studies as a ready-made, quick fix to teaching art and design, and instead calls for a central united foundation of integrated, connected, lived learning experiences. Frederick Frank states, in an extract from Betty Edwards's book, *Drawing on the Artist Within*:

> Looking and seeing both start with sense perception, but there the similarity ends. When I 'look' at the world and label its phenomena, I make immediate choices, instant appraisal – I like or dislike, I accept or reject what I look at, according to its usefulness to 'Me' (Franck cited in Edwards, 1986:42).

We are trained or conditioned to "look" for usefulness, for cause and effect, whereas to "see" reality or any aspect of it as it truly is, demands looking beyond these binary categories which bind us to automated responses – like/dislike. Learning to see empathically breaks the duality and enables us to experience more of a continuum between self and that which is being observed, or experienced. Again this understanding is recognised and proficiently described in the poem by Alice Ashwell (Refer to page 21). This relational way of seeing will better equip the designer to develop an overall awareness of the design process and confront the challenging design questions with a real understanding for transformation. By returning to the object, context or phenomenon over and over, as if in conversation, demands a deep interest, receptive attentiveness and deep listening. According to the phenomenologists, the information is already present in the phenomenon, just as the answers, according to Rilke, are implicit in the questions.

So is this always the case? In the book *Intuitive Thinking as a Spiritual Path*, translated by Lipson, Steiner states: "At a particular time, some things might remain unexplained because our vantage point in life prevents us from perceiving the things in question – but what is not found today may be found tomorrow" (Steiner, 1995: 108-109). It is thus critical to remember that the limits we place on gaining deep knowledge are only temporary, and can be overcome by interest, perception and thinking.

An integrated thinking heralds an alternative way forward that gets us beyond handling new challenges with the old "Band-Aid" mentality, proffering superficial and short-term solutions. Steiner elucidates that it means developing an "unbiased devotion" with which to attend "to what the life of the world outside us has to reveal" (Steiner cited in Barton, 2008:14). By emptying ourselves of any preconceived ideas and opening to the phenomenon as it "speaks to us", we may be able to lift the veil and bridge the polarities between the known and the unknown, between self and world, by embedding ourselves more deeply in Life.

The associated tension continuums of concept-percept, subject-object, self-world and observer-participant could readily pave the way for design students to recognise a "living picture of process", which is as fluid as day and night, growth and decay (Kaplan, 2002:75).

In order to bring about this new way of "doing" design, education needs to position the student within their own personal context and the context of the world at large.

Red-green colour-blind?

Young becomes old becomes young
Soft red hardens to green
Lively green falls to earth, red
Sunblock leaves mature
Into green sun-catchers.

Green leaf bears red flower
Red stalk bears green flower
A living landscape grows
Out of a million contrasting
brush strokes.

Aged red-tinged quartzites
Are home to olive growth
Red and green in the same leaf
Red veins bring water to green blades
Green leaves give over to red.

Red, the colour of life – blood coursing
Green, the colour of life – sap rising
Red, the colour of kinship
energy of loin
Green, the colour of love
energy of heart
Red, the colour of anger
green, the colour of envy

It is we who judge one or other
Good or bad
In nature, meaning is not fixed
It flows from rock to plant
From flower to bird
From blood red sky to green flash
Signifying whatever you please
Whatever you need.

Nature inspires my imagination
Defies my categories
Holds me back
From hasty conclusions.

Now
What if I were to observe
People
As I observe nature?
To be as open to observing
A child of nature in her suchness
To be delighted, challenged,
confounded
And to find it all
Just so.

To find within the same being
Red and green
Soft and hard
Kinship and envy
Love and lust.

What if I could gaze as intently
Scan as openly
Wait as patiently
Listen as expectantly
To the diversity in society
As to the plenitude of nature?

How do I receive you when
Your red is my green
Your green my red?
In my life – green becoming red
I meet you – red becoming green.
Sometimes we judge our colours
incompatible
Blind to the enhancement
Of green by red – red by green
Of me by you – you by me.

[So how does all this reflection on red and
green lead me closer to a generative idea?]

The dissonance of red and green
in uncommon roles
Raises a question
Demands reflection
Reveals wisdom
Invites new practices
That celebrate
Our complementarity.

Fig. 2.4 **Poem by Alice Ashwell participant in the Holdrege Workshop (Towerland Wilderness, 2010)**

Goethe stated:

> ... [every human being] knows himself only to the extent that he knows the world; he becomes aware of himself only within the world, and aware of the world only within himself. Every object, well contemplated, opens up a new organ of perception within us. Self and the world are an inter-dependent, indivisible whole (Goethe cited in Scharmer, 2007:477).

2.7 The changing landscape of design education and teaching

Teaching as one's life work takes on a certain gravitas, which is echoed by Joseph Beuys (1969) when he states:

> To be a teacher is my greatest work of art. The rest is the waste product, a demonstration. If you want to express yourself you must present something tangible. But after a while this has only the function of a historic document. Objects aren't very important any more. I want to get to the origin of matter, to the thought behind it (Beuys cited in Kuoni, 1993:85).

In advocating new ideas to design teaching and thinking, certain constructs will need to come under scrutiny for possible inclusion into eventual modules, learning units or even a model of teaching, in which, from a Goethean perspective "a *delicate empirical* way for discovery" (Ebach, 2005:266) must be acknowledged. The Goethean approach can enrich discovery, magnify new areas of exploration, and help students come to a better understanding of the whole production process.

2.7.1 The challenging interchange between creativity and nature

Goethe urged that humanity find its way back to what he called the type of "knowledge utterly in tune with the nature of things" (Goethe cited in Wahl, 2005:74-75:). Contemporary society's characteristic features of generality and complacency, of governmental regulation and organizational policy, create conditions that often constrict freedom and even destroy inquiry and creativity, making it near impossible to find our way forward.

> In addition we live in an entirely mediated world in which we are distanced and removed from our own lives and the world, largely experiencing life second-hand or through others: ". so much of the world comes to us through the media, we imperceptibly come to believe that we are still living in the world of people, places, things and events, when in fact we are living in a virtual world, composed of words and pictures, newspapers, electronic blips of light and sound" (London, 2003:60).

At the same time, creativity is being given renewed attention by authors, academics, corporates, writers, creators, teachers and designers. Edwards (1986:2) states that the concept and word "creativity" has been " studied, analysed, dissected [and] documented" so extensively and intensively, yet is still the topic most discussed as if it were a "tangible thing" – like the ability to play a violin.

Currently, many company owners devoted to social and environmental change are employing design thinkers to improve business practice. It is also no longer believed that creativity is the exclusive right of some lucky ones who are born that way, but that almost every person can be creative under certain conditions. What cannot be under-estimated is the responsibility of design teachers in developing creativity as an outer expression of talent, and address socio-ecological needs in appropriate ways. Nature is *our* teacher and conversational partner.

2.7.1.1 Nature and the present disconnect

How is it possible to reconnect with nature"[w]hen we draw away from Nature and substitute our own tamed, diminished, created versions, we cut ourselves off from the information Nature contains about how the world works: inclusively, exquisitely, fearlessly" (London, 2003:69).

Fittingly, London bemoans the fact that:

> ... it is difficult to know Nature, when so much of our days are lived within a veiled room of our own manufacture. Now light and shadow are numbers on a clock. Seasons are outfits and tasks. Fauna are pets and amusements. Flora are viewed through a window on a planted garden, or as decorative chic on a windowsill or a table, relief for our weary eyes (London, 2003:63).

It increasingly seems as if nature is merely "used" for recreation or leisure and viewed as a type of distraction or activity, an escape, often, in the purchase of outdoor wear, or "lived" as a commoditised experience when on Safari or at Sea World (Price, 1995). Jennifer Price in her book *Looking for Nature at the Shopping Mall* posits, that "encounters with nature have become as simulated and disconnected from place as 'the shopping mall' (ibid., 193), and questions, "if we like to think [of Nature as an] antonym and antidote to modern materialism [then] why do we shop for nature with our credit cards?" (Price, 1995:197).

Our prevailing, "object-thinking" tends to alienate and diminish, and could be considered the root cause of our ecological crisis. Goethe's "living thinking" on the other hand, creates a bridge between us and the world, and proposes a holistic mode of consciousness. Wahl (2005:75) states:

> Goethe's delicate empiricism may become an important epistemological tool to guide us towards appropriate participation and therefore towards sustainability. The ability to consciously and responsibly switch between epistemologies in full awareness of their respective perceptual blindspots will help us to integrate reductionist knowledge and holistic wisdom.

The possibility of surmounting the estrangement between self and world according to Wahl (ibid.) means changing "our understanding of the nature of the material world, the nature of consciousness, and of our own human nature as conscious and responsible participants in, and integral parts of, Nature".

2.7.1.2 Employing nature's example and process to educate in design

Kaplan and Davidoff (2011) indicate that in discovering the nature of process from the processes of nature, enables us to develop a sense for the processes of life. The discovery of living process involves a qualitative "feeling into" the phenomenon – so as to find the method which, truly belongs to the nature of the living things we are studying (Holdrege, 2011), and bring forth the living "idea" or "whole". It is not always possible to "see" the design of the problem at first as it is most often intricately related to innumerable other potential problem areas. We can however depend on our expanded imagination and integrated approach to "seeing" by learning to read the design challenge in its multiplicity.

It follows, that if the processes of engagement can improve our "naïve understanding", then, with scientific analysis they should give way to critical talents which help the student arrive at a comprehensive understanding of life (Lindseth & Norberg, 2004:152). These processes draw the student closer to the life-world so that they can "see" (know, feel, understand) through embodied knowledge where they are positioned in the world (Van Manen, 2007). Steiner (1995:108) emphasizes that cognitive understanding happens when concept and percept unite and that this strengthens our awareness of the multidimensionality of reality. Goethean science offers an approach, which is accessible to everyone and is open to meta-cognitive reflections, where the action is part of the reflection, and the reflection a kind of action (Dahlman, 2007).

2.8 The new educational challenge: what knowledge is essential for the future?

If different demands need to be addressed in design education, what guidelines could, be followed by design educators? What from the holistic landscape of a Goethean ethos and similar literature could smooth the way for optimal future design teaching and education? What needs to be considered, and where will the most dramatic paradigm shifts occur? What do those who have gone before us have to tell us in order to improve future design education?

The radical challenge facing artists, designers and other creative humanists today is to balance commercial ambition with social inclusion. Commercial ambition tends to fuel a narrow, egocentric approach to design, whereas an intelligent future-minded approach based on holistic, ecological and humanist principles aims to be inclusive, and promote social-design principles. If design is to be a tool for true transformation (the espoused ideal of the World Design Capital 2014 – "Live Design and Transform Life" – Refer to Fig 1.3), then it needs to be less about "managing" discrete "problems", and more about developing the self-reflexive faculties that enable appropriate responses.

When it comes to gaining a full understanding, future thinking must include living encounters with the world and the discovery underlying patterns that inform, and out of which the designer is to create. This demands a reverse thinking, a thinking from the future to the present, and "rather than making random stabs at what we assume the outcome to be", suggests self-reflection and iteration (Monson, 2005:184). With this deliberation, the design process offers "ethical projection" and designers will design "what ought to be" (ibid.). Monson points towards reorienting learning processes to ensure that design practice is explicitly value driven.

In short, education must challenge students to move towards new possibilities for action. Learning processes must have an "*invaluative* sense of 'where' we are placed in relation to our surroundings, as well as an *anticipatory* sense of where next we might move" (Shotter, 2005:146). Educational learning must therefore enable the student to learn *with* the world and not *about* the world, and help them to discover their role in it. Admittedly, this is an ambitious mission, but it needs to be realised if education is to be appropriate to the challenges of our time.

2.8.1 The "new" university as a partner in dialogue

New dialogues are required if design is no longer to be viewed as a tool with which to manipulate material, but rather as a process committed to transforming systems and practices and, simultaneously, our selves. Transformed systems and practices result in autonomous, yet interconnected units of practice that are complete in themselves, but function in reference to other units.

The term "university" implies the greatest "whole" – an entire "universe", vital and integral, of which we are a part. Yet, the actual practice of most contemporary universities tends toward overly rationalistic, quantitative, categorical and positivist approaches to knowledge, which can alienate the researcher, and impoverish the depth of study (Whal, 2005:75). Rather, with an emphasis on participation and personal development, the student will learn to "enable the world to become something more than it was before ... and the more [meaning] that emerges the more the world becomes" in return (Kaplan, 2002:78). This transformative view recognises the quality of learning and stresses participative methodologies.

Scharmer goes straight to the point when he states: "A university which invites the future in would not be a handmaiden to the replication of current praxis, but rather a partner in dialogue, a midwife, and a home for entrepreneurial individuals and communities of creation that change the world" (Scharmer, 2007:30). Inevitably, this means a move away from distinct disciplinary silos of knowledge production towards integrated, interdisciplinary learning modules, which specify co-evolutionary processes for appropriate action. Zajonc (2008) also argues for a new model of university that approaches current difficulties from an integrative perspective, which promotes real insight and equips students with responsiveness, promoting new ways in which to embrace dialogue and promote allegiance to a common humanity, despite differences.

2.8.2 Non-reductive and sustainable solutions

Accordingly, the social sciences will take on a central role in education, widening the perspective of the designer. Decisions that lead to partial solutions of problems need to look at the complexity of the situation and take all aspects of the whole into account. Jaworski (2011) articulates the need to free students from a predominantly logical framework and to encourage the development of other faculties. He advances that students need methodologies that take them into the complexity and richness of reality. He further comments that "[o]nce we understand this, we begin to see that the future is not fixed, that we live in a world of possibility" (Jaworski 2011:10).

Design solutions should be flexible enough to continue evolving in time. Researchers in social and educational design for sustainability argue that we must establish new design courses that are appropriate to our changing life-context and which lead to positive change (Vezzoli & Manzini, 2008). Norman (2010), comments, that design schools must place more emphasis on experience and experimental results, which to his mind many professors seem to lack.

2.8.3 Other or alternative ways of knowing

Designers schooled in these alternative, sustainable ways of knowing will become the harbingers of new vision, meaning, purpose, hope and direction. Orr (1992: 83) argues, as do other agents of change leading this new approach in the world, that the contemporary crisis cannot be solved by "the same kind of education that helped create the problems". He further argues that it appears from current curricular content, as if education is in no crisis at all. He states that education, by and large gives little attention to:

> ...future relevant subjects such as ecology and social sensibility: a case of remembering that which we have forgotten, or perhaps it is that we have forgotten other ways of knowing that lie in the realm of vision, intuition, revelation, empathy, or even common sense (Orr, 1992:83).

2.8.4 First-hand knowledge

In my search to develop a balanced, life-centered design pedagogy that gives credence to lived experience, I, myself had to be the instrument of knowing, the mediator between concepts and percepts. Goethe's participatory phenomenology provided pointers for entering the field, but it was I, who had to finely tune my "instrument", which, could lead to a heightened perception and embodied thinking. A Goethean epistemology is not a "method" per se, but depends on the unity of the observer and the observed in a mutual entwined dance to integrate understanding, and make meaning. In contrast:

> … the Cartesian epistemology is built on a way of thinking objectively that is based on the assumption of our fundamental separation from nature. "Both [Goethean and Cartesian approaches] are valid epistemologies and provide useful knowledge about reality. To integrate these two ways of knowing is the next great challenge in the evolution of human consciousness" (Whal, 2005:71).

In order to share the Goethean approach with my students and bypass the routine settings imprinted by a Cartesian epistemology, I focused on designing learning environments and processes with which to explore intimacy, empathy and emotion. This was attained through direct engagement with the phenomenon at hand, whether by means of biography work, one-on-one conversations, group dialogue and debate, observing the seasons or four elements in nature. All the exercises encouraged first-hand knowing.

2.8.5 Integrity and critical self-reflection

The most important challenge, according to Scharmer (2007:30) is to foster and build a culture of critical self-reflection and self-evaluation, which will enforce new kinds of answerability to self and social purpose. Developing a self-reflexive faculty enables us to transform our "natural sympathies and antipathies into an organ of objective empathy" (Schaefer and Voors, 1986: 172). Self-reflection and self-critique is equally important to the educator and his/her teaching methods in the context of integrative learning. Sustained critical reflection on an established pedagogical model and curriculum is a crucial aspect to keeping the approach to design knowing fluid and alive. Examining our approach to teaching leads to developmental insight, enabling us as teachers to learn from our mistakes and build on best practice. Reflection is therefore inextricably linked to professional development and the ability to acknowledge strengths and weaknesses.

In his book *Massive Change* (2004), the designer Bruce Mau asserts that by consistently questioning the integrity of content, creative process and manufacture, it emerges that the design process is equally if not more important than the outcome. He argues that as long as the outcome drives the process, we will only ever go where we have been before, but that if we embark on a journey of being totally "in" and "with" the process, we may not know where we are going, but we will know when we arrive. In this way, the motivation of achieving outer objectives shifts to supporting and developing the inner life of the student, who is the instrument of change.

2.8.6 A questioning attitude, patience and receptivity

A questioning attitude has played an important role in this study as well as in developing new approaches to design education. My personal questioning attitude spans various phenomenologicaland philosophical frontiers through the "geographical maps" left by those who went before. Critical questioning and a search for new direction has run through my chosen research paradigm and methodology like a seam of precious metal running through base rock. Buhner (2004:260) states that: "each of us must personally enter this luminous [questioning] territory ourselves and learn the terrain one step at a time". Indeed, if we are to move out of our existing paradigm it may be possible that the very act of seeking, will unveil the answer.

In some indigenous cultures, there is a high order of development of inner perceptivity and intuition as a way of living and knowing. These cultures should be studied, because it can afford the student an encounter with the world through intimate qualities of human life that expose humanity's evolving consciousness (Howard, 1998:7). According to Hoffmann this highly receptive condition of mind (2007:25) is not a dark hole or empty, vacuous space but rather a space filled with substance.

Each one of us should ideally become a conduit, Kaplan (2007:185) asserts, so that the world can evolve through us and we can help it unfold its future potential. It is these processes of evolutionary becoming and world encounter that I envisage as forming the background to the students' learning environment.

2.8.7 Using creative practice as steps to reflection

Schön (1983) proposes an epistemology of reflective practice as opposed to our more usual logical practice. This description informed the methodology employed in the modules; that of having conscious recourse to the intelligence of the head, of the heart and of the hands.

What makes all creative practices unique is what the individual brings to them. Creative practice, Colquhoun (1996:20) argues, should move from expression of subjective individuality and begin to investigate how "creations can bear the stamp of objective inner "necessity, or lawfulness and truth". This attitude of Colquhoun resounds with Goethe's approach as previously described in point 2.8.4. Cultivating an appreciation of poetry, music, drama, history, natural history, painting, sculpture and storytelling served to not only expand student experience, but also develop presence, awareness, sensitivity and deep reflection.

Current design education, according to Norman (2010) appears to be stuck in aspects of linear product development in his paper, *Why Design Education Must Change*. A good design education is conducive to the student continuously conducting reflection, and contemplating and echoing his or her own learning and action, leading to self-confidence. Self-confidence is vital and has not been accorded its due recognition. In reflection the design student's internal authority is recognised.

London (2003:59) strongly advocates the transformative potential of artistic processes. Here, he argues for artistic processes that not only "decorate" life but, hold the transformative potential to elevate life, and in doing so draw "us closer to the Greater Reality, closer to Nature". Nature is seen here as an equal to reflection and inner discussion. In my experience, nature and artistic process has the potential to stretch the student's imagination across cultivated and uncultivated plains, providing deep access to self and universal methods of forming meaning. While my search for new perspectives in design education does not imply outright rejection of past methods, it is prompted by the conviction that we need to recognise our own embodied existence. The pedagogical modules referred to as "Ensembles" in Chapter 4, offer integrated learning paths with which to awaken internal developmental processes" (Vygotsky, 1978:90), and unite authentic knowledge with an "embodied mode of being" (Pallasmaa, 2009:13).

2.8.8 Merging logical and intuitive faculties

In merging logical and intuitive faculties, Laroche speculates on a move away from a science-based education to an education whereby the human being finds his/her position in relation to the living world. Laroche (cited in Hocking et al., 2001) uses compound terms such as "bodymind" and "lifeworld" as examples of this unity and speculates that education can fuse body and mind, life and world, through a mode of thinking that penetrates into living processes.

In addition to this, by balancing the relationship between logical and intuitive intelligence, the extremes of rationality in design may meet, and merge with the intensely emotive (Jimenéz-Narvaez, 2000). Fresh knowledge based on this type of balanced experience will raise the students' ability to observe and reflect on their own thinking; "thinking about thinking", as Hannah Arendt refers to it (2002:284). In attaining self-awareness and the ability to observe their inner state of being, students may, in time, be able to cultivate deeper ways of knowing. They may in time develop faculties with which to comprehend relationships between component parts that function together as a whole, as reflected in nature.

Granted that experiences seem to appear to us as isolated facts it does not mean that they are indeed isolated. The questions remain, how do we enable a real connection with the phenomena or event? and how as designers can we learn to be more agile and adept through participation and learning to read the subtle nuances?

2.8.9 Seeing wholeness in flexible authentic ways

All that has been written so far leads to developing the ability of "seeing wholeness", and this we now know, demands a new way of looking at things – one that recognizes the epistemological relationship between the knower and the thing. This is the aim of Goethean phenomenology: firstly, to pay attention to how we observe the whole or totality; then, to recognise that each constituent part is also, in itself, whole; thereafter, to find meaning through the very connectedness or relationships that form this dynamic. Kaplan cautions the danger of a mode of consciousness that places emphasis only on the parts:

> If we look for superficiality, for efficiency, for number, for structure, for the discrete object, then we will create a world, which is devoid of the invisible breath of life, of wholeness and meaning. We will reduce our world to a world of inanimate things (Kaplan, 2007:26).

Pallasmaa (2009) concurs with Kaplan, arguing that human perception has been dimmed and therefore also suggests cultivating an agile attitude in accords with the generative natural laws of life, that give rise to authentic consciousness. In accordance, it is critical that as educators we encourage our students to perceive the subtle inner principles at work within everyday phenomena so that they can make living connections between themselves and the world.

2.8.10 Real places and authentic teaching circumstances

Talbot asserts that "[e]very individual follows a unique path through this world and the teacher's failure to enter upon that path with the student is a failure to teach" (Talbot, 2007:157). Furthermore Aoki states:

> Authentic teaching is watchfulness, a mindful watching overflowing from the good in the situation that the good teacher sees. In this sense, teachers are more than they do; they are the teaching (Aoki, 2011:19).

The statement of Aoki above is reminiscent of how Isadora Duncan perceived herself "as" the dance. The dance she believed was forming her, whilst she simultaneously was forming the dance – together they were in the process of "becoming". The conscious integration of the student with a holistic learning path, where they can meet certain values and principles is dependent on real places of learning. These figurative places of learning are conducive to allowing time and space with which to distil essential elements of the phenomenon through "hold[ing] several ways of looking … without disrupting the flow of inquiry" (Schön, 1983:130, cited in Monson, 2005:184).

According to Bai (cited in Hocking et al., 2001:87), the greatest contribution to education is a pedagogy of mindfulness that can heal the rift between mind and body, concept and percept. Additionally, Schiller states emphatically that "the educational and social artist" is "the one who works with the most precious material: [the human being]" (Schiller cited in Lievegoed, 1972:74). A pedagogy of mindful engagement, is to my mind a pedagogy poised to bring about meaningful outer change and inner transformation.

The need to create "thinking and making" environments that enable latent potential may not so much require extreme measures, but rather focused engagement and holistic practice. It is the paradox of allegedly different modes of knowing, that I attempt to bridge in the course of this research by drawing the different modes, which exist within us, into a continuously unifying experience. The nature of entwined practice is hardly felt in Richards' description below:

> [R]arely does formal education seek a balance between them. We are asked to explain, to justify, to cite causes; we are asked to defend our point of view, and to prove. And proof, we are assured, is always sense-perceptible or logically demonstrable. We tend to hold our intuitive gifts in low esteem (Richards, 1989:109).

The above is demonstrated by the requirements of writing this thesis and yet, through the need to characterise perceptive qualities I had to remain open in the process to both quality and quantity, attentive to my sensibilities and conceptions. Proper learning environments such as inquiry-based learning, question and revise what it means to "know" the world. Do we get to know the world through the information fed to us, "through the ready-made concepts" in which case "there is little need to really pay attention" (Holdrege, Kaplan & Davidoff, 2011 workshop), or can we re-develop an integrated, experiential learning path through embracing complexity? Although multifarious, it is necessary according to educationalist Chris Seeley (2006) to create conditions for this type of learning to happen, and also settings which envelope shared humanity and the non-sensory world.

2.8.11 New programmes in place of bureaucracy and reductionist teaching

Breaking the trend of bureaucracy and reductionist teaching the educator and the learner are increasingly summoned to let go of established habits and structures of seeing things in isolation (Bortoft, 1996:290). This implies that education can no longer "respond with bureaucratized and reductive programmes that separate everything out into such tiny component parts that the whole is constantly being lost" (Kaplan, 2010:14), but rather a learning that brings fluidity back into thinking. Scharmer stresses that "[w]e have to bend our habituated beam of attending to the world and redirect it onto its source – the blind spot from which we operate, moment by moment. We have to connect to this source in order to tune in to the future that is seeking to emerge" (Scharmer, 2007:56-57), an important aspect if educators are to ensure that outcomes emerge out of a context sensitive research approach.

Through the proposed meta-cognitive processes the student may discover an inner well of wisdom and "take responsibility for the kind of reality that [they] perceive" (Dahlman, 2007: 276). Design education will then slowly let go of its grip on "discursive reasoning, which formulates theories about the relationship of one external fact to another [and which], places [the human being] in the role of spectator, …severing [him/herself] from the essence of life (Koepf & Jolly, 1978:1)

Mirran Raphaely (2012), CEO of Dr Hauschka natural body products, traced the etymology of the word "institution" and commented that the meaning of the word means "to establish" and "to build up" and, or "to stand for". She argues that in developing new places of learning, whether they are literally new buildings more conducive to this approach of learning, or education content and methods in our existing institutions, the aspiration ought to be one of a renewed pedagogical culture, a realisation of "new channels" and "new impulses for knowing, teaching, learning and researching".

Education therefore can no longer merely be viewed as an accumulation of information to be passed on, rather, educators must develop learning experiences whereby the student can think "with," rather than "about" what is being studied. Schauberger (2009) made the comment that researchers too, are prone to presume observations instead of "reading" the phenomenon at hand. Understandably, this style of learning does not promote the kind of innovation that can occur in an environment redolent with potential.

Van der Ryn (2005) is an architect, educator and design activist who promotes a creative process of continued observation and "reading", often spending his days on a barren site with his watercolours. By allowing the site to "speak to him", and becoming acquainted with the subtleties of place, light, colour, form and patterns, only then would he begin the design process. Van der Ryn therefore was able to experience the environment fully with his whole being, and this is the difference between "looking" which is passive, and "seeing" which is active.

Fig 2.5 Architect Sim Van der Ryn observing a site for an ecologically sensitive building. Smith, 2005

By creating living learning experiences with which to engage students in progressive educational practice, the student will learn to draw on the greatness of the context and in each moment, be truly present in the process. This will bring a kaleidoscope of experience and a multitude of perspectives to the phenomenon being studied, widening the pool of reference and experience in the exploration of values and action. Through shared ideas students may develop a collective sense of discovery and possibly new insight and purpose with which to create. Peter Senge, in his book *The Fifth Discipline* (1990) comments on how a shared approach can bring about remarkable shifts in learning, I am sure his collaboration with Scharmer, Flowers and Jaworski (2005) has been a good practie ground.

Where modern education has trained us to give single answers embedded in rigid, rational cognition that sees and thinks in specializations, Scharmer suggests that students access their intellectual curiosity and their broadest capabilities for creativity through imagination (Scharmer, 2007:145). The design company IDEO offers an apprenticeship, which includes a mix of analytical tools and generative techniques, equipping students with skills rather than direct teaching. Anne Bramford an educator in the arts states:

> When students or new designers are challenged by competing agendas of relevance, demand and anachronism, they need to be able to use their skills to analyse and generate solutions (Bramford, 2006:67).

Furthermore, Bramford urges design educators to:

> ... remember that the qualities most desired in the new economy are timeless processes that have always been inherent to art/design practice; for example, creativity, expression, perseverance, collaboration, cultural and social awareness (ibid.).

2.9 A personal journey: learning contexts as a mediator

The discipline of design is relatively young in the knowledge body of academia. It is still wrestling with what exactly its role is in the field, and in a rapidly changing culture and society. "Design culture as agency" is a term Julier (2014:7) uses. He introduces another sensibility than that of "visual culture", namely that of agency and moral sensibility. Julier also postulates a move away from a detached observer mentality to one of design agency, with the emphasis on participation and developing the right faculties for social awareness.

Goethe's approach has been "productively used in the social science sphere, just as it has been in the natural sciences" (Davis, 2006:2). In course work for a Masters Programme in Reflective Social Practice, Allan Kaplan and Sue Davidoff (2012) state, "the programme is radical in that it demands not so much an acquisition of new knowledge but rather the development of new faculties."

Fig 2.6 Proceeding from the whole to the part. Photo: Suskin, 2011

> *Observing the living context - proceeding from the whole to the part seeking the formative processes – paying attention the phenomenon and developing new faculties.*

In understanding the cultural and social contexts, the designer regulates the design idea to ensure that the product or service supports appropriate user-behaviour – whilst faithfully weaving his/her understanding into the design process. It was with this in mind, and together with a group of international development practitioners, I joined Kaplan and Davidoff on a three-week course in 2009 to explore the theme of "*Observation, Insight, Intervention*". The sensitive and well-considered processes we engaged with made it evident that it was high time to look more "delicately" at processes in design, and pay greater attention to a self-reflective practice. The evidence lies all around us; malfunctioning and poorly designed artefacts flood the market only to be used momentarily before being discarded. The dumping of these inappropriate products leads to environmental degradation (Vezzoli & Manzini, 2008).

Out of the above concern, I set off to explore *The Role of Designer as Mediator between Nature and Culture*. A range of adjustments, I believe, had to be made in order for us, as designers to become more sensitive mediators. Should we choose not to make these adjustments as educators, within our existing institutions, our obliviousness will lead to even more disastrous consequence.

According to Bramford (2006) design educators must fully recognise the value of the design phenomenon in institutions, and in order to persuade educators to innovate, the higher education organisations themselves must become more flexible and creative. Bateson (1972) refers to this change of mind-set as a "new ecology of mind" which involves re-enlivening our imagination, becoming sensitive to intuition and opening ourselves to inspiration. The Ensembles have been designed to develop "new organs" for greater clarity and insight.

2.9.1 Acknowledging the designer as locus of knowing

Bryan Lawson supports my argument of developing awareness around "a personal journey" of discovery, stating that he believes the designer him-or-herself is the locus of the resolution inherent to designing, and that each designer must discover his/her own process (Lawson cited in Monson, 2005:184-185). The whole design process is then dependent on how much the designer can envision, enact and embody the design challenge so that the creative potential can emerge purposefully through his/her methodology – out of the designer's own conscious intentions.

Bortoft (1996:123) posits that this encircling form of consciousness leads to an ability to "know the world" (Bortoft, 1996:123) and by knowing the world implies embodiment, slowing down, and getting "inside" the process of knowing. Enmeshed in living processes, "[h]uman beings have bodies that are the locus of their complex interactions with their environments" (Johnson, 1989:366). With these thoughts a whole new world opens up for young designers, and as Johnson says, may lead to "higher cognitive capacities" (ibid.) whereby designers acknowledge themselves, as self-authors who are true to themselves, their values and beliefs. As educators, we must acknowledge "that the central essence of the world flows into our thinking … that thinking is an entrance into connection with the nature of reality" (Koepf & Jolly, 1978:60). In acknowledging the primacy of perception and practicing it, no longer simply "downloading" existing knowledge, the designer is able to arrive at new questions (Scharmer, 2007). These are not just any questions but "good questions", according to Galtung (cited in Scharmer, 2007:131). Brown (2008) refers to the process of questioning, *as* "design thinking", a term already recognized as a creative problem solving methodology, and a term used in all fields of practice today. I prefer the term "design knowing" intimating as it does, a more pervasive activity than merely "head work".

Particularly relevant to meeting the necessary shift in design knowing, are the integrative Ensembles, which are discussed in Chapter 4. The Ensembles are a series of exercises and processes, which I developed in part, to balance "thought polarities" – subject-object, self-world, inner-outer, and so forth. Working in this way, students are the means of their own transformation in thinking, and being. The students develop empathy, and are considered part of the social, political and economic environment.

Raising a concern for what he calls a lack of empathy for the environment, environmentalist Thomas Berry (cited in Hocking et al., 2001:89) diagnoses society's damaged capacities for perception and sensation, as a form of"autism". Educationalist, Heesoon Bai confirms the lack of environmental empathy in contemporary society stating: "The world is [viewed as] a source of materials to realize our projects. And a waste sink to receive the by-products of our excessive construction and consumption (Bai cited in Hocking et al., 2001:92) The moral implication that follows is the denial of inherent value to those entities which we may recognise as existing but with which we have no perceptual and emotional involvement" (Bai cited in Hocking et al., 2001:90). If we are to recover perception as a way in which to tackle the substantive task of healing human alienation in the world, we must inherently strive to bring self into relationship with the life-world through mindful thinking, and learn to ask the right questions, questions, which pursue values of increasing connectedness.

2.10 Theory U

A seminal work in my research study is *Theory U*, developed by Otto Scharmer (2007). I have benefited immensely from this work, which is both practical and philosophical. It is a social theory with a well-formed methodology and structure that offers appropriate ways in which to experience and language what is often difficult to articulate.

Scharmer's *Theory U* has as its focus the "emerging future". I draw on this future vision throughout my research. If we view the "theory" as in the classical Greek understanding of the word, meaning "in the becoming", then I would propose that *Theory U* is intimately aligned with Goethe's methodology, a methodology of "becoming"; always changing and transforming.

There is no single language to express the totality of phenomena and entities, but Goethe's approach and Scharmer's *Theory U* make precise attempts to engage with new ways of thinking and being. *Theory U* is a systemic change initiative, which expounds both thinking and lived experience.

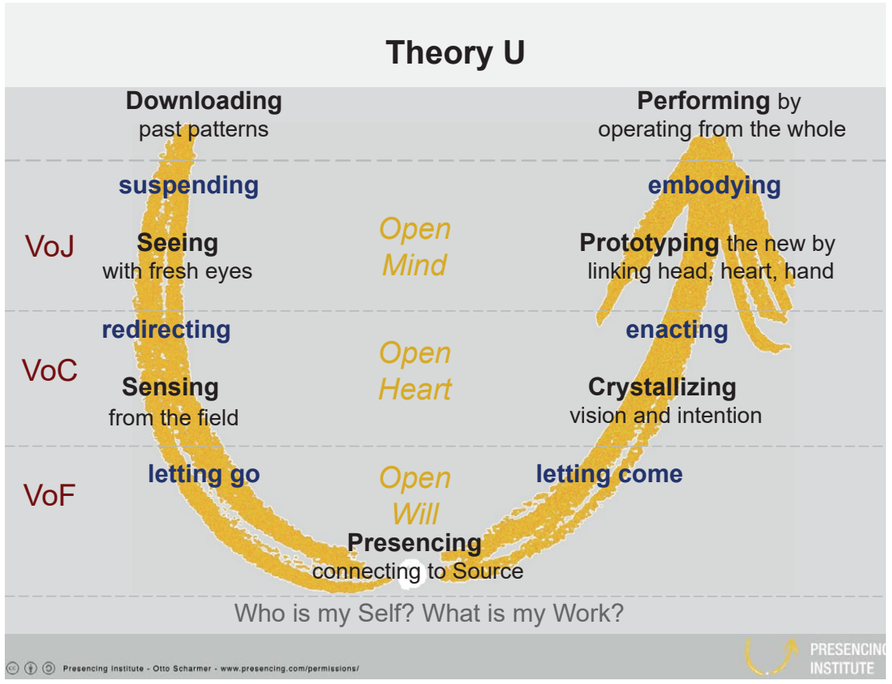


Fig 2.7 **A systemic path for exploring self and practice.**
Diagram: Scharmer, 2007

Whatever the challenge, Scharmer offers exercises and practices with which to overcome difficulties that may lie in the way of inquiry, and ways in which to access our deepest sources of knowing. Through the activity of presencing he offers skills in which to overcome obstacles such as downloading and recognizing distracting inner voices: The voice of judgment (VoJ), the voice of criticism (VoC) and the voice of fear (VoF). He assures us that through the practice of working with the "U" methodology we can enlighten our minds towards consciousness, and collective leadership.

2.11 Retrospection

The ecological crises and social dilemmas we currently face call for immediate reflection and action. Against the background of "material enhancement of human life" (White, 2014:18), ambiguity and uncertainty, the present one-sided, intellectual, cognitive approach to design and the teaching of it ought to be balanced by making visible the invisible, formative, living processes that form the world. This implies a move away from relativism in which the experience is one of disconnectedness, towards a quality engagement with phenomena. The development of perceptive capacity and the practice of participation and interpretation, may allow the student to become more open to new experiences, in ways not possible through prosaic explanation.

It is evident in the literature above that we can no longer afford to view the whole as a no-thing – a "nothing" – nor issues environmental as something we manage with merely our mental abilities. The repercussions of ignoring wholeness, of remaining stuck in a detached observer status, as clever gatherers of data, are already evident in the extreme angst and chaos rife throughout our societies. In unifying what we consider to be separate perceptions of things or facts and in returning to a unity of thinking by weaving our perceptions together with critical thinking, new ways of design knowing will unfold.

By learning to "read" what is emerging out of the future and humanising our approach to design problems we must test our questions against our experiences. This may enable us to stand in the truth of the experience if we continually question what is authentic and responsible practice.

In the next chapter I outline the research paradigm and research methodologies, and how they fundamentally acknowledge the centrality of the phenomenological and experiential approach.

Chapter 3
Methodology

CHAPTER THREE

> *"Artists and practitioners feel deep and unresolved tensions, for traditional research approaches seem too linear, too predictable and too ordered to capture the messiness and dynamism of the process of inquiry which lies at the heart of the creative production. For artists and creative practitioners seeking to join the community of researchers, this (traditional) environment can seem unsympathetic and dismissive of their contribution"* (Smith & Dean, 2010:1-41).

METHODOLOGY: The research paradigm

3.1 Introduction

This chapter leads to the heart of my research – where the study and the methodologies inspire a series of design modules inspired by Goethe's "delicate empiricism". Here, I clarify the research questions and outline various phenomenological approaches. I articulate explicit participatory processes, which involve "presencing" encounters and explorative moments with which to overcome entrenched beliefs and outmoded assumptions. The objective of these processes is to raise heartened awareness and develop new competencies.

Naturally, as guide and teacher I, myself have also had to internalise the principles of phenomenology into my own thinking and doing. I myself must be the locus of the "knowing" in this very human oriented journey to balance contradictions and polarities, which are crucial to the eventual design outcome and product. This corresponds with Leedy and Ormrod's (2001:153) description of phenomenology in which the researcher "has had personal experience related to the phenomenon in question, and wants to gain a better understanding of the experiences of others". Because I was personally driven to better understand the possibilities of design education, it led me on paths of exploration, and to the experiences of others in a similar pursuit.

Michael Quinn Patton (2002:49) states in his book on qualitative research: "It is up to the researcher to understand the phenomenon, to observe and explore the particular context in all its uniqueness, and connectedness". Whatever the phenomenon I was observing (whether it was an aspect of the process or a student's engagement in it), I strived at all times to resist subjecting it to objective, reductionist thinking in order to remain open to its unfolding dynamism. A qualitative design process is one that explores, discovers, excavates, unpacks, reveals layers, combines and goes progressively deeper, seeking connections and relationships. The process of ideation is cyclical as opposed to linear. Rather than moving from one step to the next in a linear progression, it calls for repetitions, loops and returns in both thought and process.

The challenge in this study was, and remains, to articulate the objectives that I envision for design education and also to concretise the circular and non-linear processes in order to answer my research questions as set out in Chapter 1. In this third chapter, I primarily wrestle with the second secondary research question: *How can Goethe's "delicate empiricism" be included in the embodiment process of the design educator and student to promote integrated learning?*

I am aware that what I am about to propose may appear idealistic to some academics, quantitative researchers and students. Goethe's approach has been extended into diverse fields by contemporary researchers and proved most effective. Much of my own Goethean experiential practice has flowed from the work and guidance of social development practitioners, Allan Kaplan and Sue Davidoff (2009) of The Proteus Initiative, and Craig and Henrike Holdrege (2007) of The Nature Institute.

The process and content of the research and findings rest on my readings, exploration and application pertaining to Goethean content and fieldwork conducted by Allan Kaplan, Sue Davidoff, Craig and Henrike Holdrege, Howard Dobson and Norman Skillen. In successive investigations over several years, I reflected on my practice of Goethean observation whilst finding ways in which to apply it to design knowing. This research is a result of those reflections and an attempt to amalgamate my experiences to form a comprehensive, layered and holistic entity. I will now describe the practice of phenomenological research.

3.2 A brief history of the practice of phenomenological research

Robert Nelson (2007) describes how the practice of phenomenology originated with German philosophers, arising out of their deep love for, and pride in, their grasp of the body of Ancient Greek knowledge, insight and wisdom. They developed a mode of inquiry and a philosophy that they termed "phenomenology". Edmund Husserl, in 1901, was the first to explore phenomenological process. These phenomenologists, as they are known today, focused on finding a research method devoid of presuppositions, in order to establish meaning through experience. Defined like that, phenomenology has links to existentialism, but it is above all a philosophy with "me" – the researcher – in the centre. Martin Heidegger (1962) expanded on the method, influencing

Sartre, but the essence remained one of an attempt to analyse the authenticity of being, and to examine concepts such as "care" and "mood". Nelson (2007) describes phenomenology as the study of things with tangible presence, which are sensed and rooted in experience instead of in abstractions or *a priori* knowledge.

Phenomenology keeps sensory and intuitive perceptive faculties at the centre of consciousness which, as discussed, is necessarily individual. The arts are logical repositories of phenomenological insight because they are supremely sensory and individual. Here the cerebral element is still not abstract but linked to the senses. The artist seeks to construct a new view or new idea of something.

Categorical themes and analysis mesh harmoniously with imaginative freshness since phenomenology is descriptive, it is rooted in observation, and it reflects and analyses experience consciously. Much of what I feel emboldened to talk about here derives from what I have experienced, and the awareness I have gained by means of practice-led research based on phenomenological principles. Phenomenology truly "emerged at the dawn of the 20th century as a response to the hegemony of the 'scientific method' with its requirements for analytic description, taxonomy and experimentation. "The Cartesian vetting of experience can only yield knowledge of a reduced kind" (Wang & Wagner, 2007:10). It could be said that Goethe led the field and then Husserl followed, grasping the importance of a more immediate engagement with the phenomena. Later, Merleau-Ponty and Heidegger strove to bridge the Cartesian divide. To tread this path of consciousness on the earth, Buchner (2004:260) asserts that: "Each [one] of us must personally enter this luminous territory ourselves and learn the terrain one step at a time". By entering the territory and exercising perceptive muscle, the possibility of entering "into a geography of meaning" becomes attainable (ibid.).

Once I learned that phenomenology is an exploration of perception and experience, there was no other method better suited to my research design. Appropriate methodologies, arising out of the notion that "[h]olistic knowing" can lead to "a moral relation to the world" (Holdrege, 2013:167), have been applied to the various exercises/activities. The purpose of my research inquiry was to apply Goethe's methodology to design and design education – thus far an unexplored research terrain at CPUT where I teach. Throughout the study, I focused my attention on widening the horizon of design education for interpretation and action. My intention for this research dissertation is that it be more than a mere written report. Also that it is viewed as an artwork, illuminating the design of the Ensembles, and culminating in their interpretation and creative presentation. Lastly, it could also be described as a naturalistic research process.

A "phenomenological attitude" is one, which raises questions through inquiry, and in the process discovers "what is invariable in all the variations [of the phenomenon] and … its essential meaning, its "essence" (Lindseth & Norberg, 2004). This required a flexing of my imaginative muscle and the discovery of methods that support "thinking with life". Through this pursuit I hoped to gain the capacity to think organically, and teach design in ways that support life.

With inherent curiosity I explored the hidden aspects of the phenomenon, and not only did I learn more about self-world, but as a designer I discovered different ways in which to problematise. Although the process is "largely intuitive", according to Pirjo Birgerstam (2002:435). By diffusing the boundaries of dualistic thought – mind versus body, self versus world, I concur with Holdrege (2013) when he says that in making the boundaries between self-world more porous, we as educaors are able to bring the living world closer to the hearts and minds of the students.

Fig 3.1 **Participants attending a workshop by Craig Holdrege: Seeing Nature Holistically. Photo: Suskin & Ashwell, 2011**

3.2.1 Theory U as methodology

Theory U offers a theory and methodology specific to social change, yet relevant to most other aspects of life. It promotes leadership and has been used successfully applied by the IDEO design company in the United States. There is some similarity or overlap in the modes of observing and being that both Goethe and Scharmer share. In fact, Scharmer's Theory U is in part, inspired by the work of Goethe and Steiner. All three thought-leaders have taken an active interest in developing entry points to advance perceptive capacity, for what Max Van Manen terms "in-seeing" (Van Manen, 2007:11). A seeing that can *see* and *understand* the quintessence of the phenomena.

The *Theory U* process has many different applications which, I have woven into the different Ensembles. Scharmer's diagrams were a useful visual aid to facilitate and clarify his theory and method. The Levels of Listening exercise or instance I used in *The Original Thinking – biography seminar* aimed at challenging students to move beyond their blindspots, to stop downloading what they already knew, and be more open to deep listening and inquiry.

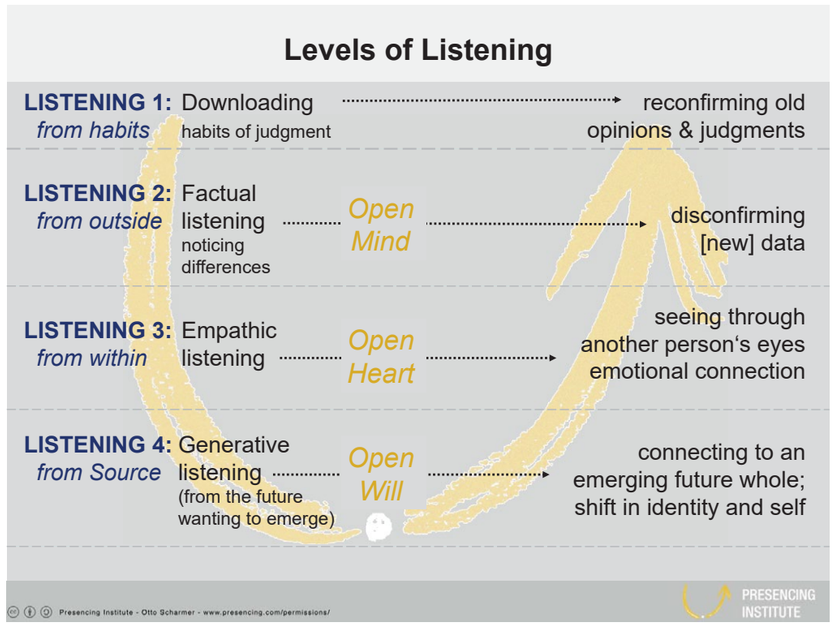


Fig 3.2 **Levels of listening. Diagram: Scharmer, 2007**

In holding space for listening Scharmer's "U" takes the participant-reader through four stages: listening from habit, from the outside, from within, and from source. Careful listening requires an open space in which others can participate, and which ultimately can contribute to essential leadership capacities. These modes of listening are practiced with the students throughout the various seminars and workshops under my facilitation.

I applied Scharmer's *Theory U* (2007) as a practice, which implies an alternative experience in understanding the world. Through different activities, Scharmer (2007) advances in a phenomenological style how to extend our inner life world and embrace a broader and more integrated view of the world. I will outline the basic tenets here:

1. Seeing – Moving down the left side of the "U" involves letting go of habitual ways of operating. This entails not downloading what we already know but keenly observing and listening. At this stage, one also confronts the different voices of resistance, such as VoJ (voice of judgement), VoC (voice of cynicism), and VoF (voice of fear).

2. Sensing – This is the stage prior to the bottom of the U, and the preparation for "presencing". It requires tuning our three instruments: the open mind, the open heart, and the open will. This stage calls for active "sensing" with all our senses in order to enter into a space that is spontaneous and able to perceive the whole.

3. Presencing – This is the capacity to let go and surrender to the source of our future possibility, and to bring it into the present. This practice entails having an open heart and sensing the situation or design challenge from the perspective of the whole. Here in the presencing stage we are present and sensing simultaneously. We are connecting to the source of inner knowing, and a threshold is to be crossed, hence it lies at the bottom of the "U" open to all possibility.

4. Crystalizing – This stage is a kind of waking up phase. From the previous stage of presencing, we come to a deeper knowing and getting to know the situation. The spark of inspiration and intention creates an energy field in which opportunities and resources make things manifest.

5. Prototyping – Moving up the right side of the "U" requires the integration of thinking, feeling, and will. It requires improvisation, mindfulness, reflection and keeping a connection with the original idea. Prototyping marks the beginning of supporting the idea practically. Before the product is fully developed, feedback is received, as to its value, relevance and why it matters.

6. Performing – This final stage points to the journey from here on, connecting to the bigger perspective of placing the product in the market and monitoring its progress. (Scharmer, 2007: 119-226).

Both Scharmer and Goethe's qualitative-intuitive methodologies challenge normative, abstract conditioning, and compel the student to discover new paths of learning based on reality. This said

it nevertheless remains that any method however proven must be individualised by those who apply it, if it is not to turn into rigid dogma. Students must recognise this, and the critical role they play in developing an authentic learning path (Grene, 174:153).

If I espouse the phenomenological research design and methodologies, it logically follows that I am also anti-positivist. This implies that I, as researcher, have become entirely engaged and absorbed in the research subject and situation. As a true phenomenologist and participant, I am concerned with understanding my research problem – how to balance concept and percept in holistic design education – from the perspective of the students in their social and psychological contexts.

The learning processes do not take place within the context of dictated time frames and deadlines, but allow time for deep engagement, observation and emergent process. The methodologies expand over a series of Ensembles under the broad theme of Cross-Pollination.

The Ensembles were designed to cultivate conscious observation – the ability to be responsive to the integrity of each part, acknowledging that every part has a living connection to the whole. Students were encouraged to be aware of the particularities of context – to imagine, intuit, rationalise, interpret and reflect. Goethe's method is entirely consistent with experiential knowledge and strikingly demonstrates the balancing of intuitive insight with intellectual rigour. In the six Ensembles I developed, I made every effort to implement Goethe's "delicate empiricism" over the series of practical processes. These processses lead to the practice of new ways of thinking and doing design in the future. For example, *The Original Thinking – biography* Ensemble 1 reveals and celebrates aspects of the designer's "interior disposition" (Bohm, 1980) aligned with world history, whilsts the other five Ensembles described in Chapter 4 each have their own theme. The opus of Ensembles can be viewed in their totality in Appendix – B.

3.3 The research design: my position as researcher and teacher

My research position places importance on the under-scribed existential dimensions of scientific method, which integrates body and life experience into the field of research and origination. Pallasmaa (2009:119) posits that "[t]he teaching of existential wisdom in education takes place primarily through the growth of one's personality, which is often a reflection of the teacher's persona and character on the self-identity of the student" He goes on to say that: "[t]he category of existential wisdom is also much more difficult to teach, if not outright impossible. Yet, it is the irreplaceable condition for creative work" (ibid.). Nelson comments: "[t]here is no need for method to be wholly systematic. It can be chaotic and serendipitous, and, in fact, probably always is in the creative arts" (Nelson, 2009:101). Furthermore, he points out that we, in the creative arts, are not "so preoccupied about a method of prejudicing the data, for we often do not deal with the data at all. But that does not mean that we do not deal with method" (Nelson.2009:104).

As my study is concerned with creativity, art, non-linear science, innovation, imagination, creativity and design, it is impossible to think of exploring this terrain in a quantitative, empirical and linear way only. Goethe's method recognizes the empirical phenomenon – the objective, physical reality – but also the existential. There was never any doubt that this research and design activity would demand a different sort of methodology that enabled "learning to see" in more "delicate" ways. This activity takes practice, and can only be advanced in such a qualitative study by putting common, logical thinking aside and turning mainly to the imaginative, intuitive mode (Hoffmann, 2007:20).

3.4 Emergent design and unfolding, unpacking and peeling - away processes

The position I took up as researcher implied a type of uncertainty during the research question's formulation and problem extrication. I knew that I had to follow the path of emergent inquiry, in order to adapt not only my data-collection, but also the interpretation thereof, as more layers, implications and "phenomena" emerged along the way. This has implications for the traditional demands of reliability and validity in the narrowest positivist sense. I have had to trust in the spontaneous development of questions as they naturally emerged, not only in my students, but critically, also in myself as an educator and designer. This links directly to Heidegger's principle of "being in the world" (1962), which insists that the context of the problem, is as important as the problem itself.

Part of my responsibility as an educator is to create environments where students are challenged to cross self-imposed boundaries and explore from positions other than their comfort zones. It is my obligation to guide them from the known, familiar, safe territory, into the unknown and less familiar, into deep, emergent and layered ways of knowing. The student must be able to recognise the dynamic flow of life and develop a mobility of intelligence with which, to grasp the living world. This ability can result in perceiving a phenomenon in its unfolding development, whereas the intellect "can only establish a relation to things as in fact, they have become" (Zeylmans van Emmichoven, 1964:13).

3.4.1 Design in context

Luz-Maria Jimenéz-Narvaez (2000:44), is a designer who asserts that: "the existing epistemological foundations of design and its methodological guidelines have thus far been limited and must extend beyond the students' understanding of the 'cultural phenomena of their times'." As designers not only do we reflect aspects of the world at large, but our designed products, services and systems have an impact on the world in which we live. In defining the meta-structure of design, Jimenéz-Narvaez (2000) suggests establishing a future structure whereby educational systems let go of the attitudes of the industrial revolution, beyond the industrial machine syndrome. This means that the designer can no longer remain "external to objects" (Polanyi cited in Hoffmann, 2007:39), but must understand the world and its needs as an implicated, implicit part of the phenomenon he/she is observing, whether, it be a leaf, copper, a situation or another person.

Writer and lecturer, Joseph Campbell comes close to what Goethe's methodology could ultimately arrive at when he describes,"yielding to the design of the universe which was speaking throughout the design of my own person" (Campbell cited in Jaworski, 1996:74). Such an intimate relationship of self and world as is implied here raises the issue of just how critical it is to find the right methodologies and practices that can unlock the student's potential to "climb into" the generative processes, not only to learn more about the world but through knowing the world to know more about themselves. The design process therefore becomes a more "conscious-process-participatory epistemology" (Wahl, 2005:59).

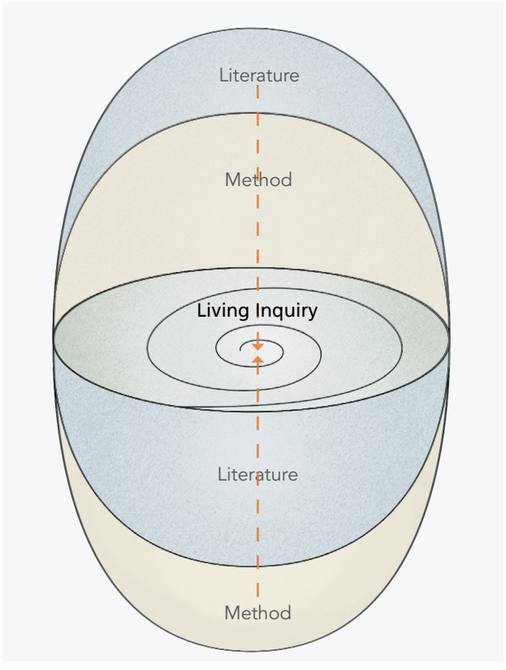


Fig 3.3 **A living, integrated inquiry. Diagramme: Suskin, 2014**

Developing a living practice means that the research process is always in its becoming, it is connected and iterative. In Fig 3.3 opposite, I illustrate the movement of my research as it moved between literature and method, method and literature. Simultaneously it incorporates logic and intuition, values and epistemologies, all of which are dynamically related and integrated aspects of the conceived whole. In a sense a blended space where specifics are not erased, but together form a complementary moment.

3.4.2 Deep inquiry, leading to an unfolding approach

Purely to demonstrate the four different stages of a Goethean approach, the design and research follows a systematic procedure. The stages are: Exact sense-perception, Exact sensorial imagination, Seeing is beholding and Being at one with the phenomenon. These stages, according to Seeley (2006), should actually be read as a set of interrelated, non-linear, layered resonances and learning's. This distinctive method enables participants to go beyond separate inquiry and generate a living thinking. The success of Goethe's method therefore depends on how we interweave outer discovery based on an experiential learning, with inner adaptability and insight. The four stages are described in more depth in point 3.6.1.

According to Schilling and in my experience Goethe's method must be practised proficiently to become a reliable source of knowledge and truth (Schilling, 2007:9). These qualitative methodologies afford time for deep inquiry, using the human body as the "instrument". Therefore any preconceptions and "ready made" forms of thinking are avoided. The methods are not based on input, output, cause and effect – in other words a materialistic model – but encourage the full range of human intelligences.

3.5 The applied phenomenological methodologies

The phenomenological methodologies I refer to here all explore emergent process by attempting to balance cognitive process with a hands-on experiential approach. Based on the premise of mutual exchange, the student is encouraged to be both observer and participant and in this way develop an intrinsic connection with the phenomenon. This is quite a different matter according to Bortoft, from "being an observer and using instruments externally, e.g. microscopes and telescopes to augment the senses" (Bortoft, 1998:245).

Lester (1999) extracts the typical problem for many phenomenologists, by referring to the large volume of notes, interviews, tape or video recordings, jottings, sketching and even

photographs that all have to be organised in a structured way in order to analyse and extract the necessary themes. This naturally also affects the analysis itself, as themes and data can be random and not in orderly categories, with the possibility of many different interpretations and links between findings.

I will endeavour to briefly describe each of these processes that yielded important data for the eventual workshops and Ensembles.

3.5.1 Notes and note taking

Out of years of copious note taking from self-study short courses, lectures and study groups, I extracted a multitude of rich pickings which have contributed to, and given shape to this thesis. All have given leverage to what has unfolded as a richly patterned, fertile search. I was a central and critical part of the recording. In gathering phenomenological sources and methods, I was able to establish a bridge through my note taking between myself the observer and the observed thing - phenomenon (Arneheim, 1969:19). Participatory exploration collapsed my habitual ways of knowing and helped to unfold complex concepts through describing and characterising the phenomena. I made use of abstract and figurative drawings, notes and references to illustrate my research process, and augment and support my experiences.

Fig 3.4 Journals of content, observations from the field. Photo: Suskin, 2009-2014

In the case of drawing, which can also be a form of "note taking", the more we draw, the more we see. So it is with writing – the more we write the more we understand (Kaplan & Davidoff, 2009). Bounteous exploratory note taking during and after the lectures and workshops I presented, was also an integral aspect of this study. In rigorously tracking and tracing what I observed and experienced, I was able to move beyond the surface of each interaction to a place where I could discover the depth of the phenomenon. My notes tracked the main ideas of the research in relation to the lived experience of the project itself and collectively came to constitute a vast resource which was then filtered, interpreted, reorganised and structured into a comprehensive network of related themes and patterns, resulting in the opus of Ensembles (Refer to Fig 4.1).

Note taking helped make meaning visible or audible as in the TEDxTablemountain presentation, which was derived out of the note taking rather than the thesis. I therefore consider note taking as a part of what we do day-to-day, that is, personal research. I consider it not only as a gathering of information but as a review instrument, or a means to memorise facts and to bring awareness to non-sensorial impressions which enabled me at times to glimpse the "whole". Note taking therefore demanded active participation and the ability not only to manage information but, as importantly, to allow the generative process of new thoughts, inspirations, intuitions and feelings to emerge. Writing as a "whole" activity in order to "know" is an essential phenomenological tool, which I am not sure includes key-tapping, or finger-tip skating on one's iPad.

3.5.2 Journals and the expansion of content knowledge

It is a challenge to record and reconcile the theoretical and conceptual, the imaginative and perceptual constructs and imaginations of others, and at the same time to keep a track of one's own personal learning and understanding. This discipline is consistent with the students' keeping of journals, which should not be seen as a pedagogical device to track and monitor visual and mental activity, but rather as making conscious the "gestational assistance" (Nelson, 2009:145) of expanding content knowledge through lived experience.

Note taking usually culminates in a form of reflective writing, or journaling, which is used "to measure the depth of things, as well as to come to a sense of one's own depth … by giving appearance and body to thought" (Van Manen, 1989:28). As Sartre puts it – "the writer is the product of his or her own product" (Sartre cited in van Manen, 1989:28). In my words, my pre-writing and writing is autobiographical in nature and, in this research moment, is an applied effort to understand self and world.

Journaling prompted me to discover new ways of acting dialogically within the creative process, and to use writing as part of the quest to synthesise and reveal new ways of understanding and interpreting meaning. This in turn strengthened my relationship with self, so that my writing contains all that is required to contribute meaningfully to my broader vision.

3.5.3 Conversations with other academics and students

Real conversation requires the development of both an aptitude for being open and receptive, and the ability to talk and to listen evocatively, with the heart. In an attempt to render my experience faithfully I approached several Goethean phenomenologists and asked how they negotiate the descriptive evidence. Each echoed the central tenet of phenomenology that the very instrument of the investigation is self and that the research spans sensory and non-sensory seeing.

Conversation then is dependent on appreciative and critical feedback, and what Senge et al. (2005) refer to as collaborative knowledge creation, which is critical when checking phenomenological data. I approached each conversation as a way in which to practise listening to the other, as well as a way to check the soundness of my own research and understanding. In a discursive or even cross-cursive way of listening and communicating, I championed the extraordinary in the so-called "other" through conversation as well as through valuing the in-between space as a place of potential transformation for both or all parties involved in the dialogue.

Conversation in this text was viewed as method. The conversational method gave both myself, and the student access to deeper ways of engagement, talking, listening and knowing. At times this surprised students as they found themselves freed from the intellect and its prescriptive constraints. Through the art of conversation the student was prompted to observe what was "coming-into-being", again from a participant consciousness rather than onlooker consciousness. Working with Goethean sensibility the conversation is open and undetermined, yet focused and loosely directed "to enable an intelligent reading to emerge" (Kaplan, 2005:319). This is a most useful approach when working with a client or in a collegial way. A clue to approaching conversation is to observe the gesture of the conversation, "the action through which it expresses its meaning, its formative story" – it's intention (Kaplan, 2005:320). Conversation between the design teacher and the student allows the student to glimpse the possibility of what new research and practice could mean for them, and equally gives the teacher a glimpse of where the student stands in their research.

In my research I discovered Goethe ascribed great importance to "conversation". He and his close friend Friedrich Schiller corresponded by letter between the years 1785 and 1805, which invariably took the form of a conversation. This manner of interaction has even been given the name of "The Conversation" (Spock, 1983). The importance Goethe places on "the conversation" brings to mind, in the course of an encounter between the king and the snake in Goethe's (1795) fairy tale, *The Green Snake and The Beautiful Lily* the following questions and answers: " 'What is more glorious than gold?' 'Light', 'What is more quickening than Light?' 'Conversation' " (Goethe cited in Jankelson, 2005:2). For Goethe conversation was considered mutually enriching, and a deep way of communing with a fellow human being. In practising the art of Goethean conversation I sought to still my inner chatter, remove any preconceptions, and practise deep ways of listening to what was being spoken. It also asks of me to sense the "unspoken" and discover the underlying pattern or intent of the conversation.

Conversation was particularly constructive when engaging with the design students and helping them tap into their own strengths and resources. Through this deep way of conversing they were able to discover their truth through the activity of speaking. This required space and time, patience and purposefulness, respect, and eliminating any form of disruption. It also meant not breaking the stream of conversation, not finishing sentences, and not asking questions other than to sincerely, and calmly seek clarification. In the case of the students, such a empathetic conversation assisted their passage towards making meaning through an iterative process. More simply, by being supportively enabled to formulate their own questions, they can come to deeper realisations themselves.

A Goethean, phenomenological conversation, according to what I read and experienced of Kaplan's (2005) description, offers the following qualities:

- human warmth and interaction, which is different from agreement or disagreement
- listening with a living interest, beyond intellectualising
- no predictable outcome
- being awake to where the process is going
- making space for an open, free and continuous evolution of process
- the capacity to keep the conversation alive and open; yet focussed and always intentional
- the possibility to be awake to where the conversation is going, where it has been and how it is coming into being, or what is "coming-into-being"
- the awareness that anything can emerge
- the capacity to anticipate and find the right questions
- a way to work with participants in order to make meaning of the conversation
- a space in which one can come to an understanding of how to draw threads together out of the relationships and movement.

3.5.4 Conversational interviews

Unstructured in-depth phenomenological interviews with Goethean researchers, such as Ian Troudsel, Shelly Sacks, Craig and Henrike Holdrege, David Lowe, Jesaiah Ben-Aahron, Norman Skillen, Howard Dobson, Allan Kaplan and Sue Davidoff, included questions pertaining to artistic and creative talents, as well as empirical research. This enabled me to arrive at a comprehensive understanding of their fields of engagement. The questions I directed during conversations with the Goethean researchers were less formal than those I used with workshop participants or students and took the form of a conversation whereby the term "design" was broadened. These conversations helped to clarify areas of my research that were uncertain, or as yet unpractised.

3.5.5 Photographs, pictures, illustrations and diagrams

The visual information presented to the participants served to stimulate imagination, and visually demonstrate interconnectivity and complexity. Most often, I sketched on a flip chart with coloured pens, or on black paper with chalk pastels to express and make visible my thoughts and ideas. On occasion the students were requested to bring in a postcard or image from a magazine, and describe what they found to be appealing or intriguing about it. This encouraged the students to speak of direct experience and personal responses. At other times they selected an image laid face down on a table, this exercise functioned as an "ice-breaker". Each student introduced him/herself, and gave a brief description of thoughts and feelings inspired by the image s/he had chosen.

The visual material presented in the seminar and workshop was used as an aid to stimulate different ways of seeing, and help articulate, or verbalize the emotive nature of an idea or theme I had chosen. The exercise above, had the potential to further create curiosity about one or more participants in the group, whereby one or more students may enter the field of "reading" the "other" – phenomenon, through observation and deep listening.

Other examples of illustrations I used or schemas in the form of the explanatory diagrammes might have come from book or magazine sources, although I tend to reproduce these on paper or on a chalkboard whilst talking. Invariably I use diagrammes from Scharmer's *Theory U* (Refer to Fig. 3.2). These may be projected images or again images I would draw during the presentation. In other cases a series of photographs would aid to demonstrate concepts such as growth and development (Refer to Fig 4.12). On some occasions the participants watched a video, for instance on the methods of *Theory U* – documentation of a design process from one of IDEO's projects. At other times I may use a power-point presentation, together for the purpose of unfolding an idea.

The photographs I have included in the thesis are there to provide the reader with access to a process and to support the text. By providing a connection to the experience of "doing", which is so strongly advocated, the photographs depict both my experiential journey and learning, as well as that of my students at the Cape Peninsula University of Technology or the participants attending *The Cross-Pollination Workshop*. I have intentionally not taken any video footage as I feel this form of documentation is disruptive as it imposes on the delicate processes in which the participants are immersed, and makes participants self-conscious.

Photographs served as an educational tool when necessary – particularly when I was unable to take participants into the outdoor "university" of nature. For example, if I had not been able to show them a living Protea-plant, I may offer a set of photographs instead, depicting metamorphosis. I have also used photographs as visual notes – to document my own meanderings and processes. These have been used throughout the thesis.

3.5.6 Sketches, jottings and graphic drawings

In an attempt to introduce, or make friends with many of the complex concepts I came across in my research, I had to in some instances, understand complexity from the part or particulars, and on other occasions from the whole to the part, in an iterative process. This is where sketching and mapping came in useful. The pictorial representations I present in the thesis explore, and endeavour to describe, the explicit and tacit connections between the particulars and the whole. Sketching and graphic jottings led to structuring my thought processes and helped map and organise my explorations into understandings, which in the end became the Ensembles or educational modules. The graphic drawings, jottings and sketches demonstrate my learning process and the effort invested in grappling with my subject.

These sketches offered a basic insight into my seeing and thinking processes and how I successfully or unsuccessfully, merged different experiences and concepts into meaningful structures to support the text. Often it was out of the doodles with my pencil and what initially I perceived as a questing mind, that these random marks found themselves on a page, with no particular goal in mind other than to find clarity and understanding. Ultimately they made this adventure possible. The pictorial processed a visual path on which to connect heterogeneous ideas and intuitive insights and weave them together so that patterns of wholeness could emerge, rather than trying to make them happen out of a given theory. Therefore what start as sketches or half-formed ideas gradually develop into formed ideas. Reflecting on, rejecting, refining, revising and returning to the idea over and over helped me to express authentic ways of knowing. These ideas were then formalised into the diagrammes presented in the thesis.

By expanding ways of knowing through the medium of drawing I came closer to a holistic cognition of my understanding, and this made it possible to articulate connections and relationships in creative ways, which had previously seemed untenable. Sketching in this way held me in the moment, just as when I was in the field observing plants, all the while in the process of discovery and learning. One of the participants on a Goethean observation course I did with farmers discovered, much to his disbelief, that he too could draw. In general, I observed that the farmers had more accurate drawings than my design students who "can" draw. I put this down to the simple fact that farmers are keen daily observers who constantly check their lands and/or animals.

In all things phenomenological the depth of observation is increased through sketching, note taking, doodling, poetry, painting and through other forms of artistic or creative endeavour. The sketching process combined with subconscious intuitions complemented and brought me closer to knowing more openly and holistically, uncovering and revealing something I did not yet know. Once I recognized this it meant I could consciously suspend what I already knew and trust that my sketching and jottings could lead to new thresholds of understanding; allowing unsolicited thoughts to come through with feeling and no espoused supposition. The same can be said for other artistic forms, for instance poetry. I give an example on page 23 of a poem written by Alice Ashwell while attending a workshop of Craig Holdrege (Holdrege, 2010) at Towerland Wilderness. Deeply informed by Goethean observation, the workshop processes guided Alice into a closer observation of the landscape, and more specifically the plants. She dropped her conceptual lenses and entered into an intimate dialogue with a plant. I include the poem because I feel it captures so many of the themes, qualities, contrasts and congruencies that I speak of throughout the text.

3.5.7 TEDxTableMountain presentation

During the research process I was invited to be a presenter on TEDxTableMountain. TED stands for Technology, Entertainment and Design. The organization's raison d'etre is to make "ideas worth spreading" as freely and as widely available as possible, the belief being that ideas change attitudes, lives and, ultimately, the world. People from all disciplines and cultures who seek a deeper understanding of the world are welcomed as presenters and to date TED has provided an international platform for some of the world's most inspired and inspiring doers and speakers. TEDx on the other hand organises local mini events, which are staged around the world all year long. Participating in one of these events in Cape Town, South Africa gave me a very good midway mark from which to gauge what I had learnt through my research and to present it in the form of a mini presentation. I find it apt, to introduce this presentation to you here, before I go into the finer details of the study. In brief:

The overall theme of the TEDxTableMountain (2012) presentations' was: Exploring human nature and what it might mean to live harmoniously on earth. The guiding questions they posed directly to me were: What separates the human being from wilderness? How are we connected? To what extent are we dependent on nature for inspiration and for resources? The following questions were general:

- What role does modern human society play on Earth? In what ways would we like this to remain and how would we like it to change?
- When we speak of sustainability, what do we hope to sustain?
- How can we create sustainable relationships with other human beings and within ourselves?
- How can these relationships affect our engagement with nature?
- How do we foster mutualistic relationships with our environment?

My talk was entitled *Into the Wild* and was written and delivered to encourage spontaneous and vital thinking. It started with the opening lines: "It is evident that our intellectual mode of thinking has limited our ability to perceive the world in its wholeness and aliveness. By exploring dynamic processes in nature we can playfully explore and creatively connect with new ways of thinking and – through this – doing design in the future". A considered and thoughtful immersion into the organic world of nature – particularly when it is pristine and wild – allows a new kind of thinking to form, which can distinguish our projects. In the course of the presentation development, three main themes emerged: Wildness – nature, Conversation and Transformation. All three themes are interwoven through the thesis.

I have included the postscript of my talk in Appendix – C. The TEDx presentation led to developing the *Into the Wild Workshop*. The proposal for the workshop can be found in Appendix – D.

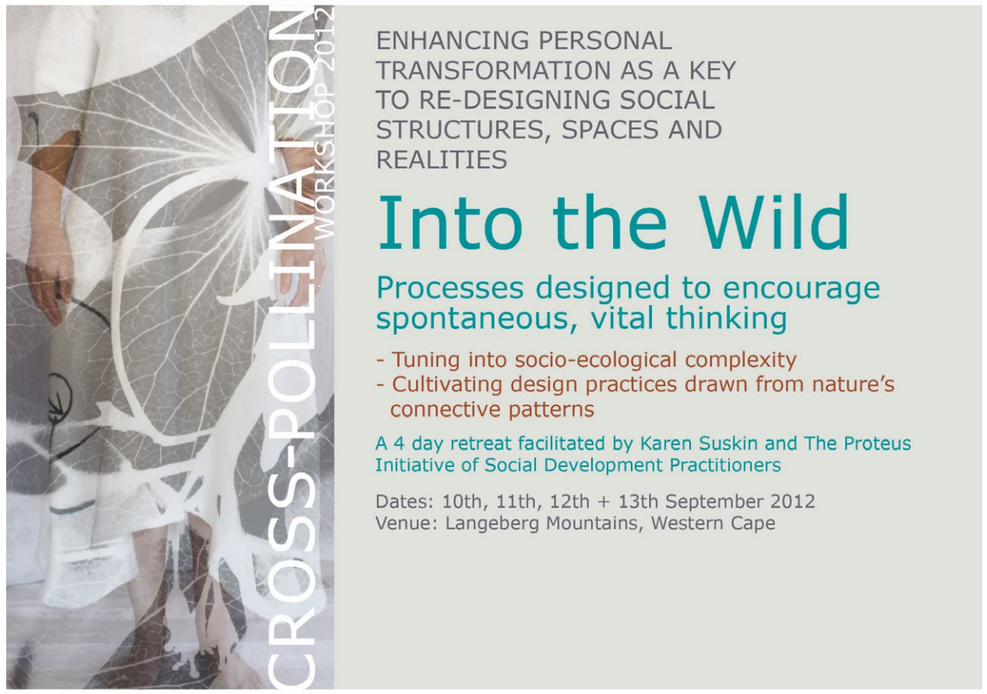


Fig 3.5 **Into the Wild Workshop. Flyer: Clark, 2012**

The Cross-Pollination Workshop – The Role of designer as mediator between Culture and Nature is the workshop I will describe in the following chapter. This workshop drew a compelling cross-section of twenty-five creatives seeking fresh ideas. "It's not every day that you find yourself blowing bubbles across the clear morning sky above Kirstenbosch Gardens, before taking five meditative minutes to write a haiku about the moment" as one workshop participant (CP-15) commented. The group comprised of students and professional designers. The process took place over three weeks, a Wednesday from 5:30 pm to 9:00 pm, and two Saturdays from 9:00 am to 4:00 pm in designer Haldane Martin's studio in Woodstock, Cape Town.

The cross-disciplinary Ensembles, embedded in phenomenology, were aimed at positioning participants in their personal learning practices more consciously. Collectively the learning process offered the possibility to exchange ideas and share new knowledge.

The participants were given various exercises through which they could re-discover the relationship between themselves and the natural world, and envision new processes, new products and methods of production, drawn from their understanding of nature's connective patterns. *The Cross-Pollination Workshop* promoted the designer's role as mediator between culture and nature by tuning into socio-ecological complexity. Scharmer's social presencing model was outlined. Towards the end of the workshop most participants were able to see how the processes could enhance personal transformation as a key to re-designing products, social structures, spaces and realities. Ecologically, there was much emphasis given to the living interrelationships and complexity of the natural world and these were explored in many different ways. The participants responded well to the course work.

Inspired by Steiner's (1908) supplementary thinking exercises, Florin Lowndes (2000:68-73) sketched out a seven-part sequence framework for designers. I posed the following questions to the students in order "[t]o develop [in them] the habit of structuring organic processes of thought in such a way that they become inner necessity". Lowndes (2000) offers these considerations:

- Physical: What is it made of? What are its properties?
- Specific historical: How is it made? How is it used?
- Emotional: Why this design? What are my feelings about it?
- Creative: Who created it? Who invented it?
- Desire/need: What need or desire led to its invention?
- Broad historical: What is the developmental sequence of objects with a similar function?
- Archetype: What is the concept of the thing?

Lowndes (2000) suggests subsequently running through the above sequence in reverse order, which is what Goethe and Steiner also suggest in their practices, as this can illuminate complexities that have been skipped over by our often superficial and flippant "knowing". In the same way, students were requested to draw objects upside down to demonstrate how important it is, to be active participants, shifting perspectives and practising different ways of seeing. Students were surprised by what they had previously glossed over and, more often than not, amazed to see how much more they discovered in this "upside down" exercise.

All exercises were aimed at helping the student to make connections or "join the dots". David Wertheim Aymes (2014) elaborates on this ability in his theme of inner-picturing in relation to knowing. He traces the genesis of *Copper*, and in so doing deepens our understanding of the element comprehensively. In what he calls an imagination, Wertheim Aymes (2014) recognises that everything is changing. He makes it clear in his article that we are implicit in the way we construct, create and give meaning to our world; he also highlights how necessary it is that all our intelligences are awake and active (Refer to Appendix – E). Following from this, questionnaires were used to instil in the student the aptitude to make connections between processes.

Fig 3.6 **The Cross-Pollination Workshop participants. Musician, botton left hand corner – jazz improvisation. Photo: Lawrence, 2012**

3.5.8 Administering questionnaires after completion of workshops

Questionnaires were issued in the last 15 minutes of each day as a means of reflection and integration (Refer to Appendix – L). The participants' attention was drawn to how action and reflection are two sides of the same thinking process.

The questionnaires, are accounts of what had been understood, and allowed me to adapt my questions and tone if necessary for the following day. This meant being open to how each day unfolded in order to strengthen links that the participants were making, or not making and facilitate ways of forging links the following day. As in the case of *The Original Thinking – biography seminar,* which is adapted from the first of six Ensembles belonging to the model, the questionnaire was used to instil the habit of schooling imagination to consciously keep making connections. The concept of "night-time learning" or "sleep on it" was introduced, to foster deep understanding and to ensure the absorption and digestion of the days learning. Each morning the students brought their night-time "harvest", connecting it with the previous day's observations, experiences and insights (Van Houten, 1999).

So as not to exclusively offer processes in, and of nature, I presented other ways in which students could approach design. For instance; Lowndes' (2000) seven-part sequence of questioning (Refer to point 3.5.8), or Wertheim Aymes' (2014) making connections in his imagination of *Copper* (Refer to Appendix – E), Colquhoun's blackboard drawing (Refer to Fig 3.7) and Seeley's (2006) description of a Goethean inspired methodology, (Refer to point 3.7) all of which pertain most specifically to product development. All of the above processes offer a sequencing methodology to serve an integrated, human-made artifact.

3.6 Towards practising new processes in design education

Goethe spoke of "educable powers of human perception" (Goethe cited in Seamon, 1998) and was confident that these could be honed by following his "delicate empiricism".

My task as educator, then, is to unlock perceptive potential and lead the student to a genuine understanding of self and of the life-world. What I explore in the next section is how, through lived experience and engaged ways of knowing, a more intimate and delicate "understanding becomes available to us that is quite unavailable to us as disengaged spectators" (Schotter, 2005:136). Inspired by Goethe's four stages of practice, this living, thinking approach may add value and meaning to the ways designers design. Critical to this futures approach is to build a vision of what is required of us as designers, individually and collectively.

I illustrate the four Goethean stages in Fig. 3.6: 1. Exact sense perception, 2. Exact sensorial imagination, 3. Seeing is beholding and 4. Being at one with the phenomenon. I have drawn parallels to some of the other themes in the study. For instance, the four earth elements and how they are related to the four Goethean stages. I have also included what Steiner alludes to in the first chapter of his book: *The Stages of Higher Knowledge*, originally written in the early 1900s, but published posthumously in 1930. In brief, Steiner speaks of four stages of Higher Cognition: "Material Knowledge", which is dependent on our senses and our ability to sense the outer word; "Imaginative Knowledge", by which images appear to the student in exactly the same way as if a sensory object were making an impression upon him, yet they are not of material, but of soul-spirit origin – the senses remain inert as these images are received from a higher source; "Inspirational Knowledge" (which may also be called "of the nature of will"), where the world expresses itself to us, and if we listen carefully enough, the world will "speak" to us; and "Intuitive Knowledge", which means that we stand within our experiences and merge with the phenomenon itself (Steiner, 1974: 3-20).

Scharmer's (2007) social presencing methodology was interspersed to support the above processes of deep knowing and include ways of tapping into the emerging future. If we think for a moment of a musician's composition, it exists in the future as a seed and is brought to realization by the musician. The musician brings it "down to earth" so to speak. According to Jesaiah Ben-Aharon (2013) this idea comes as a "whole" new revelation, as something that has not existed before. Thus a new creation emerges out of the future, not as a theoretical construct. Picasso never imitated another painter, nor copied a particular style. He "painted in his style" and was the embodiment of that style, creating original works that shocked for the very reason that their way of being had never been seen before (Ben-Aharon, 2013).

What are the ways in which we can teach design that tap into futures thinking in such a way that designers can design out of the future, for the future. Maybe we can start by engaging in "delicate empiricism" (Goethe cited in Miller, 1995:307). This requires rigour in deploying the senses in a systematic and conscious manner, as described in the practice of the following four stages:

3.6.1 First Stage – Exact sense perception

Exact sense perception – is characterized by simply observing the "bare facts" of the phenomenon with a full range of senses: sight, hearing, smell, touch and taste. All thoughts, feelings and memories that arise are acknowledged, but not given further attention, all the while withholding judgment and remaining focused on the facts. This according to Hoffmann (2007:11) is a gathering of empirical evidence in a scientific, exact and scrupulous fashion. Hoffmann exemplifies this as a physical mode of thinking equated to Earth-cognition, since when reflecting on the physical sequencing of the phenomenon's unfolding, the phenomenon is described exactly from what can be seen with an exact "mathematical logic" (Hoffmann, 2007:60). This logic is primarily concerned with the physical and grounded reality of the phenomenon. In this first stage the exterior domain of the phenomenon is observed. According to Schilling, the observer gathers:

> ... the qualitative properties of the phenomenon, the visual aspects such as colour, shape, details, and the whole spectrum of auditory, olfactory, tactile and gustatory stimulation. The utmost importance lies in an accurate description of what we perceive with our senses of sight, hearing, smell, touch and even taste (Schilling, 2007:6).

This accurate, objective information may include weight, height, breadth and number as well as the environmental or surrounding conditions. These are all described as accurately as possible in words or short phrases avoiding analysis, judgment, metaphor or inference.

3.6.2 Second Stage – Exact sensorial imagination

Exact sensorial imagination – is the second stage of the observation process. It requires the "productive power of imagination" to engage with the creative processes of the phenomenon, by grasping the inner movement of the phenomenon with our imagination. Ultimately this leads to developing a thinking, which is equally alive (Hoffmann, 2007:13). This stage is an adjunct to the first stage, which simply follows procedures of science. This phase, as Hoffmann (2007:25) states, "calls for a more plastic form of cognition (Hoffmann, 2007:60) ... an artistic cognition, which enables us to "see" and "think" growth. Simply described, it is the capacity to "see" the gestures or dynamic qualities of all living forms (Hoffmann, 2007:25).

Goethe refers to "exact sensory imagination" as seeing into the phenomenon's totality (Goethe cited in Bortoft, 1997:302) and this is achieved by turning our thinking from an analytic mode to the creative, imaginative, sculptural mode. Hoffmann, in reference to the elements, names this mode, Water-cognition (Hoffmann, 2007:20).

In this second stage, we move from empirical observation into a participatory mode of observation whereby we engage more intimately with the phenomenon through the imaginative process. The static outer facts of the phenomenon are set in motion by the imagination and as we begin to grasp the phenomenon as a culmination of dynamic forces.

3.6.3 Third Stage – Seeing is beholding

Seeing is beholding – this stage of observation requires that we establish a kind of inner spaciousness by holding back our thinking activity, and cultivating an attitude of open, receptive attentiveness. It is by making space that the phenomenon has a chance to express its own character. This phase can be "interpreted as a contemplative inquiry" (Schilling, 2007:7), as in this stage we enter into a deeper engagement with the phenomenon finding "appropriate means of communication" (Schilling, 2007:8) other than seeing the physicality of the phenomenon. Hoffmann exemplifies this mode as the Air–cognition, the ability to "perceive formative movement as gesture – experienced, for example, in the dynamic qualities of melody and musical tone" (Hoffmann, 2007:43). In this way we can develop a "comprehensive inner picturing" of the whole phenomenon, generated between the visible and invisible forms and their inter-penetrating movement (Hoffmann, 2007:40).

3.6.4 Fourth Stage – Being at one with the phenomenon

Being at one with the phenomenon – the becoming one with the phenomenon uses intuition to go beyond the previous stages (Schilling, 2007:8) and is the experience of being at one with the creative essence of the phenomenon (Holdrege, 2007:56). This implies immersing oneself in the creative unfolding of the phenomenon in all its processes of metamorphosis and at the same time penetrating the content or meaning of the phenomenon. This does not mean that we abandon the logic of clear scientific reasoning but for a moment bracket it so as to allow the imagination to extend into the higher order of intuition. In this stage the "method progressively transformed the purely sensory and mechanical aspect of the organism to reveal its creative dimension" (Hoffmann, 2007:56).

Hoffmann associates Fire-cognition with this stage, stating that: Creation is the word we have for that which comes forth out of its own activity; "self-shining" or "self-generation" is of the nature of Fire (Hoffmann, 2007:57). This is a "creative impulse arising out of nothing but itself (Hoffmann,2007:58). To be at one with the undifferentiated creative idea of the phenomena is to get inside wholeness and so see that it reveals itself in every part" (Hoffmann,2007:59).

When we arrive at the fourth stage of Goethe's method, "Being at one with the phenomena", or to be at one with the creative essence of the phenomenon (Holdrege, 2007:56), this implies immersing oneself in the creative, unfolding meaning of the phenomenon. This demands being totally present and warding off any procedures, techniques and concepts that might predetermine the phenomenon.

3.7 A seven-stage ideation process

Personal experience is the starting point. Chris Seeley (2006), academic and educator, gives a personal description of the Goethean approach as she experienced the stages when attending a workshop by Margaret Colquhoun. Colquhoun has a background in conventional science, and spent most of her life bringing science and art together through applying Goethe's methodology.

Fig 3. 7 Colquhoun's blackboard drawing depicting a seven stage process of ideation. Diagram: Colquhoun, 2002.

After attending one of Colquhoun's workshops in 2006, Seeley, from The University of Bath gave this summary of Colquhoun's adaptation of Goethe's methodology.

One **Exact sense perceiving:** The stick figure carries the scientist's pencil and paper for writing in one hand and the artist's brush and palette for drawing in the other.

Two **Exact sensorial imagining:** The stick figure swims in the fluid motion.

Three **Seeing in beholding:** The stick figure starts to have insights.

Four **Becoming one with:** The stick figure, invisible now, merges with the being of the "other".

Five **Catching ideas:** The stick figure opens her arms wide to receive.

Six **Growing the idea into matter.**

Seven **New product:** The stick figure responds with her own creations (Seeley, 2006:7).

The four Goethean observational processes strive to outline an authentic science of the living world. As designers and participants in our world we are "an apprenticeship with the world of material things" says Hoffmann (2007:25). His research using a Goethean approach makes use of the notions of the four ancient elements – earth, water, air and fire – which Hoffmann associates with different organs of cognition. I found Hoffman's research most helpful in gaining deeper insight and clarity into the characteristics of Goethe's four methodological stages. I simply include it in its most basic outline, as it is not possible to go deeper into these modes here. May it suffice that these indications serve as the background to Ensemble 3 *Advancing Design Conceptualisation – Through the four elements*. The elements served to deepen relationships in understanding process, and also help students verbalize their experience through the power of metaphor in describing the design process. The four elements helped to clarify the four stages of the Goethean approach by offering the student easy access into the cognitive aspects of thinking, as well as into the higher aspects of thinking: Imagination, Inspiration and Intuition. These modes of consciousness described by and developed out of Steiner's spiritual science, are the next stages beyond those that can be achieved through Goethe's method.

3.8 Retrospection

In this chapter I have attempted to weave into a coherent pattern the pathways of my journey which led to the proposed: *The Original Thinking – biography seminar* and *The Cross-Pollination Workshop* which include aspects of all six Ensembles. The learning journeys or Ensembles I designed are a direct response to my phenomenological and "delicate empirical" explorations and consequent unfolding of the research. While the process was in no way linear nor, the exploration complete, by any means, I believe that I have been able to extract meaning, the purpose of thephenomenological task, and can confidently offer a different and more balanced approach to design learning.

The journey onwards is towards uncovering the new approaches for design education though the unfolding Ensembles. The creative approaches investigate experience as the students live the processes. The methods ascribed to the Ensembles are explicitly chosen to provide decisive direction to design knowing for the future. Above all, the associated creative processes aim to balance concept and percept, so that potentially, design expresses "what is universally true for all" (Lowndes, 1998:183).

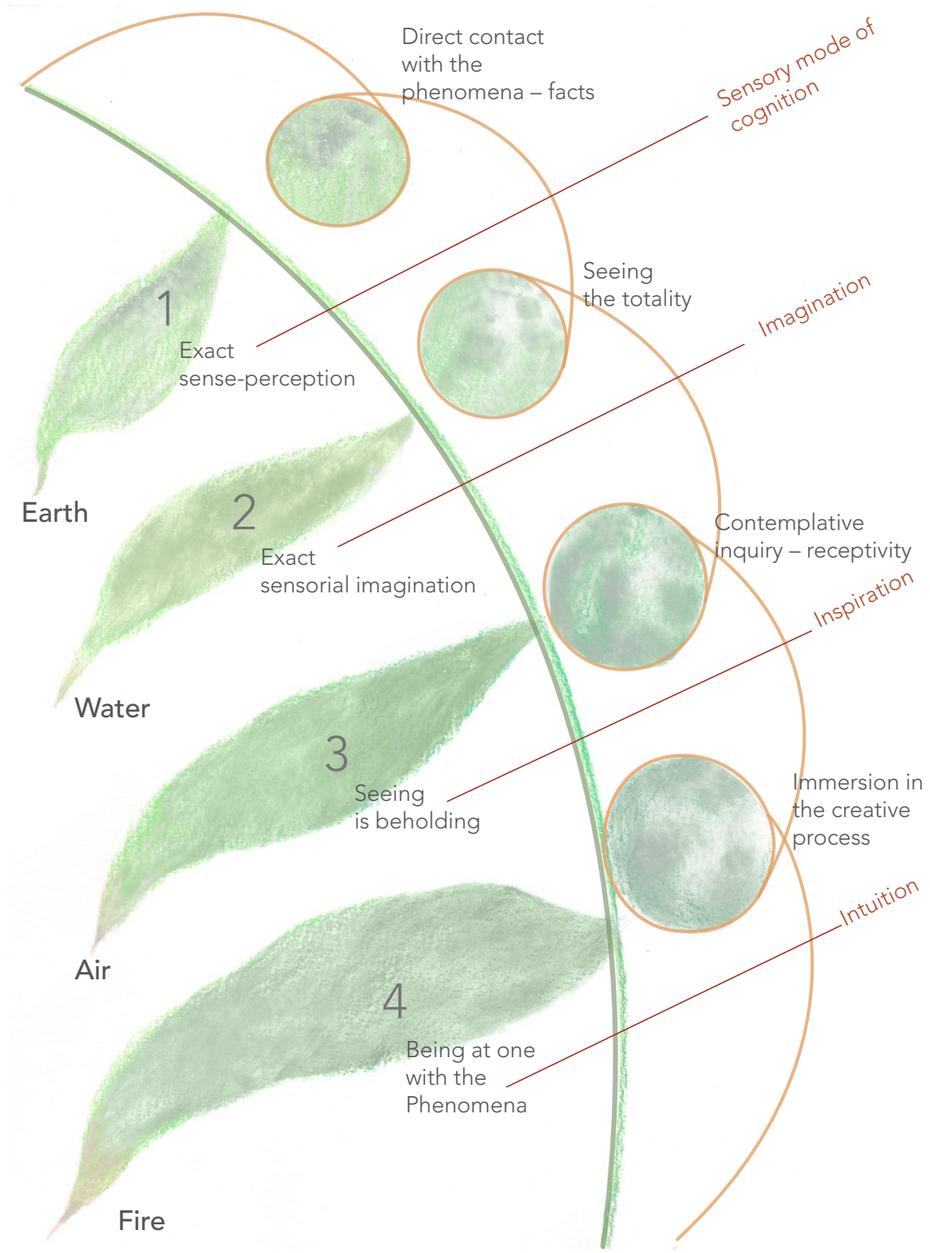


Fig 3.8 **The key characteristics of Goethe's "delicate empiricism" in association with the four earth elements (Hoffmann, 2007), and Steiner's (1974) indications: Imagination, Intuition, Inspiration. Illustration: Suskin, 2014**

Chapter 4

Process and Research Findings

CHAPTER 4

"What we see depends on how we look; patterns of matter reflect the patterns of our mind" (Capra, 1989:229).

PROCESS AND RESEARCH FINDINGS: On the way to a Goethean approach to teaching design

4.1 Introduction

My aspiration in this chapter is to demonstrate how the achievement of an integrated design approach engaged students through intensive process-based exploration.

As established in the previous chapters, my aim is to engage the student as a participant in the world and promote a sense of responsibility by facilitating processes that prompt a living relationship with their surroundings. In this way the designer will, with deliberate intention, seek the patterns and interrelations that constitute connectedness. Relating to the research questions I explored, Chapter 4 draws heavily on process; distilling and crystallising the results of a seminar and workshop. Agnes Arber (1950) a noteable holistic thinker posits that the above procedure would be in line with any "scientific research", but adds one other course of action, which is to examine the research in terms of larger issues which include, scientific, historical and philosophical questions. My research aim was to establish processes in learning, which moved seamlessly between the "larger issues" or considerations, all the while, expanding knowledge and increasing mental fitness. The method values new ways of perceiving and re-visioning the future, thus leaving the traditional, and safe confines of what we know. Instead we enter into the vastness of a more intuitive, subjective and explorative space, which I see as The Wild.

The Ensembles described in this chapter were developed out of a combination of empirical and intuitive exploration. As the Ensembles are interdependent it has been "an agony to decide what to privilege, not because it is then artificially the most important but because it is projected without the benefit of the other themes" (Nelson, 2009:157).

Therefore it is important to see each Ensemble in relationship to the other. The Ensembles serve to transcend the limitations of thinking right from the start by positioning the student in a broad learning landscape that appeals to their relative autonomy. Due to the limitations of the research I will present the first Ensemble: *The Original Thinking – Art history and biography*, as I did in 2013. The name of this Ensemble changes slightly depending on its application, for instance, the stand-alone seminar I facilitated at CPUT was called *The Original Thinking – biography seminar*.

I will also give a brief overview of how I improvised with the Ensembles to craft *The Cross-Pollination Workshop*, which also took place in 2013. I provide an overview of the Ensembles so that a vision of the whole constellation can provide a backdrop, or the context for understanding their sequence (Refer to Appendix – B to view the outline of the original six Ensembles and Fig 4.1 for the diagram).

4.2 My Inspiration for developing the Ensembles

The Ensembles arose out of my own research, but also out of the inspiration and insights gleaned from a three-week workshop of which, one week was spent in the Towerland Wilderness situated in the district of the southern Cape, South Africa. The workshop, *Observation, Insight and Intervention* (2009) was led by Kaplan and Davidoff who work in the field of social development, and who framed the term "delicate activism"– inspired out of a Goethean approach. The international group of participants were primarily social and environmental activists. My interest in joining the group lay in augmenting the social sciences of a Goethean methodology for design learning.

Another two workshops I attended at Towerland were equally inspiring: *Towards a Thinking which is Alive – Relating processes of transformation and metamorphosis in nature to a deeper understanding and perception of these processes in ourselves and in our social context* (Holdrege, 2011), and *Seeing Nature Holistically: Discovering how a genuinely holistic perspective affects our thinking with respect to every aspect of environmental concern* (Holdrege, 2011). The Ensembles were crafted out of what I experienced in these workshops, and also what I learnt out of multi-dimensional learning processes in the discipline of design. All of this oriented an on-going process of developing the module of inquiry over a four-year period in order to serve a degree course at CPUT. In each Ensemble I identified key themes, processes, exercises and values which I have simply listed in point form, under the heading: *Aims, themes, processes and value propositions*. Due to the limitations of the thesis, and my aspiration to show the work as a "whole", I have had to give a cursory explanation.

4.3 The Ensembles

Each Ensemble was created as an interdependent, yet stand-alone teaching module with the vision of infusing design with living processes, and enhancing mental and perceptive activity. The first Ensemble of six, *Towards Original Thinking – Art history and biography*, I presented as a stand-alone seminar, and offer it here to give an example of the full content. The group of studnets for this seminar constituted of an interdisciplinary group of fourth year design students from the disciplines of Surface, Industrial, Fashion, Graphic and Jewellery design. Whether it be one Ensemble as in this seminar, or the full collection of six, they usher the student towards a unified self-world, whereby each can take on their unique leadership role as mediator between nature and culture.

Throughout the layering of the Ensembles, I held Capra's quote close to heart: "that the world is not a collection of separate objects but rather appears as a web of relations between the various parts of a unified whole" (Capra, 1989:18). The music term "Ensemble" was chosen as it indicates several parts, performers or players of equal importance, performing together, whereas the term module refers to a unit. An outline of the opus of Ensembles can, as previously mentioned be viewed in Appendix – B. The six Ensembles reference what would otherwise be described as a collection of modules and learning content as well as skills, which ultimately form a framework for an integrated learning. *The Cross-Pollination Workshop* which is described later, was offered as an integration of all six Ensembles.

The themes in the opus of Ensembles as introduced in *The Cross-Pollination Workshop* are:

1. Towards Original Thinking – Art history and biography
2. An Inner and Outer Dialogue – Through the seasons of nature
3. Advancing Design Conceptualization – Through the four essential elements
4. The Archetype – The generative idea
5. The Nature of Design – Sustainable practice
6. Leadership – Inner leadership as necessity for sustainable and responsible design practice

The organisation of each Ensemble sets up an environment within the institutional learning context in which students can emancipate themselves from preconceptions and habitual ways of normative thinking. I will now proceed to introduce *The Original Thinking – biography seminar* as it was presented in 2013 for Bachelor students spanning over the five design disciplines.

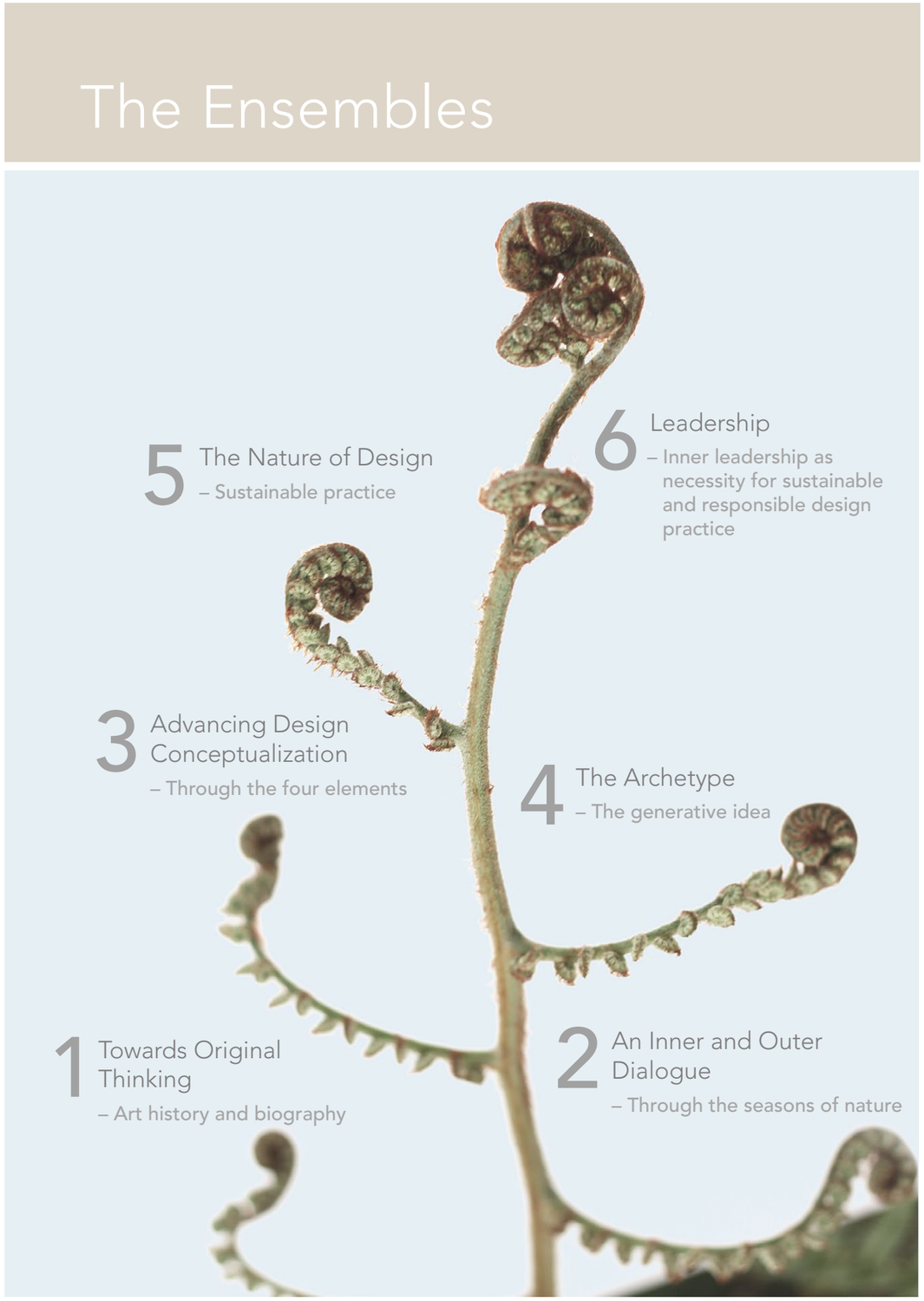


Fig 4.1 **Opus of Ensembles, Cross-Pollination Workshop. Diagramme: Suskin, 2014**

4.3.1 Ensemble 1: Towards Original Thinking – Art history and biography

Ensemble 1 traces the parallels between individual biography and the "biography" of humanity, as epitomized through history of Art. Art history served to emphasize how we shape the world through our thinking and action in relation to the evolution of human consciousness. In addition, Ensemble 1, in its totality, explores the origin of creativity and offers students' different perspectives of looking at life, their lives and ways in which to connect with, and prompt new creative responses. Personal biography is presented as a retrospective of the inner life of the human being and centres significantly on the contextual meaning of being human and "being" in the world.

The Original Thinking – biography seminar was adapted from Ensemble 1, for the BTech context below, and presented in an informal studio space, yet the course content was highly structured. The processes were designed to activate inner reflection through outer engagement. The creative processes and process art stimulated dialogue around new ways of thinking and offered students the possibility to tune into issues of ecology and social re-vitalisation through understanding connectedness. This initiating seminar set the tone for students to become conscious of their individual relationship to reality, to observe how their own beliefs, emotional responses and thought processes contribute to, and affect how meaning is made.

Key characteristics of Goethe's approach were successively interwoven throughout the day's activities. For instance, emphasising how students pay attention and observe deeply. This deep approach made students less susceptible to being swept downstream in a torrent of sense impressions, caught in the undercurrent of unacknowledged societal expectations, or taken by the rip tide of commercialism. Instead they may ask "What am I here for?" and "What am I to use my talent for?"

The three day seminar is specifically directed at fourth year, interdisciplinary degree students in design, and aimed to assist them to acertain their BTech topic for their final year dissertation. This initiating Ensemble sets the precedent for personal enquiry.

A typical day in the seminar would take the form of an early morning social movement exercise, whereby the students gather in a circle as individuals. Slowly, and consciously through movement, I draw their awareness away from themselves to the person on either side of them, and ultimately to the whole group. The students were then requested to find their own "voice" – vocal sound, through experimenting with different sounds, and settling on one sound that they most resonated with. Individually each student held their tone and together they sounded their tone into the group, and beyond. The focus shifted then, from the individual tone to hearing the tones on either side of them, and finally becoming aware of the whole group harmonised, by adjusting their tone where and if necessary. In holding their own tone the students were at the same time paying attention to the whole resounding form. This brought attention to the inter-reliance of self and other; individual and group; centre and periphery, part and whole as a type of rhythmical breathing process. Each student's attention grew by developing a consciousness awareness to the greater, breathing rhythm between individual-other-group and finally the worlds breathing. This was the preparation for the ensuing Ensembles that embraced polarity such as, the seasons of the year and growth and decay.

On the second morning students participated in movement exercises that exemplified the experiences of "inner-outer" – "centre-periphery" relations, as well as engaging with the "directions" of forwards-backwards / up-down / left-right as experiences of orientation in time and space. Eurythmy is the name given to this form of movement practice developed by Rudolf Steiner (Steiner translated by Stott, 1998) for educational, social, curative and artistic purposes. Steiner's intention was to bring awareness to the human being through an embodied experience of the streaming life processes which surround us, and deepen social relationships one-to-another. Steiner considered Eurythmy as the highest art – a social art for the future development of humanity (the scope of which is too vast to discuss here).

On the third day, the movement was oriented to leadership – "leading and following" exercises encouraged individuals to discover whether they were a leader or a follower, or both. The movement exercises were followed each day by an observation and drawing exercise. This exercise entailed a 20-minute observational drawing of their hand for the three day duration of the workshop.

On the following page in Fig.4.2, is *The Original Thinking – biography seminar* programme. The introductory page that accompanies the seminar proposal is presented in Appendix – F.

DAY 1.

09h00 – 09h30	Introduction, social exercise – connecting to others	voice
09h30 – 10h00	Drawing the hand – introduction to Goethean observation	
10h00 – 10h30	Background: Art History as a visual porthole in which to view the unfolding biography of human kind Introduction to *Theory U*	pencil drawing
10h30 – 10h45	Tea / coffee	
10h45 – 12h30	0 – 7 years, early childhood aligned with Art History – artistic activity followed by conversation and active listening	pastels
12h30 – 13h00	Lunch	
13h00 – 14h30	7 – 14 yrs: birth of individuality aligned with Art History – artistic activity and creative journalling	water colour journal
14h30 – 15h00	Reflection: feedback Close	question-naire

DAY 2.

09h00 – 09h40	Social exercise Drawing the hand – Goethean observation	movement drawing
09h40 – 10h45	14 – 21 yrs aligned with Art history – artistic activity	charcoal
10h45 – 11h00	Tea/ coffee	
11h00 – 12h30	Biographical map – exploring creativity and authentic knowing	mixed media
12h30 – 13h00	Lunch	
13h00 – 13h45	Social exercise – working with emergence	clay
13h45 – 14h30	Biography - recognizing phases in uncovering personal /design potential – *Theory U*	
14h30 – 15h00	Reflection – feedback Close	question-naire

DAY 3.

09h00 – 09h45	Social exercise Drawing the hand – Goethean observation	drawing
09h45 – 10h30	Presentation: Lyall Sprong and Marc Nicolson	
10h30 – 10h45	Tea /coffee	
10h45- 11h30	*Theory U* – methodology – creative journalling	journalling
11h30– 12h00	Lunch	
12h00 – 14h00	Earth Activity	
14h00 – 14h30	metaphoric tool – commitment, responsibility and leadership	clay
14h30 – 15h00	Reflection – feedback Close	question-naire

Fig 4.2 The Original Thinking – biography seminar 2013.
Programme: Suskin & van Zyl, 2012

The Original Thinking – biography seminar had the theme: 'Tools for Living' which I gleaned from an article by two young Cape Town designers, Lyall Sprong and Marc Nicolson. The theme of *Improving Life* was integrated into the three-day workshop. The emphasis was on the human hand in evolutionary terms – human beings being the only living organisms with such fine hand-eye coordination. With this in mind, the students were able to recognise the role of the hand as a "more than perfect tool" in our development as *a species*.

This seminar, as previously mentioned was set against a general introduction of art history, personal biography, and human consciousness, which when unfolded made visible the rhythms, patterns, cycles and processes of dynamic change situated in both the inner world of self, and outer

world in which we live. The seminar included the theme *Improving Life* and had as its aim to help students better understand self-world, and to see both self and world as ever-evolving and transforming. The Ensemble made conscious the student's personal context, and connected them to who they are – which is critical if they are to embody that which they care most deeply about.

In the introduction to art history, I described the environment of early humankind and put together an imagination of what it was possibly like to live in these times. This included the qualities of living in close proximity to nature where life is revered. The students were also taken back to the phase of early childhood between years 0-7, and more specifically to the age of three when the child experiences a sense of oneness with the world around them.

Fig 4.3 Chalk pastel drawings that emerged out of the Palaeolithic imagination. Photo: Suskin, 2012

I showed images of early Palaeolithic cave paintings and the hand-prints on the walls of the caves in Lascaux. The students were encouraged to dream into this atmosphere and the task outlined was: within the same dreamy meditative state as the cave dweller, create an "atmosphere" with pastel dust, working with both hands and different coloured pastels. They literally felt their way around the cave, sensing the environment, until out of this dream state there arose the possibility of an antelope emerging out of the atmosphere.

The artistic process supported student awareness and prompted them to look at their development as individuals in increments of seven-year phases until the age of twenty-one (the age of the majority of students) within the larger context of humanity. This process culminated in an investigation of the Renaissance, the flowering period of culture and art in Europe between the 14th and 17th centuries.

In the subsequent exercise, I returned to the theme of the hand as persona. One student, out of the group of 49 students, and part of a group of five, was given a ball of clay. The request was that each student enter into a meditative and intimate relationship/dialogue, similar to that of the pastel drawing of the cave, only now with clay as the material. The task was to "become one with" the material and experience themselves as an integral part of the process of making. Then I invited them, as the ball of clay was sent around the group to sensitively impress a gesture into the clay, paying attention to the sensation and the process, letting go of any preconceived goal, intention or outcome – with their eyes open or closed. They then passed the ball of clay with its imprinted gesture to the student alongside them. The clay travelled around the group until the curiosity was so great that the students who had their eyes closed could no longer do so. As a group they reflected on what they had collectively formed, came to a consensus and named it. This occurred without further direction. The student spokesperson fed back the group experiences, sharing what they felt and thought, not repeating but building on the previously expressed experiences of the other, and how it felt to create an artifact in such an exploratory way, without a fixed idea or outcome.

Overall, when relating the process to design, the whole group felt that they had discovered the power, freedom and responsibility to shape their own processes from an inner place. They reported how liberating it had been to play and "read" with their fingers and feelings, rather than problem-solve with their heads. One student (S-3) commented on how aware she was of the coldness of the clay and how it had warmed up throughout the process: "This made me aware of how I can put my warmth, or better still we can collectively add human warmth to the objects we design through such sensitive exploration". I observed, that most students closed their eyes and appeared to be quite simply, "within" the process. They were less self-conscious, felt less pressurised to "make" anything, and more importantly felt connected in a quiet way to self and to one another. This exercise helped in the practice of letting go of preconceptions, being in the moment and building trust and openness – openness to whatever manifests through the process of metamorphosis and transformation. The form emerged unconditionally and each group commented on how they were content with the outcome and surprised by how, imaginatively, they could "see together" and how easily it was to come to a consensus when naming their form. One group agreed that the form manifested simply through the action of making and being sensitive to the material, and nothing more.

The next step in the programme was to create a biographical map from their earliest memories and to take into consideration three people and three events that had a significant influence on their lives. This process connected them to the seven year phases of individual human development: 1-7, 7-14 and 14-21, and encouraged the students to see their lives as a continuous unfolding. This type of mapping draws attention to the discovery of various patterns or themes that run through their lives, and helped them to view their lives with greater depth. Drawing the strands of their life together succours the student to navigate their way forward, more consciously.

In pairs, the students shared what they were willing to share of these early events with each other. The listening partner was encouraged to offer insights into what patterns they might have perceived in the partners biographical narrative. This type of reflective process offered the students an opportunity to pay attention and to listen deeply, with respect and empathy, with an emphasis on content and listening rather than questioning. While the speaker was afforded uninterrupted time and space to hear and feel their own story, new insight could arise whereby s/he might desire to strengthen or shift the pattern, or particular thread in the pattern, and champion a different path for the future.

Awakening to complex processes means paying attention to fundamental patterns of change, and being receptive and responsive to what it is, as designers, that "we need to design". Various exercises were explored through the practice of Theory U which, I will not go into detail here, as they are described throughout the text in great detail. On the third day Lyall Sprong and Marc Nicolson presented their design philosophy. These two young product designers "do good things via design" and are interested in and committed to the craft of making. Lyall stated, "When we perceive objects as tools for living, a whole world of creative potential is opened up" (Sprong, 2013). Sprong and Nicolson co-create out of their design consultancy, *Thingking*. Not only are they involved in creating new design, but out of a compulsion to meet specific needs, they encourage the use of what is "immediately at hand". Lyall asserts, "We are all born with an inherent design skill". Recently, they opened their studio to the local residents in Woodstock, Cape Town and set up their tools for a "Fixit" day (Sprong & Nicolson, 2014). This initiative was in association with the organization Fixperts, who inspire and encourage citizens to fix everyday problems. The materialisation of the repaired object becomes a shared social contact, and expresses a range of coded meanings through the varied gestures and narratives of the objects, and all those who interact with the process of repair (Sprong & Nicolson, 2014). One man brought in his chair saying that he was not quite sure how to go about the repair since part of the torn seat cover was where he hid his money. With Marc's assistance a money slot was inserted in the wooden frame where he could be safely deposit his cash. Lyall, artist, designer and producer, expands the idea of design for life and the capacity to create appropriate forms for all situations. For instance, "we see chairs as tools for sitting because this is what they were intended for, but have you ever stood on a chair to gain extra height or stored books on the seat? When is a chair not a chair?" Lyall Sprong posits that perceiving objects as tools for living opens up a whole different world of creative potential. This broad conception of "hand tool" fortified ideas around the history of the object, its part in social history and how it is also a part of "people constructing tools and using them to interact and change their environment and in the process, change themselves" (Davis, 2006:27). Considering what an object can do, leads us to question what more it could do. The products and services we use to perform mundane daily activities have the capacity to provide us with meaning/satisfaction/pleasure in our lives, that way exceeds their purely utilitarian functionality. Even the most everyday objects can be laden with animistic or affective qualities.

Inspired by my experience with Shelly Sacks (2012), director of the Social Sculpture Research Unit at Oxford Brookes University in the United Kingdom, I adapted one of her processes for the biography seminar which I simply called Earth Activity, after Sacks' *Earth Forum* process. In brief, the students were instructed to go outside, collect a handful of earth, bring it back into the studio, and place it on shared, circular ground cloth in front of their chair where they sat. They were encouraged to saunter in the outdoors until they found, or returned to, out of curiosity, a small area of earth they were drawn to. The request that accompanied them was to focus on observing their attitudes and responses, simply by taking notice of whatever happened and allowing memories, thoughts, feelings and sensations to emerge. In groups of five the students were asked one by one to speak directly to their group, describing the essence of their encounter with the earth. Besides their own images of the earth encounter, they experienced the perspectives of others in the group. Some of these shared imaginings resonated with them and they mentioned that it helped them build a more comprehensive picture of the earth as a whole. One student (I-7) holding a handful of earth commented: "I found it enthralling that some of the feedback was so unusual and unfamiliar to me, that I started to look at my handful of earth again, in a different way." In their groups the students were further invited to share their hopes and dreams for the evolution of the earth, and consider, what they would have to do in order to realise these hopes and dreams. This exercise preceded the lead up to the final process of the seminar. Out of this quiet, reflective space where the students seemed to have developed a strong sense of connection to themselves and each other, they were asked to incubate a metaphoric tool, which could be a harbinger of a positive quality or value that they would like to bring as agents of change. This metaphoric tool would then be placed in a metaphoric, collective toolbox.

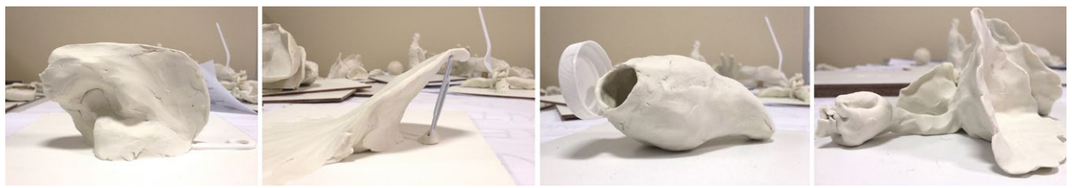


Fig 4.4 Metaphoric tool modelled in clay. Photo: Suskin, 2013

The students brought their idea of the metaphoric tool to tangible form through modelling clay, discovering values and qualities that they felt could personally contribute to the world positively. The named value the students gave to their metaphoric tools can be found in the matrix on page 94. I proposed that these "tools" could be used to buttress sustainability and help each of

them to expand their ideas of what constitutes first-rate design. The "tools" were placed in a "toolkit" for all to share in future design processes. The seminar drew to a close with the final day's questionnaire.

Fig 4.5 A toolkit of metaphoric tools for re-designing the future. Photo: Suskin, 2013

4.3.1.1 Overview of The Original Thinking – biography seminar

The biography seminar explored integrated paths into broader contexts of world responsibility. The creative processes stimulated dialogue around new ways of thinking and offered the potential to tune into issues of ecology and social re-vitalization through understanding connectedness.

Students were given authentic experiences in which to engage beyond the borders of self and discipline, discovering for themselves what is critical if they are to realise a future, which embodies what they care most deeply about. A pre-condition to authentic learning is self-knowledge and the ability to think in new forms. This is not negating old existing forms, as previously mentioned, but critically evaluating and allowing space for new impulses to arise for positive future action. The above Ensemble considers layers of meaning drawn directly out of history (the world's biography) and life experience (personal biography). I was surprised by how openly responsive the students were of the presentations, and how readily they grasped the relational unfolding of the world's evolution and the human being's unfolding of consciousness as a unity. One student (F-5) breathed out deeply at the end of the session, "Gosh", she said, "I have never thought about human life in this way before! Weaving history, personal biography and human consciousness together. It does all belong together, it does makes sense." A moment of magic, a moment of seeing the living connections and interrelatedness through experience, and in so doing, bringing a changed life view within a culture so deeply entrenched in object thinking. What was asked of each student, was no small task. Rather, than being detached, passive observers, students were challenged to become engaged participants – actively involved in the processes of transformation.

The larger, continuing movement of civilization was presented in the seminar as the bigger context, while consciousness, and biography were embedded in the process. The introduction of Art history signified how one art movement emerges from its predecessor, and this served to cultivate creative capacity for "seeing" the continuous unfolding of human society as a fluid development. Biography, on the other hand, instates the student as engaged in their own becoming, to "listen to what life calls you to do" (Scharmer, 2007:379). One student questioned the responsibility of moving forward, more specifically, how to work with the future as it emerges? The Earth Activity which, involved collecting a handful of earth, facilitated this step, prompting the students to act from their heart. The exercise connected them with the tangible actuality of earth, to each other in the group, through sharing experiences, and by implication to the rest of humanity, and all life on earth. This inner process endorsed collective capacity for greater socio-ecological responsibility, and awareness. It also brought into focus the inextricable role we play as designers in the unfolding future of the world.

The fundamentals of each learning experience are listed from now on at the end of each Ensemble under aims, themes, processes and value propositions.

4.3.1.2 Aims, themes, processes and value propositions

In a learning environment where the emphasis is on self-development, *The Original Thinking – biography seminar* permits meaning and understanding to emerge through deep processes of engagement and self-reflection. Value is given to personalising process and the ability to arrive at interconnected decisions, which recognise problems don't exist in isolation. The overarching fundamentals of this Ensemble are, namely:

- a questioning attitude towards exploring personal culture – context
- questioning existing mental models and belief systems

- being witness to emotional responses – developing empathy
- breaking free from mechanistic, reductionist thinking – to a thinking in continuous pictures
- turning points – letting go of the old and making way for the new
- making process conscious – through Art history and biography
- discerning the underlying narrative or patterns – mapping and reflecting subjectively on internalised patterns
- seeking meaning in cultural production – students arrive at their own theories through practice
- transformational development – awareness, leadership and integrity
- finding our place in the world – social and cultural positioning – a participatory and co-creative role in developing future values
- taking ourselves consciously into the design process – as opposed to arbitrarily being swept up in an aimless fashion
- a shift from object thinking to living thinking – transceding the dichotomy of self-world
- bringing thinking and perception together to experience the depth of the unfolding whole – renewing a sense of responsibility – breathing living process into design for re-visioning and shaping culture
- exploring the significant role of the designer/maker towards a greater realisation of self and responsibility

Engaging the students from the start with a broad-brush stroke panorama of evolution through Art history served to make visible the footprints of civilization. As these were brought into focus so was the student's personal biography. The laying of a foundation for a holistic pedagogy requires the teacher's artistic capacity to connect "the students with the living body of the knowledge" (Nachmanovitch, 1990:20). Thereby the student's innate integrity is awakened by means of paying attention to personal process and transformation. Acknowledging this fundamental link could grow a new curriculum. The practice of imagining intermediary stages, for instance between the different seven year periods brought forth in the students' an awakening as to how, through deeper, more contemplative observation, we can better read the underlying patterns and understand complex living systems.

Furthermore, presenting current global concerns against the backdrop of human evolution stimulated the student's ability to respond to contemporary issues by looking at the present worldview and then imagining what a future view might look like. Students were encouraged to form independent thoughts and ideas, enter into discourse with fellow students, and integrate their feelings, thoughts and ideas towards taking action for the common good.

This seminar was a perfect resource for setting up a discourse, which was integral to the other Ensembles. It served to transcend the limitations of thinking right from the start by allowing facts – those of Art history – to be viewed with other evolving streams, such as personal biography and self-development, as facets of one and the same "jewel". The processes also empowered the individual students to acknowledge their relative autonomy and value their perceptions. As previously mentioned, the four stages of Goethean observation are woven throughout the opus of Ensembles. For instance, fact finding in the history of Art – Exact sense-perception, or experiencing the patterns of growth in the biographical mapping exercise – Exact sensorial imagination. The clay exercise and The Earth Activity was aimed at an experience of the third and fourth stages – Seeing is beholding and Being at one with the phenomenon. Each Ensemble immersed the student in all four stages of a Goethean practice.

4.3.1.3 An overview of The Cross-Pollination Workshop – interweaving the Ensembles

As Ensemble 1, *Towards Original Thinking – Art history and biography* was dealt with in the previous section in detail, under the name of *The Origninal Thinking – biography seminar*, I will now, in brief, present aspects of the other Ensembles as they were woven into *The Cross-Pollination Workshop*. The workshop programme demonstrates the versatility and adaptability of the Ensembles as they were presented to 25 participants. The participant's comments are included and referred to as CP (Cross-Pollination)1,2, and so forth.

4.3.2 Ensemble 2: An Inner and Outer Dialogue – through the seasons of nature

In *The Cross-Pollination Workshop* I began with the aspect of biographical mapping, an activity from Ensemble 1. After the biographical mapping activity, I presented Ensemble 2: *An inner and outer dialogue – through the seasons of nature*. No longer bound to the studio, and with diverse participants we entered into nature as if "pilgrims" (Plotkin, 2003:237) in a new land, interacting with the natural world, as if for the first time. Given space and time, each participant was encouraged to get inside the experience and to pay attention to their own thoughts, memories and feelings as they related, to the landscape. The intimacy with, and their sensitive attentiveness to

nature was palpable, as each participant entered into a meaningful, inner dialogue with the living processes of nature.

In solitary silence the participants set out to explore Kirstenbosch Botanical Gardens – the landscape and its uniqueness, connecting themselves with the gestures and qualities of the environment itself. The inner responses or gestures associated with the participants' experiences were expressed as mark making on a single sheet of paper. Each participant carefully expressed his/her inner feeling in the form of a mark/gesture drawn with a piece of charcoal. The result was a collective drawing that succeeded in expressing different aspects of the scene/landscape as perceived by each individual in a shared moment in time.

Fig 4.6 Gestural drawing at Kirstenbosch Botanical Gardens. Photo: Lawrence, 2012

In order to explore the larger movement and flux in nature I approached the topic through polarity: heaven and earth; night and day; microcosm and macrocosm; root and flower; red and green; self and world; object and subject; concept and percept. In exploring polarities the participants became aware of how each perceived opposite constitutes the dynamic whole. The landscape brought the possibility of drawing the participants directly into an experience and relationship with self-world so that they were open to discovering meaning.

This was followed by a drawing exercise derived from considering the seasons, whereby the participants explored the qualities of each season, one merging into the other. The medium of pastel chalks allowed a visible and tactile merging of the seasons by which, the students were able to "fill in the gaps" between the seasons, and by engaging their imagination, render the whole cycle continuous. I alluded to how the participants were the activators, or mediators of their own processes of knowing, and how, in this context of learning, nature was their teacher, helping them encounter the natural world through their bodies, senses, and experiences – awakening a real interest in the world.

The participants were sparked into an imaginative exploration of a largely unconsidered and unexplored territory. The exploration helped to counteract that of the dominant, positivist science, of seeing in fragments but made it possible to see continuous cycles of life with fresh eyes. With the conviction of self and world as interdependent, "a new caring science might leap into existence" which could be a legitimate form of design inquiry (Leggo cited in Hocking et al., 2001: 261). Below are the aims, themes, processes and value propositions I crystallised from Ensemble 2:

4.3.2.1 Aims, themes, processes and value propositions

The Ensemble: An Inner and Outer Dialogue – Through the Seasons of nature recognises the differences and similarities in life processes and how we can do justice to living processes with innovative and unorthodox design processes, namely:

- a dialogue with nature – landscape as living being
- making conscious participants' interior disposition
- observation of the landscape – experience place-responsiveness
- how we see and what we see – habits and limitations of self
- ecological understanding of the landscape – nature diminishing, impoverished minds
- living processes in nature – living, changing processes, the seasons – moods as seasons and seasonal metaphors in the design process – developing a living language
- I in Nature – Nature in me – a journey of interdependence through the seasons
- metamorphic processes – contraction and expansion – qualities and gestures for each season
- the dynamics of change – climate change, climate as an influence on culture, fashion, food, architecture etc.
- polarities – tension – reconciling opposites, life and decay – autumn leaf falls – spring is already waiting in the bud, the natural order, reading the sequence of things
- stimulating the imagination to render process a continuous
- adusting the inner landscape of self so as to see/do things differently in the world
- making connections that catalyse comprehensive thinking
- conversation – inner-reflective and outer-sharing and meaning making

- the inner world of the designer becomes the outer world of others
- reciprocal relationships – responses that guide a balanced design intervention

Whilst continuing to build participation, awareness, inner knowing and connectedness, I have narrowed the broader landscape, through the seasons, into Ensemble 3 where I shine the light on change processes – metamorphosis and transformation through observing the four Elements

4.3.3 Ensemble 3: Advancing Design Conceptualisation – through the four elements

The following exercises continue with the theme, experience and consideration of the creative interplay of the microcosm (the human being) and the macrocosm (the elemental earth). This Ensemble introduces the four elements, as cognised by the ancient Greeks, and makes clear how new forms of design knowing arise out of a process of awareness and connectivity. Thinking in ways that are interconnective or context-sensitive, as Holdrege posits, is to "think like a plant" (Holdrege, 2013). What appears as an unusual, even illogical statement simply means developing a flexible, integrated form of thinking.

Therefore, ideas are no longer considered rigid, static, and object-like, but, rather are viewed as "growing", metamorphosing and generative (Holdrege, 2013). Practising this mode of living thinking offers designers the possibility to embed themselves in the context, situation or environment and develop the perceptive capacity to design sustainably. This Ensemble included observing the unfolding of a plant from seed to fruit through the four elements – earth, water, air and fire.

Fig 4.7 Exploring the four elements in nature. Photo: Lawrence, 2012

By making reference to the elements as they relate to us, cultivated amongst the students an awareness of the living connection of the human being to his/her environment. As an example of this interdependence, the element of air offers: plants produce oxygen from the carbon-dioxide we release as we breathe out

Through qualitative processes such as those described here, the entire design process can unfold in a life-infused way (Holdrege, 2013). The partcipants considered the continual interaction and coinciding elements, of growth and decay, whilst with their imagination they visualised the metamorphosis of the plant. Each element was metaphorically likened to the design process – for example; fire – intuition (ideation), air – inspiration (creative iteration), water – imagination (process) and earth – protype and artifact. This exercise served to highlight how design processes, move in continual, relational modes, and how important it is to check that the processes are integrated.

In the studio, the participants observed and drew a plant for fifteen minutes over the three-day period. They had to imagine the environment to which the plant had once belonged, and its interdependency on the seasons, the four elements, insects and birds, for example. The exploration in watercolour painting started with layering the elements of earth, water, air and warmth (fire) on water-absorbing paper, and "growing" the plant from seed to flower, through its development phase. This brought the participant into direct relationship with the intersecting qualities of the environment and the plant. The very nature of the media – the fluidity of the water and the plant-based pigments of the watercolour paint – helped suggest and evoke the living quality and movement of the plant as the process unfolded and found expression (Refer to Fig 4.9). In experiencing the temporality of the idea or archetype in the material "footprints" of the growing plant, the participants themselves undertook a journey which, demanded the fluidity of their imagination and culminated in the plant's flowering and production – its quintessential action. What linked the processes of the growing plant to the participant, *was* the participants ability to bring into movement the "constellation of footprints [that] constitute the dynamic whole" (Scharmer, 2007:293). Through their ability, the plants metamorphosis became evident as one continous movement.

The task set out by this Ensemble was to inwardly reconstruct, in an unbroken flow, thinking "with" the process of the plant's metamorphosis as one continuous creation. This exercise offered the participant an opportunity to explore what it means for the designer, whereby, the phenomenon is continually "coming-into-being" (Bortoft, 1996:135), and because of this, how the designer's imagination is constantly summonsed to "see multiplicity in the unity" and the "unity in the multiplicity" (Bortoft, 1996: 134). The emergence of organisation can therefore be viewed as a quality of seeing, a "seeing" that includes the non-physical movement of the phenomena too. Can we develop a similar awareness for the design process, through – ideation, process, prototype, manufacture and product, never loosing our sense for the integrity of the whole.

Another important aspect of this Ensemble was the discrete quality of each element, made evident using metaphor to better articulate dynamic design processes. If, for example the design process became "stuck", then the element of water could be referenced, and its qualities brought to consciousness as a means to enliven and once again, bring movement to the process (Kaplan & Davidoff, 2009). Through following the plant's metamorphosis the students could get in touch with their own process of continuous becoming and transformation. Making these connections, I believe, will develop awareness, which is so urgently needed if we are to design products, that of themselves are informed by, or bear the imprint of a responsible creator.

4.3.3.1 Aims, themes, processes and value propositions

The Ensemble: *Advancing Design Conceptualization – Through the four elements* encouraged participants to interact with the living world informed by dynamic ways of seeing and thinking. In perceiving the characteristics of the four elements, supported by the artistic activity of painting the students were able to recognise the significance of context, and make living associations between the elements and the growth of a plant. Selected aims, themes, processes and value propositions of this Ensemble are described below:

- the qualities of the elements earth, water, air, fire – were explored and experienced in nature alongside Hoffmann's modes of cognition, Goethe's four stages of observation and Steiner's higher forms of perception: Imagination, Inspiration, Intuition
- the four elements in nature were linked to the four human temperaments: choleric, sanguine, phlegmatic and melancholic – participants identified their dominant temperament
- the four elements were associated metaphorically with the design process
- patterns of movement in the four elements were explored – the connection of each element to each other – advancing design conceptualisation through inter-related and overlapping design processes
- each element was related to particular moments or events in the participants' biography, as soul qualities and observational modes
- developing imagination – by observing transitional moments and relationships
- meeting nature qualitatively – looking at process – how a seed germinates and the inner and outer guiding principles – watercolour study – metamorphosis
- identifying the four elements in four different chairs
- opposed to static representation – the living, evolutionary nature of design – relational knowing – context sensitivity
- the elements as gestural language – using metaphor, poetry and free writing
- open questing and finding unifying principles in design processes that are attuned to life
- watercolour study of the plant through the elements – a developmental attitude

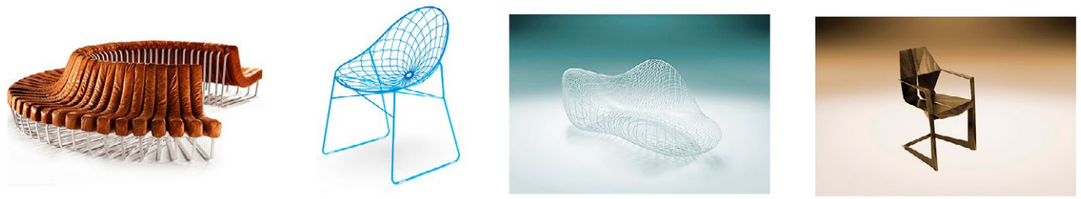


Fig 4.8 Identifying the four elements in Haldane Martin's chairs – earth-water-air-fire
Photo: Martin, 2012

The next Ensemble was centred on the meaning and implications of the word 'archetype' and where it is to be sought.

4.3.4 Ensemble 4: The Archetype – the generative idea

Goethe stated: "from top to bottom, a plant is all leaf, united so inseparably with the future bud that one can not be imagined without the other" (Goethe, 1983:299). This quote suggests taking a closer look at the organising generative idea that forms the phenomenon. This Ensemble introduces ways in which to practise the four Goethean stages of observation and discover the original pattern, or the quintessence of the phenomenon. The practice points to how the generative originating idea can be perceived in every part that forms the whole, which includes a method of seeing drawn from observing the phenomenon in all its depth, and a "thinking by way of relationship" (Ebach, 2005:261). What is distinctive about this thinking is that the leaf is seen as a coherent part of the emerging whole, and within the whole every part is enfolded – the flower included. In this way we get a grip, if only momentarily, on the hidden "Proteus" – that which is concealed to our physical eyes. For this to happen we must be utterly present, interested in and awake to the phenomena we observe – *on its own terms*. To grasp this one must be inwardly awake.

Fig 4.9 **Plant metamorphosis – experiencing the elements as dynamic process – watercolour painting. Photo: Lawrence, 2012**

Theory U is a rigorous methodology based on inner and outer transformation, bringing awareness to practice as a reflective practitioner. The greatest transition in this process takes place at the bottom of the 'U' curve, mid-way between the descent and the upward journey. Scharmer (2006) refers to this as the place of "presencing". It calls on us to be both present unto ourselves and at the same time sensing that we are part of something larger (Maslow, 1971). The transitions point to cyclic continuity and the unfolding development of our being. It is an awareness of process that the exponents of the cartoon genre have tried to work with from a purely "earth" (mechanical and electronic) aspect. They have tried to indicate continuity and development without reference to or even seeming awareness of the more, subtle, invisible streams of energy, growth and movement that characterize living processes.

An analogy with nature is once again apt, as there are "in between" moments which, are concealed from our view unless we use stop-frame photography, but then again this only demonstrates the physical aspect of the unfolding plant. The students experienced the "footprints" of the King Protea (Refer to Fig 4.10) and the Waboom Protea (Refer to Fig 4.12) as they metamorphosed. They experienced that a shift was constantly taking place in the form, size and placement on the stem, of one leaf to the next, or from the bud to the flower. Observing this cultivated an inner feeling for the archetypal gesture of whole plant, which they then drew. The reference to wholeness here is "non-numerical" – it is the "progressive expression of the whole itself and is described as a "multiplicity of unity" by Goethe (cited in Bortoft, 1996:300). No matter how many times the plant is divided it remains whole (Bortoft, 1996:256). Thus "the factual plant is disclosed as being its own theory". (Bortoft, 1996:81). More literally in the design sense of the word "[w]holeness may be thought of as a kind of inner equilibrium, in which all our capacities have been brought into functioning" (Richards, 1989:20). Wholeness is something we must make space for in our thinking and appreciate, as our ability to see more than just the parts. As lyall Sprong so aptly questions in point 4.3.1, "when is a chair not a chair?" I asked the participants: "what would the archetypal chair look like, out of which all other chairs arise"? This leads to questioning, and understanding the relationships implicit in the phenomenon, and finding integrity in the parts.

4.3.4.1 Aims, themes, processes and value propositions

By seeking outer expressions or patterns of complexity in living process, the student can grasp the inner qualities of the phenomenon. Through the exercises in the Ensemble *The Archetype – The generative idea*, a better understanding of the inter-influences that affect holistic design and how dynamic forms can be generated through the guiding concepts below:

- beyond the dualistic subject-object, observer-participant epistemology – seeing simultaneously
- design embedded in culture – product as one aspect of the greater cycle of making
- beyond first impressions – the sum as more than its parts – the creative process
- nuanced, subtle individual moments making up the plant sequence – allowing the phenomenon to express itself – the experience of growth and decay

- seeking meaning and understanding in the inter-influences and relationships
- projective geometry – exploring beyond the boundary of the sense-perceptible
- openness, wonder, inquiry, vulnerability, curiosity, doubt
- discovering the gesture of the phenomena, using creative writing and poetry
- a practice in moving beyond mechanical thinking into a fluid interdependent thinking
- perceiving the archetypal movement and generative idea – integrated functioning of wholes
- the emergence of conceiving genuine wholes – perceptive insight – conscious participation
- relationally responsive design consideration
- wholeness enfolded in the parts – design informed by a seeing that can keep moving and improving, and that grasps change as necessary and inevitable
- change – synthesis – transformation

Ensemble 5 views design as a pro-active path from the perspective of inner responsibility and outer sustainability.

4.3.5 Ensemble 5: The Nature of Design – Sustainable Practice

Taking a closer look at the things we design in relation to their context removes the shadow of abstraction that we place between ourselves, and the world. Engaging the participants with the visible and underlying, invisible patterns of organizational form, leads them to no longer experience themselve as "in here" and the world "out there". Rather, the participant is drawn closer to grasping the synthesis of self with world, as did William Blake. His four lines of poetry encapsulate this synthesis as a goal to strive towards more succinctly than any thesis:

To see a world in a grain of sand
And heaven in a wild flower,
Hold Infinity in the palm of your hand
And eternity in an hour.

William Blake (1757-1827)

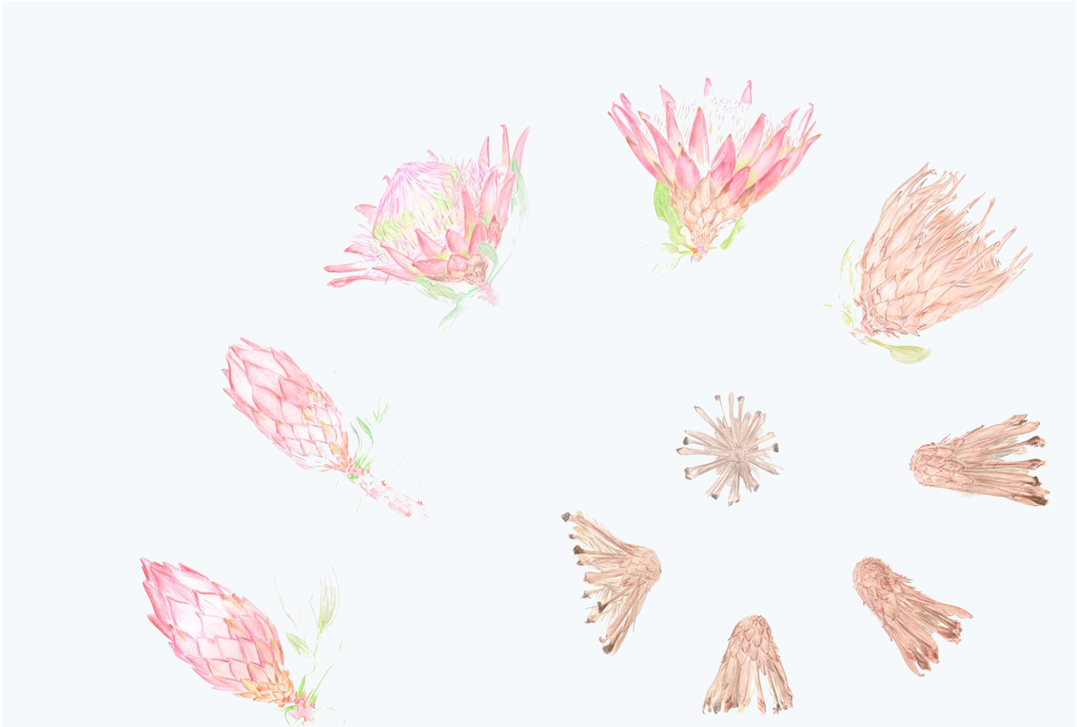


Fig 4.10 **Observational study: The life cycle of the King Protea – an observational drawing: Smith, 2009**

The real challenge lies in being awake and conscious in the moment of confronting design challenges no matter how big or small they may appear. Holdrege (2013:118) questions:

> What would it look like if our thinking and actions were modelled after the way a plant interacts with its environment? We would become flexible enough to actively adapt to what a situation brings toward us knowing that the fruitfulness of our thoughts and work depends on those very circumstances. We would gain an ever-greater sensitivity to the context that informs any given situation, problem or challenge we perceive.

Ensemble 5 explored what unites "creative process in nature with human creative endeavor" (Hoffmann, 2007:73) and revisited Goethe's methodology. Proceeding from a broad Goethean picturing in the earlier Ensembles the participants discovered that what lies at the heart of

Fig 4.11 **Observational study: The lawfulness of the Protea-Plant – applying projective geometry. Drawing: Smith, 2009**

sustainable practice is heart-centred perception. Various exercises such as The Four Directions – looking at the participants' professional practice from four aspects (the scope is too vast to discuss here) stressed asking the right questions and seeking relationships and patterns, which include perceptive and intellectual cognition as we repositon ourselves in our present and future practice.

The developmental processes in the previous Ensembles brought participants closer to discovering the essential patterns that form the way we see, "and because we are never separate from what we perceive, because we are implicit and involved, what we perceive will always be a function of what we bring to it, of who we are" (Kaplan, 2002:177). This Ensemble went on to present the imagining on *Copper* by Wertheim Aymes (Refer to Appendix – E) which relates directly to the design process, and paints a comprehensive picture of interconnectivity. The participants viewed a video produced by the IDEO design team demonstrating a dynamic process in designing a super-market trolley. The design process was inspired by Scharmer's (2007) *Theory U* and demonstrates a collaborative attempt to review the objects use, and re-design the supermarket trolley. The process considers all aspects of user behaviour and offers an all-rounded, inclusive, collaborative approach. After the viewing, participants revisited the *Theory U* methodology and in groups of three, discussed what they had observed and experienced of the design development process and how this may aid their design process in the future.

Kaplan's (2002) imagination from his book *Development Practitioners and Social Process: Artists of the Invisible*, offers a direct experience of the material world. I used his example, to build on Wertheim Aymes' copper study. Having previously observed patterns in nature, the participants were more awake and ready to observe patterns in the immediate man-made world around them. Inspired by the work of Christopher Alexander, Kaplan (2002:176) offers the following exercise:

> Consider, for example, the pattern we call a door. This pattern is relationship among the frame, the hinges, and the door itself: and these parts are in turn made of smaller parts: the frame is made of uprights, a crosspiece, and cover mouldings over joints; the door is made of uprights, crosspieces and panels; the hinge is made of leaves and a pin. Yet any one of these things we call its 'parts' are themselves in fact also patterns, each one of which may take an almost infinite variety of shapes and colour and exact size ... The patterns are not just patterns of relationship, but patterns of relationships among smaller patterns, which themselves have still other patterns hooking them together – and we see finally, that the world is entirely made of all these interhooking, interlocking nonmaterial patterns.

By constructing scenarios such as the above affords looking at things in context. This thought-provoking integrated practice implies the mental immersion of being *in* the process and developing the ability to shift viewpoints. In design terms this means being aware of context,

continuously reviewing and refining the task of the design brief, and creating systems that are interlinking, whole, and sustainable. Below are some of the essences of this Ensemble :

4.3.5.1 Aims, themes, processes and value propositions

The Ensemble: *The Nature of Design – Sustainable practice* offers various exercises through which to practise greater awareness and perceptivity through moving between the different successions of organisation. In observance of the laws of nature a new foundation for thinking, interpreting and understanding could align the design process in better accordance with sustainability – daily "needs" rather than "wants". The main characteristics of this Ensemble are outlined below:

- developing a culture of practice that embraces living systems – inner responsibility – outer sustainability
- seeing things in the context to which they belong, timeless and infinite
- expanding design beyond the confines of a traditional approach with limited parameters – building perceptive capacity for an "all rounded" seeing which is resilient, reverent and respectful for life, and towards a true understanding of sustainability
- exploring nature as a teacher and how to develop capacity for process thinking
- learning to climb inside the process – to be one with it – adjusting the way we see and being informed by the phenomenon
- being aware of what is guiding the underlying intent and questioning and discovering the philosophy/ideology
- in meeting the social and ecological crisis – finding a proactive, exploratory path towards an ecological and socially sustainable future
- developing new insights – synthesis of inner and outer worlds – unfreezing our thinking
- improving our ability to perceive what is needed and to respond with confidence and flexibility to complex situations
- exercising fluid sensing, imagination – underlying intent of the design – conscious awareness and validity of practice aligned with sustainability

The final theme of Ensemble 6 addresses the role of designers as agents of change, and the role of leadership.

4.3.6 Ensemble 6: Leadership – Inner leadership as necessity for sustainable and responsible design practice

As mediator between culture and nature it is essential that the designer attune him/herself to the real issues that confront humanity. The more consciously designers develop perceptive insight tempered by logical reasoning, the more the impetus for true leadership will emerge.

In developing greater awareness around the way they think, students will become more conscious of their thoughts, and transform themselves in the proces. In embracing a wider knowledge, or ways of knowing complexity, it is apparent that a careful schooling is essential, whereby every learning experience has the potential to manifest new ways of seeing and being.

Fig 4.12 **Plant metamorphosis of the Waboom Protea. Photo: Suskin, 2009**

It is out of my need to restore human dignity that this Ensemble unfolds. The tangible nature of these processes asserted and explored the possibility of being able to maintain a steady state of centeredness in a complex and changing world. The key to leadership is the rigour and practice of learning to "see" more of the invisible forces that pattern larger systems and develop a living thinking. This may bring forth a future reality that rests on social and ecological sustainability "because we see our thought life as in process and transformation" (Holdrege, 2013:61).

When taken seriously, every exercise can represent an idealised human dimension. Pallasmaa (2009:109) describes this as "existential exploration in which the [designer's] professional knowledge, life experiences, ethical and aesthetic sensibilities, mind and body, eye and hand, as well as his/her entire persona and existential wisdom eventually merge". This characteristically human mode of doing design makes possible real encounters with the world, initially through interest and curiosity and then through self-reflexive knowledge practices. It enables designers to rise up and meet the qualities of the world in all its essential qualities, and through this meeting, experience their own becoming (Pallasmaa, 2009:127).

Aspects of previous Ensembles were revisited, and reflected upon so as to create a whole picture of *The Cross-Pollination Workshop* as it unfolded. Much like observing the metmorphosis of the Waboom-plant or the King Protea. One of the closing exercises entailed reflection on the participants life and inner place of knowing. These exercises were deeply personal and required working in pairs. "It goes without saying that when pairs work together in this way, trust and confidentiality become key" (Kaplan, 2002:84). It is essential to create a safe space for this type of learning.

Each participant selected four objects from a table of assorted items. Each object they chose had to represent an aspect of themselves and professional practice. Whilst the one partner described the object in relation to his/her design practice the other partner listened supportively, questioning, only in order to clarify. Each had a turn to share experiences. The second task was to develop a relationship with a ball of clay. Through the activity of moulding each participant became aware of how the past is continuously being transformed, and how the future is continually emerging. Again with their conversation partner the participants discussed their feelings and what the process elicited in them, as well as what possible future practice emerged, if any. A movement exercise of leading and following brought this Ensemble to its conclusion. One partner was blindfolded and passive, whilst the other actively lead with their hands placed on the shoulders of their partner. Each participant had a turn leading and following in order to deepen experience through human interaction. They discussed in pairs how it felt to be a leader and a follower – moving with intention, or being moved into the unknown. This Ensemble brought conscious awareness to knowing ourselves better and inner and outer leadership.

4.3.6.1 Aims, themes, processes and value propositions

The Ensemble: *Leadership – Inner leadership as necessity for sustainable and responsible design practice* once again deepens the relationship of self-world and our capacity to observe life, be adaptive and respond through meaningful interpretation. These complex domains are addressed through:

- exploring the crisis of knowledge – improving our ability to respond with Imagination, Inspiration and Intuition – striving for balance resolving the dualism between mind-body, self-world and other dichotomies
- revisiting the processes of growth and decay, letting come and letting go – learning to be flexible and responsive to what is waiting to be designed, and taking responsibility for the shaping of it
- learning to read the context – awake to the creative act of establishing patterns that leads to understanding, and conscious of the values that are embedded in the materialised product or service
- self development – beyond the confines of how we perceive self – getting closer to knowing ourselves – taking command of our destiny – acknowledging our uniqueness, inner strengths and weakness – gaining confidence, courage and persistence – inner leadership
- moving beyond convention – shifting what we believe is possible and turning problems into possibilities
- awakening to manifold learning experiences which nurture integrity and empathy
- unlearning – applying improvisation – contemplating a living thinking – maintaining life's essential dynamic
- an entrepreneurial spirit – an open and questioning attitude – exploring the unknown – examining direction and intent – disciplined commitment
- practising leadership skills through being participant-creators on a journey towards understanding the meaning of sustainability
- cultivating leaders in the field of design whereby products, processes and services have the potential to serve the common good of people and earth.

4.4 The value of the opus of Ensembles

The Ensembles were developed to raise awareness of "I", or "Dasein" (Heidegger, 2003:154), or as Gadamer (1994.154) posits, to "find oneself present in the world". The aim of the opus of Ensembles was to move the student/participant through a series of sequences whereby he/she becomes aware of his/her subjective experiences, but also of inter-subjective perspectives in relation to his/her peers.

The participants' heartfelt interest in the processes, their enthusiasm, curiosity, imaginative ability and playfulness were palpable, as reflected in the matrices (Refer to point 5.5.5). The feedback discussions offered intelligent, healthy questioning, which indicated a future-orientated desire to better understand and explore this way of knowing. I will now describe five characteristics of holistic design knowing which were identified in the opus of Ensembles.

4.5 Characteristics for a fertile ground in a holistic design education

My observations reveal subtle and highly valuable ways of knowing, which could be understood as catalysts for learning, namely: curiosity, playfulness, imagination, creativity and reflectivity.

4.5.1 Curiosity

The pedagogical approaches seemed to inspire in the students an attitude of wonder, interest and curiosity. Many students commented on how they felt like children again and, enthusiastically recalled the first time they discovered something out of childhood curiosity. All the processes outlined above acknowledge that real learning arises from interest and curiosity in daily life. For this reason the coursework refers not only, but in most cases, to natural phenomena. The Ensembles appealed to the students' personal sense of self-life. By touching on past, embodied experiences, the creative activities drew out of the students ways in which to see the underlying patterns of their lives, and encourage them to weave meaning through their personal narratives. The Ensembles successfully tapped into curiosity, and authenticity promoted the freedom to produce original, autonomous work.

Curiosity and interest offer alternative tendencies to prosaic and minimally involved observation and a qualitative inclination to deepen experience, understanding and self-expression. As student (I-9) commented: "in serendipitously picking up a random object off the street", which caught his eye, "it turned out to be a key influence on my BTech research topic in an unforeseen way".

4.5.2 Playfulness

Problems abound that cannot simply be solved by our already existing human capacities, or from the perspective of object-thinking that relies on technological fixes or even environmental laws, as important as they might be. The sustainable solutions proposed in the Ensembles demand rather an "evolving state of mind …" (Holdrege, 2013:2). In the mode of playfulness there are no existing procedures or specific programmes, there is no goal and no fear of failure. Spontaneous play is dependent on creating a safe space in which to explore. Playfulness develops spontaneity in the student and leads to encounters with the unexpected and unimagined.

Play awakens the desire to improvise and question that which otherwise is taken for granted. Therefore, this quality can strengthen critical self-awareness and open up new ways to come upon previously unimaginable solutions to problems. During particular exercises such as the clay modelling, movement and singing the students felt free to play and improvise.

4.5.3 Imagination

When we engage with the world fully, it is our imagination that helps direct the union of concept and and percept. The carefully considered, unfolding format of the Ensembles and associated guided exercises were intended to lead students to develop imaginative capacity and a facility for dynamic picture building. A capacity to imagine, cultivates the ability to perceive more than that which superficially meets the eye, and potentially leads to "seeing" wholeness. This is essential if students are to work within the context of designing meaningful products with a radically new approach for a future, which is emerging, and as yet unseen.

Cultivating imagination is fundamental to all aspects of re-visioning and understanding complexity, and I can confidently say, it is the most critical component of the way of learning that I am proposing here. Imagination *is* the "tool" for discovering wholeness, for seeing relationships and connections and envisioning a new reality.

With each differentiated creative environment I presented, it was safe for the student to experiment, experience, discover, fail, wonder and embark on a journey of self-learning. The pedagogy was aimed at developing inquiry, and included memory, reflection, dreaming, and making conscious, different ways in which to enhance capacity for imagining.

Each Ensemble offered appropriate ideas or imaginations, or a line of thought which, I consider a type of "threshold", as it offered opportunities for transition and transformation. Imagination is

key to making these transitions and overcoming a "stop-frame" mode of thinking, as I previously mentioned.

Collaborative, or peer learning went a long way to adding to and checking findings. Questions arose from all perspectives, and tea and lunch breaks were alive with informal discussions and debates. Various students commented that working imaginatively, inspirationally and intuitively gave them greater awareness and possibility to "re-imagine". As one student (J-4) said, "I became more aware of the broader context of my BTech research topic. Just in the short time of attending [*The Original Thinking – biography seminar*] I feel more excited about how I can link what I am doing here, to my project, or intervention out there."

4.5.4 Creativity and artistry

> Creative processes are the fertile soil for tapping into inner resources and artistry. Playing with colour, as Richards posits, is not undertaken in order to make a painting, but in order to experience how colours look when they are separate, when they touch or flow on a piece of wet paper, how new colours emerge through this interaction, and what new forms they make when they mingle (Richards, 1966:68).

Creativity is a leap of faith into unknown territory, and the key attribute of a creative problem solver is the ability to make the appropriate leaps. It is through a methodology – whether implicit or explicit – that a creative mind can navigate a problem space, know when to make a leap, and determine how that leap will aid in delivering a richer solution (Burke, 2008:46).

By introducing art as process the teacher helps the student to develop a relationship to the world intuitively rather than intellectually. Process art is one way in which to recognise the validity of perceptive intuition. Through the media of artistic expression – movement, clay moulding, poetry and narrative – the students and participants were encouraged to get in touch with themselves and develop an intimate relationship with the subject or phenomenon.

In drawing, the tip of the pencil becomes an extension of the fingertips and in exploring the surfaces, simultaneously shifts between the physical drawing and the non-existent phenomenon (Pallasmaa, 2009:60). Whether it was observing and sketching the human hand; or discovering the gestures inherent in the landscape; a pastel drawing of early childhood; a charcoal drawing expressing light and dark; a biographical map; movement exercise, or a watercolour painting of a plant, every exercise was aimed to enrich and enliven creative experience. Through immersion in processes such as these, deep knowing was accessed, and dialogues struck between subject and object.

The artistic exercises helped each student to delicately "touch" the surface of things in an attempt to grasp the phenomenon's inner lawfulness. Process art is so much more than recording a momentary snapshot, rather, it offers fluid, comprehensive, uninterrupted moments of allocated time in which to enter into activity, imaginatively and deeply, fusing observation, perception and

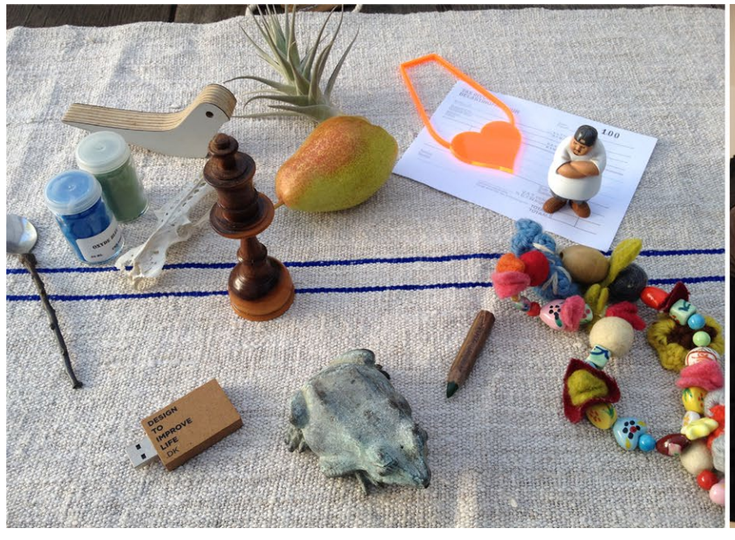


Fig 4.13 **Selection of objects – representing current practice**

Fig 4.14 **Participants working with clay – envisioning the future**

Fig 4.15 **The Four Directions exercise – perspectives on practice**
Photos: Lawrence & Suskin, 2012

logic. Initially I sensed the students did not take the artistic exercises seriously enough. Later in the feedback session, one student (G-7) made the comment: "Initially I felt like being in kindergarten again, and thought the exercises rather childish. I could not understand how these childlike activities related to design. Then, when I formed my metaphoric tool I could sense something of my own self stirring in the clay, and how my thoughts and feelings were working into the clay too, this surprised me and awakened me to the power of process". The physical movement exercises stimulated students to experience polarity, whereby the gestures entered into their muscular memory.

These creative processes need time allocated and a quiet, uninterrupted space. On occasion, external factors influenced student participation, one particular disrupt was caused by the noise of an air conditioning duct, which made it extremely challenging for the students to hear the presentaitons. Otherwise, hearty discussion ensued after activities and well-articulated feedback evidenced that on the whole students/participants engaged with the creative processes with eagerness and enthusiasm. The artistic clay exercise – making a metaphoric tool exhibited student willingness to connect philosophy with an epistemological foundation of human need and highlighted the yearning for self-knowledge. Their interest to explore diverse cultures of learning whereby design could serve the common good was heartening.

It is not easy to measure outcomes such as these. Furthermore the qualitative methods for validating my research could be enhanced by further reflection. Regarding measurable outcomes of the seminar and workshops, and how the long-term impacts could be assessed, would require that I implement further research based on the results.

In what could be perceived as lively feedback sessions, students expressed a renewed sense of wonder for the world in which they live, and in many instances expressed a desire to cultivate a holistic lens with which to calibrate habitual ways of knowing. The concrete realisation of this methodological framework was made explicit in the work of two BTech students, Candice Lawrence (Refer to point 5.8.1) and Micha Chisholm (Refer to point 5.8.2) who attended the seminar, workshop and my BTech supervision.

4.5.5 Reflexivity

If we do not reflect, how can we presume to significantly understand? Time for reflection after authentic experience gives credence to individual and collaborative processes. The sharing among peers of multiple perspectives, and the discussion of intangible and unquantifiable intuitions is very much a part of the process which has to do with being "in the knowing", as opposed to being "in the know". As improvisational musician and author Stephen Nachmanovitch (1990:20), reflects on bringing life into teaching and learning comments: "The teacher's art is to connect, in real time, the living bodies of the students with the living body of knowledge".

Self-reflection, forms an important part of direction-finding and meaning-making and was used throughout the Ensembles. Students were encouraged at all times to reflect on their own thoughts and processes by means of notes, drawings, discussions and to share these reflections with their peers, where appropriate. The questionnaire at the end of each day gave students time in which to reflect on the day's processes. This reflective tool offered me, the educator, the means to access student perceptions and comments by means of feedback. I was able to gauge individual responses, establish when necessary, where to re-emphasize or clarify aspects of the presentation and exercises that may not have been grasped the first time, and readdress them the following day.

This in-built reflective practice took rigour and skill. It meant constantly distilling and crystallising thoughts, as well as paying vigorous attention at all times in order to see, name and describe things for what they are.

4.6 A balanced attitude between inner and outer reality – embodiment

According to Pallasmaa,"today's prevailing educational principles fail to grasp the indeterminate, dynamic and sensually integrated essence of human existence, thought and action" (Pallasmaa, 1995:12). Furthermore Pallasmaa states: "The world is structured around a sensory and corporeal centre, this we recognise in statements such as: 'I am my body,' Gabriel Marcel claims, 'I am the space where I am,' established Noël Arnaud, and finally, 'I am my world,' Ludwig Wittgenstein concluded" (Pallasmaa cited in Cranny-Francis, 2013:16).

The Ensembles and *The Cross-Pollination Workshop* propositions a change of attitude and how through embodied experiences and activities grounded in living processes we may grasp the world essentially as a unit, and each one of us an integral part.

Together the opus of Ensembles support the notion that the real instrument for mastering the future is the student him/herself. In order to change our outer condition we have to change our inner condition. As an educator with a special interest in the nature of contemporary design education and practice, I perceived the need to sensitise designers towards a more balanced ecology of practice. The Ensembles illuminate ways forward in which to do this.

Fig 4.16 **The Cross-Pollination Workshop: The Role of Designer as Mediator between Culture and Nature. Flyer: Clark, 2012**

4.7 Towards a new educational model in design derived from the opus of Ensembles

To reflect for a moment, *The Cross-Pollination Workshop* was designed to expand the field of design knowing and accommodate emerging designers, design professionals and academics interested in exploring integrated systems. The focus was on social and ecological aspects in design. The 25 participants were keen to explore and develop their thinking, enhance professional engagment, and re-enter their practice with more depth and creativity – "I participate therefore I am".

The workshop's aim was to re-ground knowing through lived experience, enabling ways of being in the world, which go beyond what has been imagined or achieved before. For the two design students who attended the seminar, workshop and later my BTech supervision, both developed an approach which was different from that of the other students. When practised the processes offered generative methodologies which in turn offered alternative entry points in which they could dive into complex domains. The common denominator was Goethe's "delicate empiricism". Getting back to the six Ensembles I created a flyer to promote the workshop, which was circulated at the Design Indaba and the Educators' Indaba at the Cape Town Convention Centre in 2012. The workshop was an invitation to students, design professionals, educators and anyone interested in working with living process.

Many of the participants who attended the workshop commented that they would like to have more time to play, to forge more mobile and appropriate responses to the challenges that confront them daily, and to take up a true role in leading design into the heart of a sustainable future.

The methodologies included action learning (Mc Niff, 1999) and particular inductive and deductive aspects of grounded theory (Glaser & Strauss, 1967), such as findings emerging from the data, rather than starting from a theoretical framework. All methods helped immerse myself in the qualitative approach, and out of this various methodologies were used as part of the primary research. I had to also became a cultural anthropologists, situated in life, not in abstract intellectualism.

The workshop helped me rethink the educational context in relation to the virtuosity of existing skills and defined what new or enhanced skills would be vital to designing for the future. This included critical reflection. The designer as a professional is by definition more obscure than other professions, particularly today when design thinking, as it is more broadly known, is applied to re-structuring and re-defining anything from a product to a business or social system. In an attempt to enhance the nature of the profession, I feel it is essential to "design" a pedagogy based

on Reverence for Life, (I use capital letters intentionally) and furthermore, that the pedagogical foundation should be based on exploring where we are in the course of human development, and finding appropriate ways to design for a more balanced future. This entailed challenging the students' every-day perceptions of life and honing new "organs of perception". To some extent this also entailed unlearning instilled attitudes and behaviours in order to widen the parameters of past learning and move students into being more accustomed to, and comfortable in uncharted territories of learning.

Experiential learning and embodied knowing constituted my approach to student participation. The processes were engaged with interest and openness, and each participant was valued for their unique insights and attentiveness. The creative arts and processes offered a number of different learning opportunities. Whether in the form of dance, movement, painting, sculpting, drawing, writing, poetry, singing, story-sharing or making music, the participants tangibly experienced the unknown, and at the same time were aware enough to grasp and internalise different ways of embodied knowing.

A sense of adventure, spontaneous fun, active interest, and at other times intense discipline was required. The workshop methodology was an attempt to approach the world from different perspectives, whether design student, professional or academic.

Some participants commented that the processes had helped them tap into dynamic ways of making sense of their lived world, and supported them to re-figure their own lives and professions. For many of the participants this was truly uncharted territory and for a particular participant, who worked in the creative industry, but was not a designer herself, the approach was rather hard to grasp. Some weeks later though, when I met her by chance, she said that there were moments in her day at work when suddenly something triggered a thought from one of the days at the workshop, and she was able to grasp the meaning. She also commented on how it had inspired her to write more creatively out of the depth of her feelings.

The exercises were remarkable in awakening a sense of wonder for the everyday miracles of life. "As adults we're still just as mystified as we were as children when watching a butterfly alight on a leaf", participant (CP-8) commented. In deepening the participants' quality of attention, awareness and openness, time was given at the end of each day to share appreciatively, critically, responsively and enquiringly. These rounding off sessions were brought to a close so that those who had to leave could do so. But invariably participants stayed to continue discussing insights they had had during the workshop. I found this most telling.

In creating spaces in which to learn in this way, individually and collectively, and where the principles of nature inspire self-organization and transformation, one participant made it evident that he had never thought about life or design in this way before. Nor, had he had the opportunity to look at his biography and discover the underlying threads running through his life, and how meaningful this had been for him. This, he said, "moved me to take a deeper look at myself and it was like a *re-membering* of my body, soul and spirit" (CP-17).

In going over the experiences of a particular day, participant (CP-23) commented that she had become aware of her personal experience as a "kind of soul searching" and that this had helped her "reveal particular values" that she respected. She reported that she would like to "instil these values more deeply into her design business". She further commented that the biography mapping exercise had inspired her to take up journaling again and she felt sure that reflection on this workshop would provoke different work.

Another participant (CP-12) observed how, by paying attention or giving a particular phenomenon her undivided attention, made her feel more adept and effective in reading different contexts. She felt this could help her manage different aspects of her practice with greater awareness, never losing sight of the complex, dynamic and living whole of each of her employees and their unique contributions.

Participants, on the whole responded well to having their worldview challenged and their understanding of self-world stretched, as well as their professional intentionality. The impediments to this way of thinking and "doing" were questioned by another participant who asked, "Just how do we make time for such labour-intensive ways of engagement such as those we have explored here, when so much of our time is spent in consultation with clients, production, marketing and administration?" (CP-16). By asking these questions I believe the participant was stepping beyond the boundaries of her traditional design context, into an individualised awareness of responsibility and freedom.

Another participant (CP-4) offered: "Oh! I guess we just have to exercise our different modes of cognition and ways of doing, everyday, until it becomes second nature". The creative act as encountered in this workshop brings with it inter-relational ways of knowing and doing which ignite inspiration for seeing more holistically. Once we accept that our world is not fully formed and that we are creating it as we go, then it depends on where I am standing, the place where I choose my point of reference to be, all of which determines my stance or role as a designer. The stance I am referring to here takes as its starting point "the whole" which, though it sounds like a paradox, was the focus of the processes. Finally, participant (CP-7) who had been rather quiet up until the end commented: "It is not surprising that we see things as separate and fragmented, but when I look more closely at the world it is possible to see how everything is related, or could be related, if only I thought about it long enough. Standing at Kirstenbosch gardens, within such diversity, beauty and magnitude, I felt assured that I can find my way to wholeness, if I start now."

Richards (1973) posits that the very best way to understand life is to practise it as an art. With this awareness the designer will feel part of the creative processes of life, and have a natural feeling for the materials that s/he works with. This knowledge will inform how to put things together, and in return sustain life, of which we are an integral part.

As teachers, it is not always possible to know what is demanded of us in our own practice, but by paying attention to our inner life, may lead to new resources, inspiration and insights. Turning inward in a collegial sense might enable us to: co-sense, co-create, co-initiate and co-evolve, as Scharmer states (Scharmer, 2007:19), rather than lingering in the habitual mode of robotically fact-shovelling (Scharmer, 2007:viii) out of an addiction to habit.

Richards takes the notion of self-development very seriously stating: "[t]he birth of Person is the aim of Pedagogy" (Richards, 1989:125). Ultimately the task of the teacher is to find creative ways in which to bring students into a living connection with themselves and the pedagogical material whereby the student can translate knowledge into action. The search for authentic learning through an embodied education continues, unfortunately against a bias in favour of the dominant rational mind. Educators must develop in their students the disposition of being effective leaders in the twenty-first century against what Pallasmaa (2009:22) states: "[t]he prevailing educational philosophies regrettably continue to emphasise and value conceptual, intellectual and verbal knowledge *over* the tacit and non-conceptual wisdom of our embodied processes". Both are equally necessary. Imagine throwing a pebble into a pond. The immediately observable effect is a splash. But, the splash, is followed by interconnecting ripples and each ripple progressively eclipses the next. When educators examine thinking skills, surely the focus cannot only be only on the observable facts, but also on the numerous, immeasurable effects, which simultaneously happen on top and beneath the surface. The research demonstrates that cerebral, intellectual reasoning is not enough; we must offer students the possibility of embodying feelings, thoughts and other responses to the phenomena as they are happening, responses that go beyond the intellectual.

4.8 Retrospection

I am only at the "touching" stage of developing my own knowledge in the field of Goethean observation, and acquiring a living knowledge. What is apparent is the need to increasingly "touch" with all my senses, to see more, and become awake. In developing my capacity as a person and as an educator I must strive to deepen my ways of knowing. For both, the students and myself this entailed building capacity to become more involved in the world. With this attitude we can shift beyond the constructs we have esteemed or to which we have become habituated, and move towards "context sensitive concept formation" (Holdrege, 2013:128). This presents a mutual learning opportunity, which extends into the far reaches of design knowing, whereby a seamless inner-outer interaction or dialogue makes thought processes conscious. In this way designers can "[develop] a life-infused way of interacting with the world" (Holdrege, 2013).

As teachers building practice it is important to consider our personal transformation, just as we assist the students in their personal unfolding. Teaching with integrity means paying attention to our own personal processes and transformation. Parker Palmer (1998:3), an educational consultant notes: "good teaching requires self-knowledge, [which is] a secret hidden in plain sight" . We need to constantly 'revaluate' – bring value to the methods of evaluation.

Part of this undertaking is to cultivate imagination and empathy and diffuse the prevailing boundary between self and world. The idea of sensory training is nowadays connected solely with artistic education proper, but the refinement of sensory literacy and sensory thinking has an irreplaceable value in all areas of human activity (Pallasmaa, 2009:134). A social and environmental leitmotif was the continuum that ran through the Ensembles, as was Goethe's phenomenological approach. As one Ensemble developed, so the next unfolded and through successive processes and experiences, creative capacity was built. The Ensembles, seminar and workshop, emphasise new ways of perceiving nature and how each of us is implicit in nature. Goethe's method does not impose a rigid structure on the learning process but affords and encourages flexible, agile ways of thinking that are in line with life. Far from mental abstraction, the observations are taken directly from the phenomenon. Through the artistic medium of writing, poetry, drawing, modelling, painting, and movement, the student embodied experience.

The Cross-Pollination Workshop and the *Into the Wild Workshop* were both designed to question the contemporary role of the designer as mediator between culture and nature, and in particular, to engage participants more deeply in experiences of knowing and understanding. The content builds a foundation for thinking so that as designers we can become more conscious of our thoughts and how our thoughts and actions form us, and affect the way in which we shape the world. The overall aim was to create awareness and facilitate, through dynamic learning processes, ways of designing that are congruent with living in the world.

Chapter 5

Research Findings and Discussion

CHAPTER 5

> "Whereas the intellect defines outer particulars as separate entities and grasps their causal relations, reason participates in organic processes as they bring forth their external particulars and comes to grasp them as manifestations of an inner principle. Its understanding proceeds, through its grasp of this principle, from the whole to the parts, whereas the intellect, in understanding an inorganic event as the result of external factors, proceeds from the parts to the whole"
> (Goethe cited in Barnes, 2000:269).

RESEARCH FINDINGS AND DISCUSSION: An analysis of the opus of Ensembles.

5.1 Introduction

This chapter focuses on analysing the design model, based on the opus of Ensembles. I will attempt a composite documentation that reflects an integrated theory and practice, or better still the practice and theory of a quality of knowing that is simultaneously conceptual-perceptual, a perceiving that constantly returns to the essential relationships and patterns within the phenomenon – the research. It was reading the patterns, that inspired the relational way in which I attended to the research writing. All these considerations contributed to the form of the "whole body" of work in a way, which gives meaning and existence to each of the parts. A phenomenological method cannot be simply assessed analytically or quantitatively, it demands that I describe what I observe/perceive and not what I predicted might happen. I had to remain within the research at all times and this demanded practising Goethe's delicate empiricism in order to keep the study fresh and vibrant.

The learning environments helped the participants to do the same, and to become attuned to dynamic processes that are potentially transformative (Holdrege, 2013:172). In striving for a depth of understanding, which extends beyond apparent boundaries, the students were guided to practice relational ways of knowing. I comment on how my research paradigm crystallised the responses of the students and precipitated in the data presented in the form of the matrices. I am highly aware of the contingent reality of working with academic concepts and also the need to "pursue them with full philosophical rigour" adding to the "methodological fabric" (Nelson, 2009:146), and not reducing findings to a "list of ideas" (Nelson,2009: 151).

I have distilled the core principles of Goethe's phenomenology and presented my specific research findings – this is my original contribution. The findings are supported by salient particulars extracted from the literature.

5.2 The value of the Ensembles: how to obtain a balanced cognition

The Ensembles interweave with one another to ensure that the overall learning experience conveys a mobile, relational attitude. Essentially, they are a "morphology" of thinking where each part or Ensemble "performs", as would an instrument in an orchestra, each one different but of equal importance and whereby all the instruments contribute to the overall "whole" or integrated composition. The core aim of each Ensemble is to stimulate the physical senses through observation and thereby encourage design students to apply sensory and super-sensory perceptive faculties to achieve a more comprehensive and all-embracing cognition of everyday objects and situations. The immersive processes in the Ensembles offer dynamic ways in which to conceptualise design challenges with a balanced cognition arising out of first-hand, embodied experience of the phenomenon before them. Within and outside the academic system, it is critical for students to adopt an attitude of learning by doing (Colquhoun, 1996).

5.3 Sidestepping the dangers of measurement as control

Two quotes that come to mind when I hear the word measurement are, firstly, by Holdrege (2013): "Because a theory is always a limited human notion, it cannot do justice to the complex nature of the world", and the other by Engdhal (cited in Breitfeller, 2010:44): "The largest impediment to awareness is the demand to reach a result".

In referring to phenomenological measurement, Goethe cautions: The risk of "[n]umber and measurement" approached "in all their baldness, destroys form and banishes the spirit of living contemplation" (Goethe cited in Naydler, 1996:66). The need to control outcomes disparages the power of self-criticism and leaves students dependent on external authority and, disbelieving of their own intellectual judgment, devoid of inner authority. Such a position has a tendency to situate the student as an onlooker and curtails active participation. The same can be said of the

researcher who, unless rooted in the immediate experience, as Holdrege (2013:45) proffers, in "active wakefulness" and openness to the richness of the world, can become trapped in passivity.

How else would we know what it is that we "should" design if we are not rooted in the immediate experience and cannot trust our inner perception and authority? It goes without saying that there are times when students must exercise skill in technique, or rigour in academic writing, and it must be measured, yet fundamentally the student must develop the confidence and critical ability to reflect on, and with autonomy and personal independence make appropriate design decisions. In Manzini's (2014) as yet unpublished paper he states:

> Anthony Giddens describes our present society as [a] post-traditional one: a society in which we have to work out our roles for ourselves. Therefore, it is a society in which everything becomes modifiable and experimental; in which organizations (from businesses to the institutions and political parties) are evolving towards new forms whose contours and characteristics are as yet unclear, and the implications of which we still find difficult to understand (Giddens cited in Manzini, 2014:2).

Complementary to learning is collaborative learning, which essentially is learning with others and from the experiences of others. Paying attention to and focusing on a single phenomenon together can be mutually supportive. Allowing group conceptions to arise, discussion and debate around them is considered a phenomenological method of measuring.

The emergent understanding is that experiences are relational and emphasise "flexibility, resilience, creativity, participative skills, competence, material restraint and a sense of responsibility and transpersonal ethics" (Orr, 2004:22).

5.4 Analysis of the findings and the delicately collected empirical data

For the personal empirical data – collected over four years – method and content were worked through continuously in my quest to engage participants more deeply in their learning experiences and understanding of themselves, and the world in which they design. With each pause I enlarged my pool of vision, expanding my awareness and in turn my understanding. Between activities, I sought still waters in which to reflect, clarify and distil insights. These condensed ideas are mirrored in the themes of the Ensembles, and congruently related to aspects of the processes. At times it was necessary to give extra support to some students in order to understand more fully. This demanded that I pay acute attention to how each student attends to what they were experiencing as active participants, in order to access their engagement. Some struggles were, the poor acoustics in one venue, the size of the group, and in particular the inconsistency of attendance in respect to some of the disciplines. For instance, particular pods of students were unable to attend the three-day seminar in its entirety due to other learning commitments, even though it was a prerequisite for *The Original Thinking – biography seminar*.

The end-of-day questionnaires, which I organised in a complex dance of intrigue and discovery, and resulted in the matrices, served as a daily reflection to make conscious the layered processes of the day. I suggested that they carried these into sleep overnight. This particular type of reflection process was made known to each student on Day One (Refer to Appendix – L to view the three-day questionnaires).

As the researcher/human instrument, I delved into human experience in experiential ways by striving to get to the heart of the phenomenological method. The best methods, according to educator Vera Ng Foong Peng (2013:77), are those "that allow human experience to arise in a rich, unstructured, multidimensional way". Most of all, the methods demanded "the researcher's full attention and rigourous thinking" as it is the very activity of thinking that manifests the "organizing activity of the phenomenon" (Bortoft, 1998:241). This activity encouraged and supported me, the researcher, to grasp the phenomenon's true nature, in this case the research itself. Goethe's "delicate empiricism" (Goethe cited in Miller, 1995:307) best describes this method of prolonged, tactful, precise, empathetic, looking and seeing. A method grounded in direct experience (Goethe cited in Miller, 1988:307),and which constantly challenges the observer-participant to make him/herself "utterly identical with the object", so that it becomes "true theory" (ibid.).

The distinctive features of a Goethean approach, according to Brook (1998:52), indicate that there are certain key aspects to the method. These include for instance:

- observing with patience and rigour
- deepening a sense of wonder for the world
- using sensual and emotional awareness to experience phenomena as fully as possible
- attending to connections between phenomena
- acknowledging an ethical dimension to the practice of science

The first encounter with the phenomenon is broad – it is a *first* impression. The poet, writer and philosopher, Thoreau, expresses this broad impression as a "sauntering of the eye" (Mercer, 2009:139). Holdrege describes how Thoreau sauntered, sometimes, for four hours at a time, finally alighting his eye on that which drew his interest (Holdrege, 2011). Possibly the unexpected, and then giving the phenomenon his focussed attention, deepening his awareness, and attending to relationships and connections.

A central concern of the research has been to create learning environments in which profound encounters and experiences can embrace a more intelligent, whole view of learning. Where students are active and receptive participants in the creation of their learning paths. Where moments of insight arise through primary perception and where active, receptive participation has the potential to develop new "organs of perception" – unfolding creative potential, self-reliance and self-realization.

5.5 A combined conceptual/perceptual vocabulary of knowing through method

"As [designers] deliberating upon materials and forms and use and ceremony and non-analytic values and responses, we have the advantage of approaching life at the outset from a [perceptive] point of view" (Richards,1989:9). Out a space of inner freedom, new thoughts and initiative can arise out of a balanced consciousness. Bortoft (1996:60) comments:

> ... when we see the sun and the sky, we usually do so separately. Even if we do notice them together, we do not experience their colors *belonging* together. We experience the colors of the sun and sky in the mode of separation and not in the mode of their unity... [T]he difference between these two experiences is a difference in the mode of consciousness...

Bortoft (1996:306) further posits, that Goethe's phenomenological method brings us to a point of "twofold" seeing – a seeing of "intrinsic connections". Through the methods suggested in the research, students' will learn to cultivate a "different quality of attention", an attention "which sees things comprehensively instead of selectively" (Bortoft:290). In contrast to a mechanical learning which leads to a lifeless replication of doctrines and principles. This replication of doctrines results in the mere (re)statement of dead knowledge. Furthermore, such a process is not able to form living pictures which, have any real importance for the student's development of holistic knowledge, and understanding, neither can it lead to right action (Nobel, 1995:104). A learning which develops knowledgeand understanding out of a living thinking, can be described as plastic, and sensuous, as it awakens imagination, and at the same time recognises the "reality of life that our bodies occupy, notin a weightless and scaleless mathematical space" (Pallasmaa, 2009:99), but a grounded and connected space.

In breaking free from mechanistic thinking, the answer to the design problem will lie in the distillation of something embedded in the phenomenon itself. If it is a "good problem", and we get on the right track, the clues we rely on, will be found within the phenomenon itself, and have a bearing on, and reveal, the solution we are seeking (Grene, 1974:24).

Accordingly, learning as a process of discovery requires "utter concentration on the object intuited without becoming absorbed in it to the point of no longer looking critically" (Spiegelberg cited in Munhall, 2001:101). Attention in this regard must be given to the pure activity of thought itself, so that awareness is strengthened, and the responding lawfulness of the phenomenon becomes perceptible to us. Increasingly designers may recognise the inherent need of what it *is*, that we are required to design.

5.5.1 Explication of the data

Ultimately it is the phenomenon (i.e. the situational context, design challenge, the natural system, organization, and so forth) that reveals the method, and therefore it is up to the student to determine their own methods of inquiry. A sensitivity to context is necessary to feed both a critical sense of the current state of things, and a constructive attitude proposing the values and visions on which to imagine "the new" (Manzini, 2014).

As I made my way through the specified Ensembles, and organised the content of each, so there unfolded a deliberate and relational way of communicating the intent, processes, analysis and findings in a continuous and unified way. Core themes became evident, these were: self-world, inner-outer and the desire to balance the two modes of knowing: concept and percept so as to truly grasp the meaning of process, sustainable practice; and understanding self and others.

In considering the phenomenological approach of my research writing, I tried to keep the general hue of phenomenology alive, by staying in continuous dialogue with the research and not resorting to old methods of reductionism, and breaking into parts. At times, nevertheless I had to keep the feedback concise and therefore used points, key words or phrases. This is most evident in chapter 4, where I refer to the *aims, themes, processes and value propositions*. Otherwise the research had an inherent practical intent: the methodological processes, both explicit and implicit, were realised, and determined in the design action (Refer to Fig.5.3 and Fig 5.4).

5.5.2 Outcomes of the opus of Ensembles and workshop

The Original Thinking – biography seminar, and the opus of Ensembles in *The Cross-Pollination Workshop* point to embodied knowing and being. My co-facilitator Helen van Zyl and I entered into daily dialogue with individual students and noted comments from group feedback sessions. We also made notes throughout the day and reviewed questionnaires from *The Cross-Pollination Workshop*, individually and together. All of these actions comprised the collection of data. As previously mentioned in a set of matrices which, evidence the feedback from *The Original Thinking – biography seminar* (Refer to point 5.5.5).

The following insights emerged:

- Essentially the Ensembles and workshops stretched participants' minds and challenged their understanding of self and world.
- Assumptions were examined, self-imposed boundaries recognised, blind-spots and places of "stuckness" identified so as to develop new vision and reorientation.
- The interconnectedness of ecological systems was experienced as a living experience. The methods offered fresh ways of seeing and practising morphological thinking and emphasised genuine participation.
- The participants showed greater ability to tap into their source of original creativity with self-reliance, to embody life principles, and build a reservoir of resources out of their experiences in the workshop.
- Most participants gained a sense of awe and wonder for the world, and gained awareness of their intimate relationship to the earth – micro-macrocosm.
- The participants were encouraged to realise their unique potential and work from a place of inner – knowing and self - organisation and at the same time how to work with ambiguity and uncertainty.
- The participants developed the ability to school new perceptual capacities for seeing more around them, direct their attention to the phenomena or local context itself, work with ambiguity and uncertainty and see both as inherently creative.
- Collaboration with peers was encouraged - to foster creative learning communities. Dialogue with each other was deepened, as was the potential to verify the validity of their findings.
- Participants discussed, reviewed and reflected on appropriate methods, tools and technologies that could support social change, and which take sustainability seriously.
- Participants were enthusiastic about discovering/rediscovering their passions and developing a new understanding of themselves. They appeared willing to embrace new participative epistemologies, which include; taking ownership of their own learning, the ability to critique, develop moral stamina, learn how to think in integrative and relational ways, work with ambiguity and uncertainty, and act responsibly with far-reaching effect.
- The processes in each workshop met, supported, orientated and activated the living transformative potential of each participant and contributed to acquiring new knowledge.
- Multiple intelligences – Imagination, Intuition and Inspiration were interweaved throughout Goethe's delicate methodology, and served to emphasis a quality of learning and facilitate transformative learning experiences.
- To acknowledge a qualitative, phenomenological stance, demands keen observation and rigour. It is not simple, nor guaranteed of success.
- To develop trust in thinking in more radical terms and to build new foundations for interpreting and understanding the world.
- By developing a participatory relationship to the world, and being more conscious in the design process, participants reconsidered their role as designer and how to design differently in the future.
- Participants accepted the fluidity of life, and seemed eager to respond to social and ecological challenges, in living, creative, critical ways.

5.5.3 Crystallised analysis from the seminar and workshop

A valuable aspect of Goethe's methodology is paying attention to connection, relationship and process. The various references in the literature emphasise the "in-between" liminal space. In-between-ness in this context, emphasised a way of experiencing and "seeing" which, is described by various researchers as the "hidden Proteus" (Root, 2005:237). This skill of which, is to grasp and observe the phenomena as an uninterrupted activity, forwards and backwards. It is also the dexterity to participate in process-orientated, dynamic visualization and increase capacity to think in fluid, iterative, and living ways.

Tim Brown (2009) CEO of the design company IDEO, comments that: "[t]he design process is best described metaphorically as a system of spaces rather than a predefined series of orderly steps. The spaces demarcate different sorts of related activities that together form the continuum of

innovation". Further to this Brown (2008:3) confirms that, "Projects will loop through these spaces in iterative cycles of prototyping, testing and refinement … more than once."

It is the responsibility of education, to inspire participation that challenges the student to look a little deeper, explore the in-between, and in this way stimulate his/her creative imagination. (Winkler, 1960:215). Literature, music and art succeed to work intimately with the in-between space, and values liminal space as quiet, active space.

The challenge was to crystallise the predominantly emotive feedback from the questionnaires, and display the information in the matrices in such a way as to retain the integrity of the comments (Refer to point 5.5.5).

5.5.4 Description of the matrices

The matrices form a catchment for the academic research. The schemas show quantitatively how complex processes are condensed, interpreted and understood by making meaning.

The questionnaires (Refer to Appendix – L) were crafted primarily to collect facts, but more specifically, were used as a reflective process for the students to make conscious the deliberate learning processes they experienced each day, over the three day *The Original Thinking – biography seminar*. As the facilitator, the questionnaires offered me the opportunity to review each day, and where necessary revisit certain aspects of the presentation in order to bring greater clarity the following day. I could, moreover, confidently enlarge on the main themes, gently re-threading if necessary and reorient the course content as I went along. This ensured that each learning component seamlessly formed a comprehensive whole by the close of each day, and over the three day period the seminar could emerge as an integrated whole.

The matrices exemplified the need to correlate the data gathered and hence a cognitive, empirical approach was requisite in order to expose each participant's successive moments of learning. This is typically descriptive of a mental way of categorizing and coding in which respondents express logical facts. Simultaneously the extrication process drew on emergent patterns and codes with which to formalise the responses and although the facts presented in the matrices came into existence through a reductionist stance, it is important to remember that the participant partnered the process. The facts were distilled out of my practice of observation and reflection until a fuller understanding surfaced.

The process of reflection proved mutually beneficial. For student and facilitator alike, the process was indicative of deep learning. I could appraise my style of teaching and acknowledge any gaps between teaching and learning and begin to establish ways in which to systematically evaluate the evidence. With this in mind I entered into discussion with my co-facilitator whereby we were able to determine a critical understanding of the findings, and together establish the value of the learning experience.

This allowed the "emerging theory to shape [my] practice; thus enabling an ongoing, iterative movement betwen theory and practice as they constantly shape another" (Kaplan,2014:2).

The questionnaires linked participant experiences and emphasised paying attention to their authentic learning style. It also brought attention to the discipline of identifying, when they felt adrift, or uncertain in any process, or where they sensed they could have contributed more, or paid better attention, and this promoted an awake and questioning attitude.

Working in groups accentuated the students individuality, culture, social construct, or historical context and gave them an opportunity to hear other perspectives, quite different from their own. Discussion ensued which, highlighted how disparate thinking can lead humanity into deeper global catastrophe, and how each of us holds the potential to lead change.

The metaphoric tool exercise offered new ways in which to experiment and organise, and students individually and collectively recognised how the toolkit could potentially action a change-revolution. Far from being automated processes, the students deliberately explored and reflected on moments and instances from the seminar and workshop, actively taking notes.

The responses I gathered, apart from the questionnaire feedback arose mostly from one-on-one conversations, and group feedback. Some of the feedback is exemplified in the multidimensional, interpretive descriptions below. I specifically made space and time for each conversation, and essentially ensured that there would be no interruptions so that the student felt free to relate out of his/her own experience, unpressurised, offering a continuous narrative. The questions and answers from the three day seminar, as well as my general comments can be found in the matrices. I have purposefully changed the style format for the matrices and will revert back to the orignial style format as I continue with point 5.6. on page 93

The Original Thinking – biography seminar

Cape Peninsula University of Technology BTech Design Students

DAY 1

Surface, Industrial, Fashion, Graphic and Jewellery Design students – Questions 1 to 15 & Students' answers
Researcher's reflections

DAY 2

Surface, Industrial, Fashion, Graphic and Jewellery Design students – Questions 1 to 6 & Students' answers
Researcher's reflections

DAY 3

Surface, Industrial and Fashion Design students – Questions 1 to 15 & Students' answers
Researcher's reflections

PARTICIPANTS (S-SURFACE, I-INDUSTRIAL, F-FASHION, G-GRAPHIC AND J-JEWELLERY DESIGN)

Day 1 – QUESTIONS

PARTICIPANT ANSWERS (S-SURFACE, I-INDUSTRIAL, F-FASHION, G-GRAPHICS, J-JEWELLERY)

		S-1	S-2	S-3	S-4	S-5	S-6	S-7
1	How well did you participate and pay attention today? (5 = full attention, 1 = not attentive)	4	3	3	4	4	3	3
2	When drawing your hand what thoughts / feelings surprised you?	Fine detail that mostly goes unnoticed	Better drawing when only looking at paper	Different perspective on observing	Many	Shape of my hand	Fine details on my hand and patience	Each have a unique hand
3	What worthwhile thought-contribution did you make to any one of the sessions today, or not make, that you would like to make now?	No reply	Childhood memories are very personal	I participated and contributed	No reply	Look further and think more	Could have done more- been bolder	Experience of embodiment
4	Was there a moment when you felt adrift, unsure of what was going on and felt you missed the point / meaning?	No	Yes	Yes	Few seconds	Clay modelling	No reply	Yes, clay modelling
5	Why do you think this was, your experience, and what can you learn from it?	Slow down, notice the details	Unsure	Focus	Journaling, seeing and listening to myself	Clarifying	No reply	Don't like clay work
6	How easy/difficult was it for you in the social exercise (making the hand tool) to let go of the clay model and allow another student to work on it?	Practice collaboration and the solution becomes clearer	I love collaboration	Easy, as I am open to change	Easy	Easy	Easy, I let go and allowed the new form to take shape	Easy, I am open to change
7	In what way do you think the introduction to world-self (History of art and evolution) may help you locate yourself in relation to the future?	Re-evaluate and build on it	Look towards the future from the the past	Be sensitive and observant	Reflection on myself, memory and future inspiration	Understand the past and develop future potential	To be considerate and collaborate	To be conscious of change
8	Do you think you may include the above insights in your BTech research, and how could these insights direct your future development?	Yes, I can improve it	Maybe, by seeing nature differently	Not sure	I can use many of my insights	Yes, to be more open	No reply	Deeply thought provoking
9	Do you think your culture, nationality, sex, race, religion affects how you are able to engage? Please elaborate.	No, its more interesting	No	Yes influences our views and experiences	Culture is a big influence	Yes, all are different	All silimar	Yes, as I am comfortable with myself
10	Write down the title of your pastel drawing inspired by early childhood.	Quack	Before 8	First breath of the ocean and seeing waves	Surprise	Yellow swing set	Backyard	Always a melody
11	What new insight / feelings / awareness did you perceive in reflecting on your earliest childhood memory?	Naivety	Good and bad memories	Nostalgia	Mums love and my happiness	I felt happy	Colour stood out	Open-minded- creative
12	By considering the viewpoints of others whether you agreed or disagreed will ensure an all rounded problem solving approach, do you generally agree/ disagree?	Agree	Agree	Agree	No reply	Agree	Agree	Yes
13	What skill or set of skills could you develop that would make collaboration more possible in the future (refer to the appreciative agreement list)	Being attentive to what's around me	Listening and understanding	Focus more intently	Learning handcrafts together	Ability to speak publically	Ability to be clear in my explanation	No reply
14	What aspect of today's presentation did you value the least, if any?	All useful	Childhood	No reply	None	None	No reply	No reply
15	What aspect of today's presentation did you find most stimulating?	Clay modelling and and pastel drawing	Clay modelling - unusual approach	All, especially the focus on life	That I am unique	Working with different mediums	Creating space for artistic ideas	Childhood memories

PARTICIPANT ANSWERS (S-SURFACE, I-INDUSTRIAL, F-FASHION, G-GRAPHICS, J-JEWELLERY))

S-8	S-9	I-1	I-2	I-3	I-4	I-5	I-6
4	5	4.5	5	4	4	3	3
Difficult to only look at hand and not at the page	Observed each line and pore as if reading my hand	Was scary not looking at the page	Noticed other students found it hard to resist looking at the page	Surprised that my hand worked out well without looking at the page	Maturity	My hand looks old	Scars on my hand triggered memories
No reply	When here I am disconnected from out there	I was unable to say that I could not find my earliest childhood memory	The importance of participation	Randomness produces randomness	No reply	Not sure of the benefit of repetition	Importance of process and adaptability
Absent	Cave drawing	Yes, not easy to shift habitual ways	Always and never as its conceptual	Yes	Yes	Yes, drifted off when the process was slow	Yes
No reply	Emotional engagement- go with the flow	To let go and be open to new experiences and perspectives	Relax and enjoy the process	Being anxious means I am unable to be fully creative	Not of interest	Concerned about my thesis writing, I have done this before	Participation
Easy	Easy, we just added to each others input	Very easy, I made big changes	Easy, though found others input to be minimal	Did not like the form the clay was taking	Enjoy collaboration	Difficult, my idea was misinterpreted by the others	My idea and marks in the clay where misinterpreted
To help me position myself in my life	Develop my own voice	Relate well to pre-historic man	Understanding time/place helps me see where I am going	It is important	Realized how my thoughts have developed	Need realistic perspective, don't grasp philosophical view	The development processes offered many new perspectives
Probably Not	Yes	Yes, aspect of honesty and self-worth	Yes, the future is dependent on past and present knowledge	Abstract thinking has a time and place	No, but developing myself and my skills has been important	No idea, my project is context specific	Yes, design for meaning, not only aesthetics
No	No, love does and interacting with others	Yes, different experiences and interests	Definitely, until you create your own reality	Context and experience differs	No, I am open minded and an extrovert	Yes, I am German – fast, sceptical and a pragmatist	Possibly
Absent	Playground	Tree-house	Climbing	Toy train	Hurley-burley	Our kitchen stoep	Yes
No reply	Excitement	Not sure	Living in the present moment	Nostalgia and respect for parents	Memories	Comfort of being at home	Comfort of a cool wind
Agree, though depends on the problem	Agree	Agree	Depends, dualism and relativity	Generally agree	Depends	Not sure	Agree
No reply	Perserverance	Respect	Listening	Assertiveness	Choose a shared project and share ideas	Patience	Agree
The introductions were too long	None	None	No reply	Clay modelling	No reply	Stating the obvious -claims not proven	Clay
Clay modelling	Clay modelling	Childhood pastel drawing	No reply	Childhood pastel drawing	No reply	Childhood pastel drawing	Drawing the hand

The Original Thinking – biography seminar

Day 1 – QUESTIONS

PARTICIPANT ANSWERS (S-SURFACE, I-INDUSTRIAL, F-FASHION, G-GRAPHICS, J-JEWELLERY)

		I-7	I-8	I-9	I-10	F-1	F-2
1	How well did you participate and pay attention today? (5 = full attention, 1 = not attentive)	5	4·5	3	4	5	5
2	When drawing your hand what thoughts / feelings surprised you?	How detailed the skin is	Fingerprints	Had to resist looking at page	Stories behind the scars	Wear sunnblock to avoid sun damage	Discovered new marks and spots
3	What worthwhile thought-contribution did you make to any one of the sessions today, or not make, that you would like to make now?	No reply	Nothing jumps to mind	The hand is the greatest tool. It can be used for good and bad	Reality is not far from our own mythical thoughts	The focus on process and not end product	Helped a friend understand what was required of her
4	Was there a moment when you felt adrift, unsure of what was going on and felt you missed the point / meaning?	No	Unusual ways to relate	No	Yes, but always understood the task	No, I understood at all times	No
5	Why do you think this was, your experience, and what can you learn from it?	No reply	No reply	No reply	Set my thoughts free	Enjoyed the artistic experience	Enjoyed going back to basics
6	How easy/difficult was it for you in the social exercise (making the hand tool) to let go of the clay model and allow another student to work on it?	Easy	Easy we built on rather than destroyed	Easy, interesting-reveals something of ourselves	Easy	Great creative and social experience	Not easy
7	In what way do you think the introduction to world-self (History of art and evolution) may help you locate yourself in relation to the future?	Looking back to move forward	No reply	Past informs the future	I feel more comfortable in relation to the world	History important in research	Helps when looking at a new project
8	Do you think you may include the above insights in your BTech research, and how could these insights direct your future development?	Yes	Probably Not	Yes	Have already made many of these discoveries	Not really, I have a different focus	Not my Btech but perhaps other projects
9	Do you think your culture, nationality, sex, race, religion affects how you are able to engage? Please elaborate.	No	Yes, these aspect affect your life	Depends on how comfortable you are with yourself	Yes, though more easy nowdays for the youth	No	No
10	Write down the title of your pastel drawing inspired by early childhood.	Beautiful and mysterious	Waterfall in swimming pool	Enthusiasm	Rooi Trekker	Going out to sea for the first time	Family beach days
11	What new insight / feelings / awareness did you perceive in reflecting on your earliest childhood memory?	Childhood is more a feeling than a memory	Childhood memories cannot be put into chronological order	Carefree play	New childhood memories	Joy, nostalgia, happiness	Happiness, good memories
12	By considering the viewpoints of others whether you agreed or disagreed will ensure an all rounded problem solving approach, do you generally agree/ disagree?	Let my mind decide	Agree	Agree	Disagree	Yes	Agree
13	What skill or set of skills could you develop that would make collaboration more possible in the future (refer to the appreciative agreement list)	Patience	Team skills and experience	Perserverance	Listen to others	Patience	To pay more attention, and develop relationships
14	What aspect of today's presentation did you value the least, if any?	Hand drawing	No reply	None	Hand drawing	Cave drawing	No reply
15	What aspect of today's presentation did you find most stimulating?	Clay Modelling	No reply	Clay modelling exercise	Childhood pastel drawing	Clay modelling	Clay modelling

PARTICIPANT ANSWERS (S-SURFACE, I-INDUSTRIAL, F-FASHION, G-GRAPHICS, J-JEWELLERY))

F-3	F-4	F-5	F-6	F-7	G-1	G-2	G-3
5	3	5	3	3	4	4	5
Realised how little I notice my hands and myself	Nostalgia, reminiscing on simpler times	Have not drawn my hand before	How beautiful the hand / body is	Did not know my own body as well as I thought	Personality	Scars, blemishes-evoked memories	Appearance of being older than I am
Being in an unfamiliar situation can be inspiring and thought provoking	Naming the group clay exercise	No reply	Found the name for our group tool	Some do not understand the objective of the workshop and hence do not take it seriously	To think and experience	Perceiving the clay modelling with imagination and no concept	Offered my thoughts on naming the clay model
No, I followed instructions as best as I could	Yes, at times I struggled to hear	Yes	Yes, I thought that cave drawing was pointless	Yes	No	Wondered how the seminar would help me	Begining of clay modelling session, then found it fun
No reply	Memories and feelings are highly personalized	Did not always see the point	Experience is related to my ability to concentrate	Difficulty in hearing due to airconditioning unit,which made student chatter around me	No response	Overcoming distrust when meeting something so radically different and	When uncertain of expectations, learning to let go, and go with the flow
Easy and interesting	I could let go	Easy and fun	Hard, I wanted to make my own model	Easy - about process	Hard to give and share	Difficult, became attached to the creation	Easy, we laughed a lot
Do not need to complicate life, simple is also good	Need to think it over more	More aware of myself as a creative and the value of my contribution	No	Help me to understand myself and how I think	My future is connected to nature	The present affects the future	No response
Yes, my focus is on the relationship between the human being and his surroundings	Unsure	Yes, the aspects of developing ourselves as independent creatives	Maybe the aspects of paying attention, being alert and developing greater awareness	Yes, past understand the future	Yes, the aspects on nature	Yes, reinforces exploration and different viewpoints	To early to tell
No, I see everyone as people	Yes, to some extent	Yes	Yes, different people befriend me because of how I look	Yes, it is a filter on one's worldview	No	Yes, especially race	No
Medication induced nightmare	The hunt	Beetle	Flower power	Close call	Barney my best friend	Happy scamps	Daddy and my toy plane
Sometimes fear is more memorable than happiness	Nostalgia, reflecting on change	Focus, and not a wondering mind	Hard to remember my first memory	Fear, as I almost drowned	Happy, play filled freedom	Positive experience	Miss my father and being a child
Agree, though depends on the group	Yes	Agree	Disagree, I have my own opinions	Depends on the group - generally agree	Agree	Agree	Agree
Listening skills and positive language	Approaching projects with less fixed ideas and more openess	Creative thinking and problem solving	Patience and perseverance	Letting go of preconceived ideas	Listen, brainstorm, share	Perseverance, confidence	Openness, compassion and patience
Enjoyed and appreciated everything	Found all aspects relatively thought provoking	Childhood drawing	Cave and hand drawing	Clay modelling - as my group unlike the others did not take it seriously	Clay exercise	Cave drawing	None
Clay modelling	Childhood drawing	Clay modelling	Clay modelling	Cave drawing and group activity	Hand drawing	Clay modelling	Cave and early childhood pastel drawings

The Original Thinking – biography seminar

Day 1 – QUESTIONS

PARTICIPANT ANSWERS (S-SURFACE, I-INDUSTRIAL, F-FASHION, G-GRAPHICS, J-JEWELLERY)

		G-4	G-5	G-6	G-7	G-8	G-9
1	How well did you participate and pay attention today? (5 = full attention, 1 = not attentive)	5	4	4	4	4	4
2	When drawing your hand what thoughts / feelings surprised you?	Communication- role my hands play as designer	Childhood memories	Floating ideas	"I know like the back of my hand", was given new meaning	Was as if I saw my hand for the first time	Calm and meditative
3	What worthwhile thought-contribution did you make to any one of the sessions today, or not make, that you would like to make now?	Everyone thinks differently, patience	Spirit of teamwork	Learnt about lateral thinking and interdepartmental integration	Felt like a child discovering new things	Essential to connect with the senses	Active in creating ideas
4	Was there a moment when you felt adrift, unsure of what was going on and felt you missed the point / meaning?	No, opened my thinking to thinking "with"	Yes, in the group clay exercise	Yes, clay exercise	Yes uncertainty and confusion with the clay modelling exercise	Yes	No
5	Why do you think this was, your experience, and what can you learn from it?	Imagining the bigger picture, how this may influence my thesis	How, creativity can come out of nothing	To communicate more with each other	Need to trust and it will all make sense	Did not engage deeply enough	No response
6	How easy/difficult was it for you in the social exercise (making the hand tool) to let go of the clay model and allow another student to work on it?	No response	Easy, as great things don't come out of one idea	Easy, all worked as I hoped	Easy, I am not precious - it was a collaborative effort	Easy	Easy team work generates success
7	In what way do you think the introduction to world-self (History of art and evolution) may help you locate yourself in relation to the future?	No response	Past informs the present	Original thoughts and context awareness	Shapes me as a designer	Looking to the future learning from the past	Yes
8	Do you think you may include the above insights in your BTech research, and how could these insights direct your future development?	No	Definitely	May do	Yes	Yes	Yes
9	Do you think your culture, nationality, sex, race, religion affects how you are able to engage? Please elaborate.	No	No	Being a multicultural group helped keep me interested and engaged	No	Yes	No
10	Write down the title of your pastel drawing inspired by early childhood.	My dolls house	The great river	Play	Ivy covered garden shed	Monster	Oh! happy days
11	What new insight / feelings / awareness did you perceive in reflecting on your earliest childhood memory?	All seems possible, and love for those around me	Afraid of drowning	Felt warm, and still am the same person	Memory and photographs get muddled	Left early	Left early
12	By considering the viewpoints of others whether you agreed or disagreed will ensure an all rounded problem solving approach, do you generally agree/ disagree?	Agree	Agree	Agree	Agree	No response	No response
13	What skill or set of skills could you develop that would make collaboration more possible in the future (refer to the appreciative agreement list)	Participation	Communication	Communication	To relate, have compassion and respect	No response	No response
14	What aspect of today's presentation did you value the least, if any?	None	All good	Clay modelling	Completion time of exercises	No response	No response
15	What aspect of today's presentation did you find most stimulating?	Clay modelling	Cave drawing	Cave drawing	All exercises new and exciting	No response	No response

PARTICIPANT ANSWERS (S-SURFACE, I-INDUSTRIAL, F-FASHION, G-GRAPHICS, J-JEWELLERY))

G-10	G-11	G-12	G-13	G-14	J-1	J-2	J-3
3	4	3	3	4	4	3	4
Not good at drawing	Have more lines on my hand than I thought	Importance of my creative hands	I thought I knew my hand, but I was wrong	Lack of co-ordination and reflection	As a jeweller my hands are ever changing	Feelings of doing well and then feeling not as good as I thought	Relaxed
Unsure of what the session was about	Childhood memories	No response	Envoking childhood memories and sharing them	I would like to be more participative	Importance of emotion	Never know where you will end up	Positivity
No, felt like a kid again	Yes clay modelling	When I couldn't hear due to the bad acoustics of the room	When drawing from the perspective of the cave man	When I felt the purpose was unclear	Yes	Yes	Yes
Learn to be more playful	Ask questions in order to understand	Patience and give the process timeprecious	Only later I realised that it was about seeing a situation from the others point of view	Observe, reflect and be concious of one's actions	Disengaged in the listening, only want to do	I should concentrate more and understand quicker	Needed more direction as to what was required of me
Easy - inspired by the unknown	Easy, I was comfortable	I let go, and collectively we were happy with the outcome	Easy and fun	Tried not to get attached	Easy, interested in what can be done when anything is possible	Easy, not sure the others could understand	Easy to be flexible
Inspired by the future	More aware of my identity as designer	World-self evolving	Different perspectives, compassion	Essential in finding my identity	Reconnected me with my home island	No reply	Discovering new idea and inspiration
Not sure	Yes	Yes	Yes	Yes	Exploring my roots	Yes	Not sure maybe
Yes	No	No	No	Yes	Yes	Communication can be difficult	No, listen and respect
Taking a walk with my dad	No response	Explosion	Carousel - piece of cake	Ninja truffels	My first experience of the ocean	Back in the day	Playing with plastic rings
My past can inspire my future	Realized I am more than I imagined	Growing up in refugee camp	Mom, safety, love and warmth	How memories can be recalled	How much I love the ocean	Innocent youth	Sad, missing of someone, loss
No response	Disagree	Agree	Agree	Agree	Agree	Disagree	Agree
Practice	Participate and pay attention	Open minded, giving time to listen to the other	Working will other disciplines	Communication skills	Open mindedness	Social skills	Learning from doing fun things and working in groups
Clay modelling	Clay modelling	None	Clay modelling	Cave drawing	Hand drawing	Nothing	Hand drawing
Enjoyed all	Childhood drawing	Clay modelling	Viewing all things from different perspectives	Reflections on childhood	Clay modelling	Childhood memories	Cave, childhood pastel drawing

The Original Thinking – biography seminar

Day 1 – QUESTIONS

PARTICIPANT ANSWERS (S-SURFACE, I-INDUSTRIAL, F-FASHION, G-GRAPHICS, J-JEWELLERY)

		J-4	J-5	J-6	J-7	J-8	J-9
1	How well did you participate and pay attention today? (5 = full attention, 1 = not attentive)	3	4	4	3	4	4
2	When drawing your hand what thoughts / feelings surprised you?	Discipline and focused attention	Focused on detail	Serenity	Absent	Repetitive nature of hand drawing exercise	It felt natural, I have done this before
3	What worthwhile thought-contribution did you make to any one of the sessions today, or not make, that you would like to make now?	Concerns around our narrow-mindedness	Distracted by external pressures	None	No reply	Previous experiences mould who we are today	Ease of mind, immersion into process
4	Was there a moment when you felt adrift, unsure of what was going on and felt you missed the point / meaning?	Yes	Yes	Yes, pastel drawings	Yes, but I did understand later	Yes, pastel drawing	Yes, clear instructions and enjoyable process
5	Why do you think this was, your experience, and what can you learn from it?	To focus more intently	No reply	No reply	How to let go and explore more	Open minded, am keen to embrace new experiences	Remembering childhood memories and be more playfull
6	How easy/difficult was it for you in the social exercise (making the hand tool) to let go of the clay model and allow another student to work on it?	Easy	Easy	Easy	Easy, free flowing	Very easy, and enjoyable	Fun working together
7	In what way do you think the introduction to world-self (History of art and evolution) may help you locate yourself in relation to the future?	Unsure	No reply	No reply	Absent	Past gives a sense of who you are	Reflecting on past, create something new
8	Do you think you may include the above insights in your BTech research, and how could these insights direct your future development?	Undecided	No, I already know	No reply	No reply	Yes, am working with memory and experience	Yes, drawing on memory to design my future range
9	Do you think your culture, nationality, sex, race, religion affects how you are able to engage? Please elaborate.	Yes, based on our socialization	No, not at all	No reply	Not really	Definitely	Not at all
10	Write down the title of your pastel drawing inspired by early childhood.	Party cake	Injury	Leaf	Absent	Fish pond	Controlled creativity
11	What new insight / feelings / awareness did you perceive in reflecting on your earliest childhood memory?	Warmth of reflection and reminiscing	Fear and pain	Feeling of loss	No reply	Still processing	Growth as a person and coming into my own
12	By considering the viewpoints of others whether you agreed or disagreed will ensure an all rounded problem solving approach, do you generally agree/ disagree?	Agree	No reply	No reply	Agree	Agree, synergy is important	Agree
13	What skill or set of skills could you develop that would make collaboration more possible in the future (refer to the appreciative agreement list)	Interaction	No reply	Communicating	No reply	Open minded	Learning from others
14	What aspect of today's presentation did you value the least, if any?	Sometimes too deep for me	Hand drawing	Presentation of the work	Drawing my hands	No reply	No reply
15	What aspect of today's presentation did you find most stimulating?	Clay modelling	Pastel drawing of childhood memories	No reply	No reply	Future possibility	Cave and childhood memories, pastel drawings

DAY 1 – QUESTIONS

1	How well did you participate and pay attention today? (5 = full attention, 1 = not attentive)
2	When drawing your hand what thoughts / feelings surprised you?
3	What worthwhile thought-contribution did you make to any one of the sessions today, or not make, that you would like to make now?
4	Was there a moment when you felt adrift, unsure of what was going on and felt you missed the point / meaning?
5	Why do you think this was, your experience, and what can you learn from it?
6	How easy/difficult was it for you in the social exercise (making the hand tool) to let go of the clay model and allow another student to work on it?
7	In what way do you think the introduction to world-self (History of art and evolution) may help you locate yourself in relation to the future?
8	Do you think you may include the above insights in your BTech research, and how could these insights direct your future development?
9	Do you think your culture, nationality, sex, race, religion affects how you are able to engage? Please elaborate.
10	Write down the title of your pastel drawing inspired by early childhood.
11	What new insight / feelings / awareness did you perceive in reflecting on your earliest childhood memory?
12	By considering the viewpoints of others whether you agreed or disagreed will ensure an all rounded problem solving approach, do you generally agree/ disagree?
13	What skill or set of skills could you develop that would make collaboration more possible in the future (refer to the appreciative agreement list)
14	What aspect of today's presentation did you value the least, if any?
15	What aspect of today's presentation did you find most stimulating?

DAY 1 – RESEARCHER'S REFLECTIONS

Most students rated their ability to participate and pay attention between 3-4 out of 5; indicating that their participation and engagement were optimal.
Drawing the hand evoked past memories - scars were in some cases were reminders. Out of a reflective mood, feelings arose, sometimes self-critical, otherwise a feeling of connection with themselves.
Diverse responses transpired which reflected thoughts and feelings about how each student contributed in the small groups, and overall.
Most students indicated that they had at one moment or another they felt adrift, either in the artistic processes or in the instructions given.
The students identified what made them feel uneasy or adrift. Besides 10 out of the 49, who could not identify a reason.
All students besides 6 commented that it was easy working in a group and fun to have no personal attachment to the clay model. They expressed an openness to what evolved.
The students were able to embrace the concept of past-present-future in the art-history, biography and the evolution of human consciousness in the presentation. The data indicated that the students were able to think on a deeper and more integrated level.
Half of the group said yes to including insights out of the biography presentation into their BTech. Six students could not see how they could apply it, and one student indicated using the knowledge in future projects.
Cultural and other factors hindering or encouraging participation – 22 students stated that race, religion etc. did not play a role in their lives, 21 stated that it does affect engagement, whilst 7 stated how "being in a multicultural group helped" (G- 6) diverse participation, and another student expressed: "it depends on how comfortable you are with yourself" (I-9).
Identifying their earliest childhood memory connected students to their destiny and out of this a variety of themes emerged.
Students identified feelings related to this period in their lives and comments such as "I realized that I am defined by more than I could have imagined" (G -11).
Most students agreed that different perspectives to finding solutions were beneficial, 5 disagreed and and one commented that it depends on the circumstances.
An extensive list of skills were identified to ensure good collaboration - patience, perseverance, good communications skills, openness, compassion, respect, paying attention, gifting time, clarity of speech, careful listening etc.
The feedback showed - 6 students struggled with the clay modelling exercise, 6 - the hand exercise, 4 - the cave exercise and 2 the pastel drawing of childhood. Other comments were: " I found [the processes] too deep" (J-4) or "I struggled to find the right words to present my imaginative work" (J-6) and " it [the processes] stated the obvious and the claims are not tested and proven" (I-5). Other students found the the program "thought provoking" (F-4) and did not place more or less value on one aspect than another.
The aspect of the seminar most appreciated by the group was the clay modelling exercise, with no predictable outcome. Otherwise the pastel drawing relating to early childhood.

The Original Thinking – biography seminar

Day 2 – QUESTIONS

PARTICIPANT ANSWERS (S-SURFACE, I-INDUSTRIAL, F-FASHION, G-GRAPHICS, J-JEWELLERY)

		S-1	S-2	I-1	I-2	I-3	I-4
1	In the movement exercise this morning you experienced leading and following. In your childhood were you a leader or a follower?	Follower	Both	Leader	Follower	Follower	Both
2	When contemplating your hand in the drawing exercise did you have any particular thought or insight?	Plant	Integration	No reply	Life story	Balance	No reply
3	How present were you today? Did you keep up with the two presenters, without your mind wandering too much finishing off their sentences? (1 = no concentration 5 = full concentration)	3-4	3	4	2-3	4	5
4	During the Earth Activity what surprising or significant thoughts did you have?	Questioning the word "green" and sustainability	Where does the handful of earth come from and where is it going	Polarities and my love of the outdoors, and hate of the thorn	How nature creates out of herself	Nature and earth are one, they need respect	Have less now to do with the earth than in my childhood
5	How important in your view is originality and ingenuity, and is this what we need in designing the future?	Shows new ways forward	Important, but not the main focus	More interested in applying new design processes to what already exits	To bring a balance between nature and ourselves, as well as respect	Reasonably important, also the need to redefine	Very important
6	Do you think you will trust your other intelligences and not only your intellect after doing these processes?	Yes	Yes, more than before	Confirming	Yes	Yes, in order to understand more holistically	Yes

PARTICIPANT ANSWERS (S-SURFACE, I-INDUSTRIAL, F-FASHION, G-GRAPHICS, J-JEWELLERY)

I-5	I-6	I-7	I-8	I-9	I-10	F-1	F-2	F-3
Follower	Follower	Follower	No reply	Follower	Both	Drifter	Leader	Both
Consistency	I don't know	I don't know	Tool	No reply	Expressions of love	No reply	Shape	New places
4	5	4	4	4-5	5	3·5	4	4
Don't interact enough with the earth, insights of others were inspiring	Age of rocks and earth, erosion and climate, reforming	How society evolves, how we develop identities, and how we interact	Experienced the plants suffering and I sensed it wanted to draw me back to myself in balance with nature	Wondered why I picked up this rock and not the one alongside	Tapped into all the intricacies around the theme of earth	Sense of responsibility, embodiment across all spheres of existence	Concern for the disregard of the earth and that the earth is beautiful	Memories of my earlier life on a farm
Nothing is original, ingenuity thrives in crisis	Design thinking can secure our future	Very important in a standardised world, reclaim individuality	World changing – problems global needs all we have got	Originality, pride and inspiration are important	No reply	Very important, new ways of thinking in an alternative world	Generating new ideas is a way of moving forward	Very important
Adds to my knowlege	No reply	Yes	Yes	Yes, more confident about who I am and what I find important	No reply	Yes	Possibly	Yes

The Original Thinking – biography seminar

Day 2 – QUESTIONS

PARTICIPANT ANSWERS (S-SURFACE, I-INDUSTRIAL, F-FASHION, G-GRAPHICS, J-JEWELLERY)

		F-4	F-5	F-6	G-1	G-2	G-3
1	In the movement exercise this morning you experienced leading and following. In your childhood were you a leader or a follower?	Neither	Leader	Leader	Follower	Leader	Follower
2	When contemplating your hand in the drawing exercise did you have any particular thought or insight?	A tree	Texture	Branches	Diversity	Ideal	I can make a difference
3	How present were you today? Did you keep up with the two presenters, without your mind wandering too much finishing off their sentences? (1 = no concentration 5 = full concentration)	5	5	5	4	4	4
4	During the Earth Activity what surprising or significant thoughts did you have?	What attracts humanity to rarity? I selected a red leaf amongst a multitude of green leaves	Positive and negative impacts on earth. My childhood connection with the earth and the experience of joy and sadness	Recognized the weeds and hardship of life, and how miniscule my life span is in relation to a rock	See each part as a bigger picture, become in tune with nature	judgement	The role of earth in our everyday life
5	How important in your view is originality and ingenuity, and is this what we need in designing the future?	Equally reinventing, sensitive to context	Ideas never run out and stay true to yourself	Originality offers new ideas	It is more important what you do with it	Sets the real designers apart	It is important and also originates in nature
6	Do you think you will trust your other intelligences and not only your intellect after doing these processes?	Yes	Yes	Yes	Yes	Surely will try	Yes

PARTICIPANT ANSWERS (S-SURFACE, I-INDUSTRIAL, F-FASHION, G-GRAPHICS, J-JEWELLERY))

G-4	G-5	G-6	J-1	J-2	J-3
Follower	Follower	Leader	Leader	Follower	Both
A starfish without a home	Constants	Growth and collaboration	Interactive	Work in progress	Working hard
3.5 (did not sleep much last night)	4	4	5	3	5
Resources plundered, new awareness	Independent and interdependent	Associations with nature	We are on a treadmill running to demise	Imagine being a rock and being sat on, or imagining what people are thinking	Everything exists side by side, the gravel with the spat out apricot pip
Establishes my personal contribution	Sustains creativity and moving forward	Originality creates originality	More ingenuity needed for altering life	Not so important, rather improve	Everything is original, originality likes to be noticed
Yes, they give us subtle clues	Definitely	Yes	Yes	Yes	Yes

DAY 2 – QUESTIONS

1	In the movement exercise this morning you experienced leading and following. In your childhood were you a leader or a follower?
2	When contemplating your hand in the drawing exercise did you have any particular thought or insight?
3	How present were you today? Did you keep up with the two presenters, without your mind wandering too much finishing off their sentences? (1 = no concentration 5 = full concentration)
4	During the Earth Activity what surprising or significant thoughts did you have?
5	How important in your view is originality and ingenuity, and is this what we need in designing the future?
6	Do you think you will trust your other intelligences and not only your intellect after doing these processes?

DAY 2 – RESEARCHER'S REFLECTIONS

Out of the group of 28 students, 13 discovered they were followers, 8 leaders, 5 both and 1 a "drifter" (F -1).
Some students grappled to find a metaphor to describe their research contribution.
The students' ability to pay attention to the speakers was good, 7- rated full attention, 12 - rated a 4 and the others rated 3 or below.
Sensitive feelings and concerns arose out of the Earth Activity as well as respect and interdependency.
Originality and ingenuity rated high with 18 of the students, that "generating new ideas is a way of moving forwards" (F-2) and "altering life as we know it" (F-1) whilst others felt the need to "improve" (J-3) and "redefine" (I-3).
Out of the 27 students 24 felt that they were more likely to use intelligences other than their intellect after attending the workshop, 2 commented that they could possibly use other intelligences.

The Original Thinking – biography seminar

Day 3 – QUESTIONS

PARTICIPANT ANSWERS (S-SURFACE, I-INDUSTRIAL, F-FASHION, G-GRAPHICS, J-JEWELLERY)

		S-1	S-2	S-3	S-4	S-5	S-6
1	In the drawing of your hand, would you agree that each day you saw a little more?	Yes	Yes	Yes	No reply	Yes	Yes
2	Would you consider using Theory U in your BTech?	Yes	Yes	Yes	Yes	Yes	Sometimes
3	In which case would you be keen to learn more about the Theory U Methodology?	Sometimes	Yes	Yes	Yes	Yes	Yes
4	Do you have faith in global leadership? What are your concerns?	No reply	No reply	Concern: local farming	No, concerned about corruption	Concerns regarding rapid changing technology	Concern: TV and media
5	What is "your" personal world like?	Boxed-in, confined	Enjoyable, challenging	Complex, fast, many expectations	Filled with opportunity definately chance	No reply	Tough
6	What did you name your metaphoric tool?	Nothing	The carving tool	A listening and gathering device	A unifier	Movement	Multi-function
7	Collectively what potential does this toolkit have?	Open our mind	Observe holistically, personal transformation	Yes, honing potential	Creating positive change in the future	Potential to co-create	Do many things
8	What promise for the future does your tool hold?	Mindset of openness and wilingness to act	Embrace essentials in life	Gather information and reflect reflection	Acknowledge inner commonalities	Enabling change through creative thinking	Flexibility and agility - to do many things / capability
9	Did you find working with the other disciplines beneficial?	Yes very, done sooner	Yes, with challenges definately benefits	Yes challenges definately benefits	Yes	Yes	Yes
10	What is the title of your research proposal - even if tentative?	Not sure yet	Rococo refined	Capturing the Casa Labia's history through a design narrative	Synergysing ethnicities	Investigating promotional branding and contextual awareness	Interpretation of symbolism in Italian Renaissance and Kente cloth
11	What lies at the heart of your research?	Benefit children	Sensible future decision-making	Importance of communication	Healthy relationships	No reply	To find deeper meaning through understanding different cultures
12	By expanding your imagination will you increase your ability to become an original problem solver?	Yes, definitely	Yes, definitely	Yes	Yes	Yes, definitely	Yes
13	Has the workshop widened your ability to orientate yourself in the changing world, tackle new problems and face emerging problems?	Yes, possibly	Yes, definitely	Yes, definitely	Yes	Yes	Yes
14	What aspect of the workshop was least interesting?	None	Pastel	None	None	None	No reply
15	What aspect of the workshop was most inspiring?	Clay	Earth Activity and biography	Earth Activity	Appreciated the interconnectedness of all processes	Theory U and guest speakers	Gesture drawing

PARTICIPANT ANSWERS (S-SURFACE, I-INDUSTRIAL, F-FASHION, G-GRAPHICS, J-JEWELLERY))

I-1	I-2	I-3	I-4	I-5	I-6	I-7	I-8
Yes	No reply	Yes	Sometimes	Yes	No reply	Yes	Yes
Yes	Yes	Yes	Yes, definately	Yes	Yes	Yes	Yes
No	No reply	Yes	Maybe	Yes	Yes	Yes	Yes
Concern: race issues, ineffective leadership	Concern: violence	Concern: internet fraud, abuse, political instability	Concern: nepotism	Concern: global economic mis-management, lack of leadership	Concern: lack of morals, ethics, post-modern, nihilism	Concern: revolution	Concern: lack of acknowledgement for brilliance at CPUT
Fun and fast	Exciting, filled with possibility	Calm or wild	Mostly positive	World of discovery, mostly self-discovery	Stimulated, enraged and grieved	Student did a drawing depicting his / her emotion	Observant, zoned in on,circumstances, actions, effects
Maintain living	Seed	Process	No reply	Vessel	Compromise	Centre	Action
To aid thought process	Broaden consciousness	Connect and interact with society	Make changes for the better	Do anything	Open up and, promote peace	Aid for a unified movement	Freedom and responsibility
Support and healthy ambition	Inner satisfaction and outer beauty	To continuously revise processes of making and purpose	Contribute to positive change	Creating balance, purpose and meaning	Break down exclusivism	Freedom and responsibility	Freedom, love and personal agency
Yes	Yes	Yes, fresh perspectives and views	Same discoveries, others perspectives	Yes, cultivates empathy and understanding	Yes	Yes, other people	Yes, incredibly so
Modular handlebar grips for the community market	1.Workspaces 2.Urban farming using permaculture	Social and ecological upliftment	Not sure yet	Not sure yet	Not sure yet	Not sure yet	Upliftment of rural settlements and sustainability
Love of cycling	Environmental awareness and self-awareness	Alleviate suffering and the causes thereof	Supportamd encouragement of others	No reply	No reply	No reply	Absent
Perhaps	Yes	Yes	No reply	Yes, definitely	Yes	Yes, definately	Absent
No	Yes and no	Yes	Yes, definitely	Yes, definitely	Yes	Don't know	Absent
Talks too long	Talks	Speakers presentation was good, but too long	None	Hand drawing	No reply	Too much emphasis on responsibility	Social exercises
Honesty, and the deep reflective quality	Metaphorical tool	Dawning of a new paradigm - art history, biography	Self-reflection, biography	Clay modelling	The metaphoric tool	Guest speakers talk	Absent

The Original Thinking – biography seminar

Day 3 – QUESTIONS

PARTICIPANT ANSWERS (S-SURFACE, I-INDUSTRIAL, F-FASHION, G-GRAPHICS, J-JEWELLERY)

		I-9	F-1	F-2	F-3	F-4	F-5
1	In the drawing of your hand, would you agree that each day you saw a little more?	Yes	Yes	Yes	Yes	No reply	Yes
2	Would you consider using Theory U in your BTech?	Sometimes	Yes	Yes	Yes	Yes	Yes
3	In which case would you be keen to learn more about the Theory U Methodology?	No reply	Yes	Yes	Yes	Yes	Yes
4	Do you have faith in global leadership? What are your concerns?	No reply	No faith, in global leadership	Concern: to develop personal leadership	Need to challenge conventional forms	No, poor leaders	Concerns around rural development
5	What is "your" personal world like?	World of struggle	Healthy and happy	Happy/motivated driven	Happy, success and world of possibility	Chaotic, empathetic, wrong - doing that hurt my heart and spirit	positive
6	What did you name your metaphoric tool?	Filter	Hat	Dualism	Stability	Cocoon	The awakening
7	Collectively what potential does this toolkit have?	Improved consciousness and relations with each other and the world	Activate thinking	Helps motivation	No reply	Changes from within, negitive to positive	Youth empowerment
8	What promise for the future does your tool hold?	Improve consciousness and relations with each other	Continual growth	Facing future challenges in a balanced, positive way	Stability, holding firm	Beautiful vessels containing precious cargo	Hope courage and freedom
9	Did you find working with the other disciplines beneficial?	Yes	Yes valuable	Yes	Yes, respecting ideas and working collectively	Yes, very	Yes very
10	What is the title of your research proposal - even if tentative?	Not sure yet	How ladies commuter wear can encourage a different lifestyle	Sculptural fashion: as a medium of self- expression	Fashion statements using 3-d fabrication	Using principles of good design to enhance life through clothing	Using different techniques to boost versatility in fashion
11	What lies at the heart of your research?	Human centered design	To encourage better living	Environmental awareness	Self-knowledge	Improving life in a considerate manner	Understanding needs of youth
12	By expanding your imagination will you increase your ability to become an original problem solver?	Yes	Yes	Yes, definitely	Yes	Yes	Yes
13	Has the workshop widened your ability to orientate yourself in the changing world, tackle new problems and face emerging problems?	Yes	Yes	Yes, definitely	Yes	Yes, definitely	Yes
14	What aspect of the workshop was least interesting?	None	Pastel	Cave drawing	No least	Childhood drawing	No least
15	What aspect of the workshop was most inspiring?	Metaphoric tool	Theory U and biography	Social processes, creating the tool, biography and earth activity	All, especially collaborative learning	Earth Activity	Earth Activity

DAY 3 – QUESTIONS		DAY 3 – RESEARCHER'S REFLECTIONS
1	In the drawing of your hand, would you agree that each day you saw a little more?	Most participants reported that observing and drawing their hand helped them see more aspects than they were previously aware of.
2	Would you consider using Theory U in your BTech?	The majority of students reported that they would consider adding Theory U to their BTech methodology.
3	In which case would you be keen to learn more about the Theory U Methodology?	Most students showed an interest in learning more about the Theory U methodology.
4	Do you have faith in global leadership? What are your concerns?	Students' commented directly on a general lack of leadership in the world and challenged the conventions. Particular concerns were: rural development and farming, nepotism, political instability and violence.
5	What is "your" personal world like?	12 participants reported positively, I8 commented that their world is filled with concerns such as: TV/media coverage/global mismanagement, lack of moral responsibility, nihilism and racism.
6	What did you name your metaphoric tool?	Participant (F-4) indicated that the value / promise / gift to the future is self-acknowledgement / self-worth. Each participant had their own input.
7	Collectively what potential does this toolkit have?	Each metaphoric tool had an inherent personal value that contributed to the global tool box.
8	What promise for the future does your tool hold?	The promise for the future held different significance for each student, and in some cases was linked to their BTech research theme.
9	Did you find working with the other disciplines beneficial?	All participants commented on the value of blurring inter-disciplinary boundaries. One student (F-3) commented on the need for "collective development" and I8 stated this opportunity as valuable.
10	What is the title of your research proposal - even if tentative?	The exercises identified distinctive sites of interest, but the activity with the most potential was identified as "earth connectedness" which was a ground breaking notion to the students.
11	What lies at the heart of your research?	Most students showed an environmental or social interest which lay at the heart of their research.
12	By expanding your imagination will you increase your ability to become an original problem solver?	Overwhelming number of participants strongly acknowledged the importance of honing imagination in order to become better problem solvers.
13	Has the workshop widened your ability to orientate yourself in the changing world, tackle new problems and face emerging problems?	Overwhelming response from participants acknowledging an improved ability to orientate themselves differently and tackle future challenges with greater confidence.
14	What aspect of the workshop was least interesting?	4 /18 students commented that the guest presentation was too long, 3/18 found the pastel drawing of the cave least interesting. The rest of the students enjoyed and valued all the exercises, with the view of applying them to their future design practice.
15	What aspect of the workshop was most inspiring?	The exercises identified distinctive sites of interest and all activities were aimed to enhance inter-connectedness, which indeed occurred.

5.6 A continued conversation – participant feedback

The practice of conversation was prevalent throughout the seminar and workshop. The dialogic format I used could be adjusted according to how I facilitated the conversation. I may start the flow of conversation with a questions such as : What two things surprised you most in the processes you did today? Continued with: "How did you respond to these surprises" and "Why do you think you responded in such a way?" For the most part I intuited my way freely through the conversation, primarily as a space maker/facilitator. A space maker affords time and space to the conversational process so that in exploring and retelling, the experience can be remembered and the participant can "divine" meaning, that is, "read" the underlying form of the conversation in order to get to the heart of the personal, social or otherwise, design matter.

The four field structures of attention which Scharmer (2009), describes in his book *Theory U* were introduced to the students in the seminar to help them engage in deep conversation, and practise listening. Fig 5.1 illustrates the *Field structure of Attention* according to Scharmer (2007) and below is a brief description of the four structures:

Field 1. I-in-me: indicates that "I" exists in the centre, and around me my world of habits and routines. The first field is associated with downloading, not saying what I think, but rather what wants to be heard.

Field 2. I-in-it: is a move to the edge or periphery of the conversation. From this position I am more adaptive and can experience different and diverging perspectives. I enter more honestly, and openly into debate, now stating what I think.

Field 3. I-in-you: is acting out beyond my usual field, I see myself as part of the whole, I move between the centre and the periphery. The boundary between the outside and the inside, between observer and observed, is porous. This field is more reflective, a space in which dialogue can mutually take place.

Field 4. I-in-now: depicts a shift in intention and self. I enter into the flow of things, into a real meeting and listening with the other. Here in this open space of sensing, the new can emerge.

This is the field in which the generative flow between one person and another can bring about collective creativity and we can find our authentic self (Scharmer, 2007:119-326). It was in the third and fourth fields that we practised the most.

Personal vulnerability surfaced during *The Original Thinking – biography seminar*. When this happened I encouraged the student to find a name for it, and describe their emotion in order to stabilise themselves, and gain a balanced understanding of what s/he was feeling. When emotions do spill over, I tried to contain the outbreak in a very gentle, caring way. When necessary I offer another exercise in which to give the emotion expression. This could take the form of a private session, affording extra support to the student. For instance (S-1) commented: "I have issues, inner issues and so much confusion. Where is the place where I know?" I showed interest, and offered ways in which to pay attention to the questions, not by offering a psychotherapy session, but through careful listening and empathy, allowing the conversant to listen to him/herself speak. By introducing "self-reinforcing" (Senge, 1999) processes I prompt awareness, consciousness and personal mastery as core competencies, all of which invariably help the student to move on.

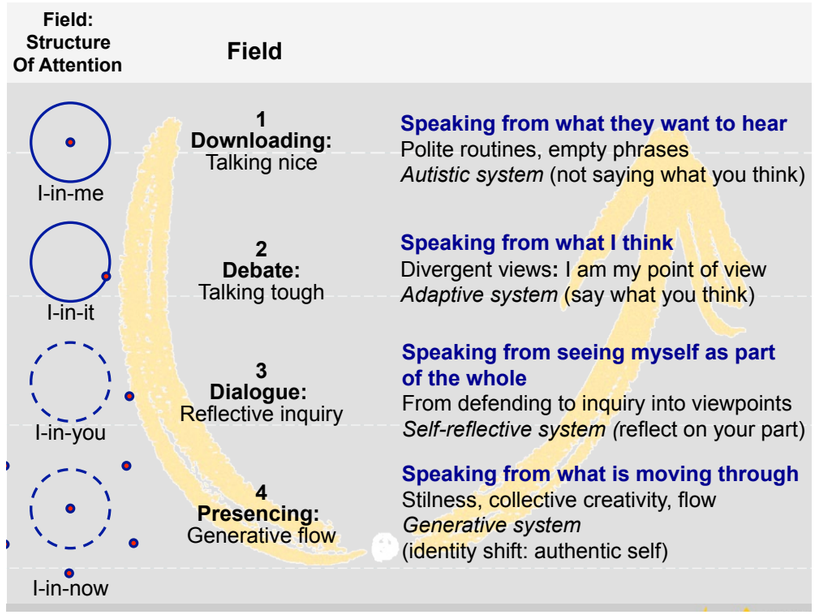


Fig 5.1 Field structure of attention. Diagram: Scharmer, 2007

One student in the seminar (F-5) for instance stated: "I found a part of myself I had lost". This way of experiencing and knowing is highly personal and interpretative and can lead to new depths through deep questioning, led by self. It is evident from the data I gathered, and the wide spectrum of perspectives raised, that the students were indeed touched by the processes and exercises they participated in.

A leitmotif in the feedback was the recurring sense of self. This increased confidence, and as one student (F-2) stated: "This workshop definitely gave me more confidence in myself. Thank you, I find myself believing that I and my ideas are valuable, and I am more confident now to share them". A participant in *The Cross-Pollination Workshop* (CP-20) added: "The workshop seemed a bit weird at the start and then I opened up and experienced myself in a deeper way, at first it

was surprising and then I felt at home". The feedback was critical to the research and helped me to develop better judgment and skill which, in time I feel will led to deeper insights, and in some instances more exacting ways of presenting deliberate processes. In turn, the feedback enabled me to keep refreshing the opus of Ensembles into a more solid exemplar.

What emerged in the conversational groups of two or three participants in *The Cross-Pollination Workshop*, was that participants valued time in which to converse, be listened to, reflect, and appreciated the non-judgemental, warm-hearted feedback. Another participant (CP-9) said it had helped her discern underlying patterns in her biography which prompted her, now that she was aware of them, towards new areas of design consideration. Participant (CP-17) commented on how the biographical work, and in particular the "helping conversation", made him aware, as he spoke, that the questions which arose, where simultaneously personal and professional concerns. For some participants, previously unacknowledged feelings of being detached from the creative process arose, complaining that they were without enough time to play, as most found they were preoccupied with production and marketing, or academia, and constricted by prosaic requirements, without time for poetry, painting or any other artistic exploration. Approaching phenomenological conversation as an art, enabled participants to extend their understanding of conversation to include dialogue with the phenomenon. In most cases the participants were surprised as how they came to new comprehensions through the processes of dialogue.

Fig 5.2 **Bachelor students engaged in artistic and social processes during The Original Thinking – biography seminar. Photo: Suskin, 2011**

5.6.1 Another way of engaging with the workshop phenomenon

I will now describe the workshop experiences as I lived them, avoiding, as much as possible, generalisations or abstract interpretations. A certain transparency is given in order to describe the comprehensiveness of the methods used and distil essential meaning. In the seminar, I found that it was often the same students who shared their experiences in the group feedback sessions. The responses were more evenly distributed in *The Cross-Pollination Workshop*, which accommodated students, professional designers, academics and design educators.

The absence of feedback from certain students does not necessarily mean that they did not have experiences or insights similar to those that shared, only that they may not have found the confidence, or had the time to digest and articulate their experiences fully. The participants from the seminar and workshop were encouraged to carry their questions into their artistic processes, and be aware of what may unexpectedly be revealed.

As the facilitator of these learning experiences I had to continually let go of any preconceived ideas and outcomes, and create a space for myself that was free from expectation, whilst exercising my ability to be present, and flexible, in the moment and directly involved. I had a daily framework on which I perched the sequencing of the processes and exercises. The programme was broadly outlined to the group at the start of each session, so as to give them, an indication of the session's intention and offer the sense of comfort and security.

The introduction to the day would often include a reflection on observations that the participants had on the way, for instance thinking back on the journey they had in the car or bus. Questions such as: "what struck you, what demanded your attention, what one thing made an impression on you?" This set an attentive tone for the day. In this way the students brought to consciousness something that had been possibly taken lightly, or had not been brought to light until that moment, thereby bringing what had been a fleeting impression into consciousness. Otherwise we started the day with letting go whatever bothersome thoughts they might have brought into the seminar or workshop. Bringing attention to these semi-conscious thoughts, acknowledging them and letting them go enabled the students to be fully present in the new moment. I started some mornings with singing or meditation to bring them into harmony with themselves. The introduction to the rest of day would take the form of an imagination relating to the theme that would unfold that day.

I noticed emerging patterns within some of the individual students, and also within the group. I also became aware of how some participants grasped the philosophical framework and looked for ways in which the principles and practices could inform their design thinking. They were open to different types of knowing and for instance (CP-4), stated: "My experience is this, I have been describing my experiences from without, and now I am getting to know their meaning from

within. I have discovered my own inner depth and resourcefulness, and am aware that this ability demands a certain state of mind."

I too, was challenged to build on my skills and in particular, the art of facilitation. By giving deliberate attention to the subtleties and nuances of what I saw, heard and everything else I could access with my body as a sensor. I strove to develop the ability to access data in diffenent ways, and interpret it from a trusted, credible rationality, and an inner authority. This mostly entailed having to observe each participant closely, and access how they were responding to the shift taking place in their being, and whether, in fact, this was happening at all. At all times I had to keep the process alive and the students engaged, as I would be when observing the phenomenon of a plant in nature. The participant in this case was the phenomenon. Whilst the participants did twenty-minute drawings at the start of each day I practised direct perception, observing each one of them gradually getting to know them, a little more each day.

In referring to plant observations one participant (CP-11) commented, "After these three days of observing the plant, I feel like I have made a friend, please can I take the plant home". Many of the participants shared the same feeling, of being drawn closer to the plant each day,and in getting to know it more, growing to love it.

In *The Original Thinking – biography seminar*, a few of the students commented that drawing their hand was boring, as they had done it so many times before. These few students only grasped an understanding of the "why" on day three, when the other students shared their experiences. Due to a lacked of curiosity and interest they were unable to apply themselves, and consequently missed out on the full benefit of the exercise. However, after three days all participants in both the seminar and the workshop claimed that they were able to see more, and that this way of seeing had "opened up", as one participant (CP-1) described, an "empathetic seeing, where my heart spoke to me". Another student (I-5) said that he would not accept the world around him unquestioningly, and hoped to keep the "dialogue between his inner-self and the outer-world warmer".

The thematic core of the Ensembles invited participants to enter into the content, and add aesthetic depth and quality to their descriptions. The quality of phenomenological awareness is both, centred and peripheral. Although this may sound contradictory, it is in fact, complimentary. It suggests being present and focussed on the detail, whilst simultaneously "sensing" from the periphery – this means being attentive to the whole.

The particular Ensemble that stands out in its vividness is the highly personal, interpretive venture of the biography work, as it delves into the potential fullness of each participant's history. Since this Ensemble constantly touched on thresholds and "thresholding moments" – as each participant discovered and connected with their underlying narrative, of being witness to their own process as it unfolded – a questioning path was implicated. To do this takes courage. It is also the reason why this Ensemble comes first.

5.6.2 Further feedback from students in the group sessions

- When I held the ball of clay in my hand and was forming it with my eyes closed, it gave me the feeling of holding my own life in my hands.
- I value the knowledge and new tools I have gained. I am more aware of the environment and people around me as a result, as well as, my responsibility as a designer.
- I enjoyed learning communicative skills.
- I valued cultural difference, and learning from many perspectives, and with the different disciplines.
- I regained my sense of childhood wonder when looking back at my childhood years, and realised how my early experiences and feelings still prevail in my current thinking.
- I appreciated getting to know my peers on a deeper personal level, which doesn't happen very often in our day-to-day lives.
- To develop positive thinking and gratitude for all living things, ourselves, other people, the environment, and a reverence for life, was what I appreciated.
- The seminar helped me to see myself as a strong individual, and it was good to get to know myself better, dig in deeper, and be more open-minded.

5.7 The design educator and the student: dancing to a new tune

According to Winkler (1960:219), "[f]actual knowledge was considered the reward of intuitive comprehension and not [to] be dispensed without proper preparation".

In a disembodied approach Abram states:

> ... [that one] accumulates knowledge solely in order to acquire a new power over things, a kind of scholarship that by its exercise hopes to avoid and indeed to vanquish the difficult ambiguity of

> relationship (with all its attendant vulnerability and responsibility). This is a strategy one can pursue only by denying or forgetting one's bodily embodiment in the thick of things. This is what I'd call a disembodied approach – the approach of a body trying to pretend it's not there (Abram cited in Hocking et al., 2001:320 -321).

There can be no dance without a dancer, no music without a musician, and no knowing without a knower. Although there appears to be two parts, they are indivisible. Educational philosophies must recognise that no longer can we teach in ways that see perceiving and thinking as separated from one another. "University truth is losing ground" according to Richards, "because the ground of knowledge is changing, [and so] university members are handicapped by attachment to intellect, money, status, materialistic knowledge and role playing" (Richards, 1973:216). In thinking about the role of design education in the future, new ideas and ways of thinking must emerge which direct student thinking towards participation and rigorous questioning.

This is the irony. In contrast to the generally accepted purpose as thinkers and makers of objects, designers are compelled, more than ever, to see the world accurately. This is best achieved "through shared and mutual observations of the same situation" (Kaplan 2014:4), or phenomena. In this way we broaden our scope of understanding:

> Cultural activists, grassroots organizations and design activists are converging towards a range of initiatives, the purpose of which is not to offer immediate solutions to problems, but to spark interest in these areas and show, often paradoxically or provocatively, that there are different ways of seeing and resolving them (Manzini, 2014:13).

By living into the questions, we have the possibility of growing into the answers. If design is no longer to be disconnected from inner life we must question:

> What kind of future are we looking for? What kind of peace do we hope to find? It doesn't make any difference what kind of work we do, how old we are, or where we live; there is no person now who can escape these questions; whether s/he faces them consciously, or not is another question (Richards, 1966:20).

5.8 BTech student work resulting from the Ensembles

In strengthening personal awareness and "in-seeing" (Van Manen, 2007:11), I closely observed two students who attended: *The Original Thinking – biography seminar, The Cross-Pollination Workshop*, and were part of a class of BTech students that I mentored over the duration of 2012. This group of twelve Surface Design students were introduced to Goethe's "delicate empiricism" and given ongoing input throughout the year of their study.

This was an opportunity to investigate my topic further and so I undertook a small research study within the class. I observed how effectively students could experience, learn and benefit from a Goethean perspective as an embodied design practice. Candice Lawrence and Micah Chisholm were two students who invited this kind of thinking and practice to come into being. During the course of *The Original Thinking – biography seminar*, both students established concerns around human communication. To put it simply Candice was concerned about the effects of technology on communication, and Micah was concerned with the imaginative, inspirational and intuitive aspects of communication from the perspective of the hearing-impaired. Candice and Micah were inspired by the processes in the presentations, and enthused to practise further. Both students were confident with their newly found skills, sensibilities and capabilities to do practical and theoretical research pertaining to their BTech study. They achieved a high level of phenomenological understanding and at the same time were able to guide their ideas and thought processes towards what was posed as an "interesting challenge" (Candice, 2012). The determinant proof of their success is evident in the artefacts they produced. The students revealed how this mode of pedagogy can be taken forward.

5.8.1 First Vignette – Candice Lawrence

Candice Lawrence's Bachelor's thesis had as its focus social engagement and gestural expression. She centred her interest on social discourse and the effect of technology on human communication, in particular, mobile phones and social networking. Candice experienced various people using technology and observed the gestural language of communicating. She then set out to observe human social interaction at local cafés.

In applying the four Goethean stages of observation to her study she paid attention to her phenomenon – dialogic engagement – and captured the gestural essences of what she observed. She translated the experience of what she had seen, sensed and felt by translating the gestures into layers of a wooden café table-top. Candice, as the research instrument herself, entered into a dialogue with self and the material processes of making and made this comment: "Whilst observing bodily gestures, made with hands, arms and elbows – I started thinking about how these visible and invisible, implicit and explicit conversational gestures were wearing into the layers of a café table, in a sense holding embedded memory" (Lawrence, 2012).

Rooted in these connections, Candice gave aesthetic expression to the gestural impressions she collected, and worked in cyclical iterations between the Goethean observational processes parallel to her own experimentation. Candice not only observed others, but also observed herself in the process. She noted her spontaneous response to her material and how, by "being at one with" the process and material, a particular sensitivity arose to the way in which she participated and paid attention, and what was brought about through such sensitive and delicate engagement. In referring to her outcome she used the description: "a creative and spontaneously wild piece of work" (Lawrence, 2012).

With each conversation that Candice observed, she noted its unique unfolding on a multidimensional level.

> There was a constant conversation happening between my mind, hands, tools and materials, and I allowed the process to guide me all the while staying open to what was emerging. During the creative process I felt as if layers of self were emerging, as the product emerged and came into being (Lawrence, 2013).

As observer-participant Candice probed the essence of each conversation, extracted the main essence and gesture, and with her tools crafted the gestures onto and into the table surface. Where knees, legs and ankles touched the leg of the table, she echoed the conversational process into gestures, which, in turn, informed the design of legs of the table.

"The material [layers of wood] offered a metaphor for life" she said "whereby we are constantly carving away and refining our lives through engagement with others, and whereby each experience is unique. Each piece of wood is unique, offering different possibilities". "The process" she claimed "encouraged me to be more spontaneous and I developed an ability to read the context and make my own meaning" (Lawrence, 2012).

Fig 5.3 **Bachelor student Candice Lawrence's design products. Photo: Lawrence & Newman, 2012**

Her frame of reference was lived experience and this informed her ontological stance, which, Candice confirmed was enhanced by *The Original Thinking – biography seminar*. Candice was able to confidently base her practice-led research on the four stages of Goethean observation and bring this knowledge to material fruition through personal interpretation.

With her focus on process she became actively involved, and her participation deepened her understanding. This is evident in her intelligent and comprehensive range of refined products. Candice went on to design a range of lifestyle products themed on her layered conversations (Refer to Fig 5.3).

5.8.2 Second Vignette – Micah Chisholm

Similarly, in navigating his way through a Bachelor in Surface Design, Micah approached a multifaceted observational process whereby he observed and interviewed various friends, so as to read their deep or underlying personality traits. He conversed with these friends, using the conversational skills he had learned in class, and applied his knowledge of a Goethean approach. He identified particular character traits of each personality and drew on what he perceived as broad visible aspects, as well as, inner, introspective, invisible aspects, or character traits. Micah explored skeletal x-ray forms of plants, mammals, reptiles and fish to select a core gesture for each character type. Micah considered the x-ray images as an intrinsic descriptor and central to the personalities he wanted to portray.

Besides conversation, Micah used narrative inquiry to gather deep insights. In the process of distilling character traits he returned to each person, describing what he had sensed and felt, reporting his observations both seen and unseen, heard and unheard. In an act of mutual meaning-making he realised and manifested a range of lighting.

The narratives Micah describes are unbiased and speak openly and sensitively of respect and acceptance. Out of the centrality of each narrative he developed "centripetal" themes, which took the final form of a chandelier. For each light he created a segment pattern based on the skeleton he had chosen and which, when joined together, expressed the particular personality. For instance the flower/orchid skeleton was based on strong, smooth curves, representative of an assertive and bold outer personality with a sensitive and highly refined inner aspect. Micah not only gave bold expression to his outer shape but, explored in the most subtlest ways, the threshold between inner and outer space. From an internal perspective he considered the placement of the light bulb and wiring with attention and intention. "The outer bold, confident forms on the outside give way to an inner complexity and organization of sensitive curved and angled lines which hold in an inner recess the "lightness" of this character, somewhat concealed" (Micah, 2012). In this well considered range of products Micah's competency is characterized by his ability to enter into a larger system of value creation.

A product range of "skeletal centripetal" (Chisholm, 2012) chandelier lights was produced out of 100% recycled and recyclable cork (Refer to Fig 5.4). The shapes were laser cut and indicative of an outer skin, whilst the white recycled cardboard on the inside of each shape represents the smoothness of the skeleton.

Fig 5.4 **Bachelor student Micah Chisholm's design products. Photo: Arendse, 2012**

5.8.3 Lessons from the new learning: from knowledge to understanding

Both Candice and Micah emerged out of this practice with new knowledge, finding unique expression rooted in ontology. Their authentic learning orientation showed a high conceptual level of understanding, mature emotion, and the ability to make meaning through Goethean principles within the notion of embodied knowledge. They approached their topics in a multi-dimensional way, which is evident in their processes of making. Both students illustrated how innovation can happen through intuitive, somatic sensing and dialogue.

In both instances the design processes reflect a conversationalist, narrative position whereby the pedagogical learning processes are supported by philosophical introspection. This type of knowledge construction can improve competence and points to a pedagogy of deep questioning and meaningful engagement, invoking above all a love for learning. Both students were able to develop qualitative methodologies and their own assessment criteria with which, to examine and reflect on their process and individual progress. These included: courage, risk taking, and the experience of entering into new territories, and observing thinking by journaling. The final question I asked them was: "What future possibility may you have uncovered?"

These two students who had immersed themselves in the Goethean process appeared more poised as quality designers, and less interested in doing something new. By exploring original concepts, and through an ability to deeply engage with processes of making, they developed well thought through and integrated products that express value and integrity. Neither of the designs described will change the world, but certainly the inherent personal value embedded in each of these products, and the integrity with which they were designed could lead to greater consumer awareness, and conscious and sensitive ways of consuming in the future.

Micah and Candice were both selected to participate in the "Emerging Creatives" exhibition at the annual Design Indaba Exposition, 2013. The Design Indaba's slogan is "A Better World through Creativity". This is an annual Design event that takes place in Cape Town and draws an international audience.

In a final reflection on Candice and Micah's work I drew an analogy once more with music. Both students had to travel a long path of unwavering practice and immerse their whole being – thinking, feeling and willing – into the quality of their creations. The responsibility becomes inherent – to interpret and make visible his/her intention through the living process of their products. The design outcome is so much more than the sum of its parts, as the music is more than the sum of its notes. There is a living, weaving dialogue between the designer, his/her material and the audience. The students made a worthwhile contribution to the understanding of how the unity of concept and percept is a necessary and worthwhile design pursuit. The process is dependent on the participant him/herself, for it is up to each of us to orientate ourselves in the world.

The layered approach of the Goethean methodology has the potential to expand faculties of perception for making meaningful connections. As long as we are stuck in the sense world, we can only access "[m]aterial knowledge" (Steiner, 2009), which is adequate if we are scientists. In order to be the scientist and the artist, we must move into the realm of inner experience. Candice and Micah, had only two years in which to explore, develop and comprehend the practice and arrive at an understanding of this form of higher cognition. Despite the short time in which to engage with this way of seeing and being, the processes had a significant impact on them as individuals and as designers. With regard to my experiences, observations, evaluations and further questions regarding assessment criteria in this new territory, the listing below indicates significant outcomes of the study thus far.

What emerged during the process of discovery and experience, essentially were three themes that represented fading icons of the zeitgeist namely: a dearth of quality and limited contact with the natural world; a lack of face-to-face conversation and engagement to grow relational capital; and the resistance to personal transformation which leads to reduced consciousness. The themes: *Wild* – quality, *Conversation* – experience, and *Transformation* – consciousness, are of equal importance, inter-connected, and together lead to wisdom acquisition. The abilities, which arose in the students were identified as tributaries of these themes:

- interest and curiosity
- learning from living process and embracing complexity
- active participation and self-development, through observing and experiencing themselves in the process
- balancing concept and percept – connecting to higher forms of knowledge: Imagination, Inspiration, Intuition
- being open at all times to the phenomenon – returning to it over and over – keeping the process open – asking questions
- bridging polarities, such as mind and body, subject and object etc. gaining and understanding the whole and the part
- a dialogic approach and deep listening
- context sensitivity, engagement and accountability

- flexibility and the ability to adapt, reflect, and move in iterative cycles
- creativity, competence, responsibility and resilience
- processes and skills required for designing and making in a fully conscious manner
- exploring new territory in an unbounded and limitless way that has the potential of discovering new potential and possibility, and creating new life experiences through new ways of thinking and doing design
- increasing attention and awareness to inner creative sources and seeing themselves in the process
- engagement, commitment and accountability.

5.9 Retrospection

If the creative aspirations for design education that I am advocating here are to serve the modern student, then it is essential that any course of design study has as its focus personal development. This means that all learning must adopt a more flexible structure that includes individual exploration and personal development. The task of design education is to find creative ways in which to build imaginative, perceptive capacity, "read" the human and ecological context, and design with the human existential condition in mind. With this awareness the designer naturally becomes the "mediator between nature and culture".

The educational model I have proposed, and described in the opus of Ensembles demands that educators and students develop personal competency and, develop new "organs of perception" (Goethe cited in Seamon & Zajonc, 1998:262). These alternative trajectories with which to traverse new mind sets will extend disciplinary boundaries and develop ability and integrity as well as courage and confidence

What is crucial to this awareness is the sense of being-in-the-world as a participant, whereby we are touched and moved by experiences in life. From this perspective "problem solving and sense making" (Manzini, 2014:12) will be context-sensitive and handled delicately. The value propositions and the most important data points I have mentioned, collectively touch on a broadening, and deepening of self through connecting with the self-world, and learning from the phenomenon itself, whatever the phenomenon may be. Candice Lawrence and Micah Chisholm showed capacity for, and the ability to recognise how they could embed Goethe's method, aligned with personal values, in the creative process. How to measure holistic processes still remains somewhat unresolved, indicating that this is an area for further research.

The broad framing of a Goethean practice is the pursuit of a composite knowledge – the striving to see the whole – and the whole is the sense of interdependence, of belonging together, of conversation. It is the African understanding expressed in the word "Ubuntu". I will assess and reflect on my findings and understandings in Chapter 6 and Chapter 7. In these chapters I acknowledge my embodied knowledge and lived experience alongside the students' enriched learning involvement.

Chapter 6

Assessing the Journey

CHAPTER 6

"Insight arises when the strengthened mind resists distraction in favour of a tranquillity which, as with still water, allows sediment to settle and an intelligibility to take its place" (Kaplan, 2002:190).

ASSESSING THE JOURNEY: A pause on the journey

6.1 Introduction

Designers are learning that their artifacts do not merely manifest usefulness; their meanings exceed their utility. Manzini (2014:1) states: "we are all designers". It is more possible today than ever before to design our own things with the technology we have at hand. There is nevertheless a need for a new type of knowledge, so that professionals and novices alike, can approach "wicked" (Fuad-Luke, 2012:109), complex, and ill-defined problems with an integrated approach for sensitive innovation (Manzini, 2014:4). Brynjar Sigurdarson states in Li Edelkoort's Trend Tablet (2014), that a time will come "when design objects will acquire a soul of their own", and Jules van den Langeberg (Trend Tablet, 2014.) speaks of designers "creating culture" – re-inventing our existence. This broad conception of what design can do, is synonymous with a growing concern for more humanised connections to artifacts, processes and services.

In seeking out sensate messages in design, I discovered the poetic, technological work of Nadine Sterk and Lonny van Ryswyck (Atelier, 2014). When switched on, their "growing light" knits a textured lampshade: "you provide it with the generating power it needs to grow and develop ... its growth places it beyond the bare utilitarian necessity of artificial light." Although it is, in essence, an attention-grabber, it nevertheless makes fair comment on prominent social and environmental issues. These intentional objects are capable of speaking to us and offering suggestions, directing us toward actions beyond the mere satisfaction of our momentary concerns, more truly aligning our daily actions with sustainability.

Emphasising the importance of direct observation and experience in knowing the world, I sought ways in which to express nuanced qualities of thought in language. This I did through the art of writing, and poetry. My personal challenge was to discover a poetic, writing practice – out of which to bring my imaginings into fully conscious, intelligible form. The following poem serves as an expression of my inner research process:

River

The wild juvenile river speeds garrulous and steep,
greedily grabbing at rock and plant from the high land,
plunging and gathering.
Ever-joining tributaries cascade,
gliding into widening bows,
swiftly corrosive, decisively direct.
Freshwaters rush on through fertile fields,
forging, formulating,
while edging towards the luminous sea.
Source water bears silt-treasured deposits
in crescent arcs of deep, sacrificial lake.
Suspended in tranquil moments of time,
transient river poets settle a moment in inspired catchments
to wisely ponder the sedimentary depths –
above, an infinite sky.
The exuberant river flows on.

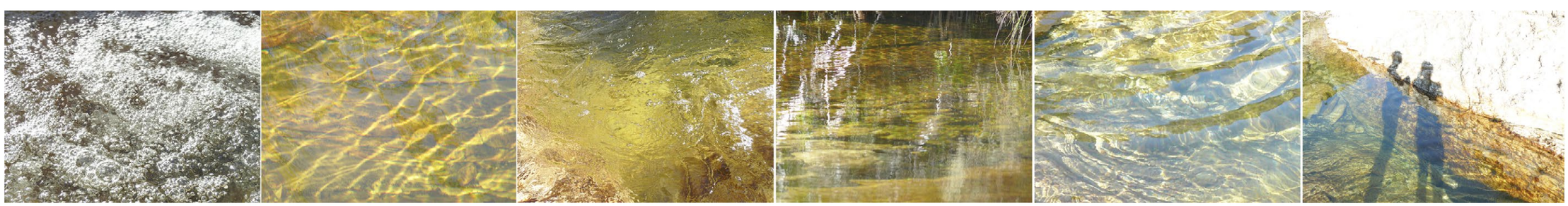


Fig 6.1 **Water observation. Photo: Suskin, 2009**

On a related note, I sought out inspirational visual source material to create mood boards/story boards, setting the tone for emerging concepts that may arise out of the intuitively selected images. The method of ideation is comparable to that of the poet or artist whereby rich imaginative images evoke an emotive language.

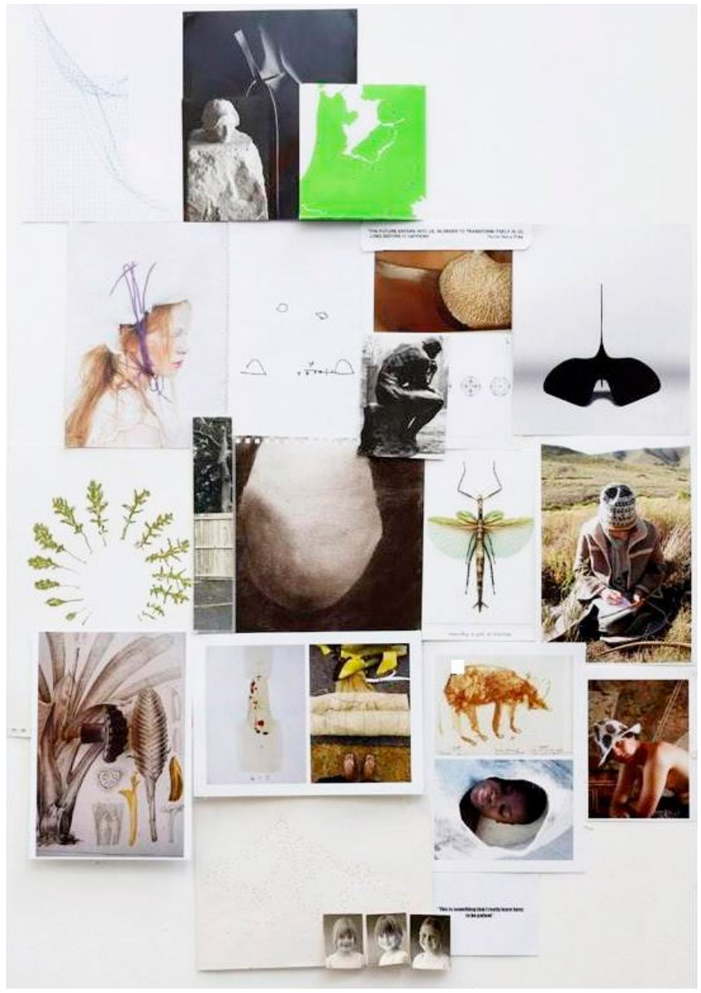


Fig 6.2 An inspiration board. Compiled by Suskin. Photo: Patrick, 2011

Fig 6.2 illustrates one of my early inspiration boards, in pursuit of a more mobile and comprehensive thinking. I placed three photographs of myself in school uniform over a seven-year period at the bottom of the page, and started to explore my biography and how my thinking developed over the years. Observing nature and the works of other great thinkers, a postcard of Auguste Rodin's sculpture "The Thinker" (1904) inspired my search for clarity. In developing a more agile and flexible thinking I contemplated Colquhoun's (1996) leaf sequence (third image down on the left) and tried to imagine how each leaf metamorphosed into the next, in a continuous cycle of growth and decay. Although the image of the head dominates the board, only one references Descartes mind-body split. This is the second image down, on the left. This image indicates a bound head, suggesting a restrained type of thinking.

In defining my own practice within an unfolding conceptual framework, inspired by the practice of various integrated thinkers, a reflexive and yet spontaneous model emerged inherent in the Ensembles. I hermeneutically explored questions that arose, until the themes and contexts became intelligible, and the processes revealed the way forward. After years of morphological thinking I finally settled with the primary topic: *Beyond knowledge to understanding: A Goethean perspective on design education as living process*.

With practice, I began to lift my self-imposed filters and undertook to observe and practice dynamic mental picturing, so that ultimately research could be experienced within the greater cycle of knowledge production. Steadily, I built trust and confidence in my ability to perceive authentically, and with Goethe's complementary sphere of influence, imparted purpose and direction to opening a portal for a new kind of design education based on apprehending from the inside out. This transformational approach champions a mode of comprehension that goes beyond "see-judge-act". *The Role of the Designer as Mediator Between Nature and Culture* is intended to function as a stimulant in seeking new world aims based on egalitarian principles.

Keeping my balance in the liminal, dappled spaces between the known and the unknown left me marvelling, and at times, reeling in the expansiveness of it all. As a practising artist, designer, educator and newly apprenticed "scientist", I found every natural creation endearing and intriguing in all its similarities and peculiarities, as I did with each, individual student's personality, and his/her multitude of characteristics. With equitable personal knowledge in creative agency, I set out to explore ways in which to cultivate phenomenological intuiting, describing and analysing, and form a new educational model.

I developed six Ensembles embedded in my lived experience which describe a series of change strategies. The Ensembles recommend transversal methods of knowing with which to reorient and transform design education as a whole. The themes, "Wild", "Conversation" and "Transformation" which emerged in the development of my TEDxCapeTown (2012) presentation, became important leitmotifs throughout the thesis, and traverse the study. The other important theme is the vast interplay of polarities: observer-participant, subject-object, self-world, concept-percept, was scientist-artist. In the process of my research, which includes Steiner's spiritual mindfulness and Goethe's focus on meaningful material phenomena, the blackboard drawings done by Steiner

The Ensembles were the means to make Goethe's approach accessible, attuned, and meaningful, to design knowing, and realised the following core objectives:

1 Through the creation of an opus of holistic Ensembles in a tertriary education context, I developed a new learning model for design based on emergent and living processes.

1.1 The processes helped develop capacity for perceiving living process, and the ability to be agile and flexible in designing for change.

2 The processes and exercises in the Ensembles empowered students to overcome barriers in thinking through integrated ways of knowing – merging concept and percept and theoretical knowledge and practical skill.

2.1 In addition to developing the senses, observation and a questioning attitude, relational embodied experience was enhanced, and validated through group interaction.

3 Through living encounters with nature, supported by Goethe's "delicate empiricism" the students were made aware of the importance of a dialogic process – a real meeting with the phenomena and themselves.

3.1 "Looking" at the phenomena from a passive stance was replaced by "seeing" as an active, participatory stance.

4 The artistic processes developed deliberate inter-disciplinary learning experiences that promoted perceptual cognition as salient partner to intellectual cognition, and in turn stimulated Imagination, Intuition and Inspiration.

4.1 The embodied learning environments supported the students in being observer-participants and developing the capacity for a "living thinking" through an interdependent, reflective approach.

5 Rigour and discipline was stimulated through the exercises which, engrossed students with the underlying formative moments of complexity. This in turn leads to an awareness for designing in more life-engendering ways.

The opus of Ensembles guided students/participants towards a more sensitive and balanced way of doing design with the potential of transforming knowledge to understanding, and understanding to wisdom. Wisdom situated in the "totality" of the design process will promote authenticity, context-sensitivity, leadership and entrepreneurial spirit.

The methodologies cast off the constraints of reductionism by challenging the supremacy of the intellectual mind and served to expand other intelligences. Discerning designers with an embodied understanding will organise sense impressions according to natural laws rooted in the wisdom of living process. Such an integrated inquiry helped me link intricate variables to larger variables, in ever widening relationships of inexhaustible learning and understanding. Metaphorical language proved most helpful when extricating the living essence and giving expression to some of the wider laws pertaining to living phenomena.

The designer, I realised, like the musician, must learn to sense the generative qualities, which lie in amorphous contexts. In discovering the nuances, s/he must decipher, as a composer would; listen to the initial, inaudible sounds, in order to make them audible. Likewise, the designer must sound out, and become awake to, what "needs" to be designed – discovering where future potential lies "hidden", awaiting to be found, within the inquriy process itself.

6.2.2 Essential rhythms, relationships and patterns informing the answers to the research questions

In evaluating the literature and the accompanying thought processes, the main thrust of the research is based on humanistic pedagogy. The pedagogy pays deliberate attention to experiential learning and personal understanding, a learning, which frees the student from bounded knowing into an unbounded, integrated knowing with implicit morality.

The ecology of the above context gave expression to my primary research question: *How can a Goethean perspective in design contribute to the development of a context-sensitive educational model based on living process?* This question provided the foundation over which I laid the secondary questions, until a complex multi-layered body of pedagogical content emerged. This body of content took the form of the Ensembles, each of which had a particular theme, learning environment, and set of Goethean characteristics. Answering the primary research question were the following Ensemble themes:

1 *Towards Original Thinking – Art history and biography,*

2 *An Inner and Outer Dialogue – Through the seasons of nature,*

3 *Advancing Design Conceptualisation – Through the elements of nature,*

4 *The Archetype – The generative idea.*

5 *The Nature of Design – Sustainable practice*

6 *Leadership – Inner Leadership as a necessity for sustainable and responsible design practice*

The first secondary question was: *What are the identifiable knowledge methods, skills and deciding moments of the educational model?* The literature review was the means by which I drew together practitioners actively working in the field of integrated thinking and who acknowledge the present disconnect and mechanistic approach to life and education. With their contributions I set out to support a living practice in design education. The sets of methods, skills and deciding moments are interwoven throughout the opus of Ensembles as presented in Chapter 4. Here I offer an integrated design approach based on intensive process-exploration. The learning methods and skills resulted in the design outcomes represented by two BTech students (Refer to Fig 5.3 and Fig 5.4).

I deliberately stepped into the unknown, conscious that at times, I would feel adrift, yet confident that my active, questioning attitude would enable me to reach deeper, more fertile places of knowing. The holistic methods I developed were to equip myself, and the students to *see* more intensely, intuitively, exactly, empathetically and delicately. The Ensembles supported this intention and prompt aesthetic responsiveness and moral action.

In Chapter 3 I addressed the second question: *How can Goethe's "delicate empiricism" be included in the embodiment process of the design educator and student to promote integrated learning?* This question sought to explore how Goethe's method could assist the educator and the student to access modes of inquiry, which were both delicately detailed and at the same time rationally integrated and comprehensive. Goethe's methodology helped to develop tangible, authentic learning paths with which to balance concept and percept. Each Ensemble has, as a tendency, the inter-influences between self-world, knowledge, knowing, meaning-making and understanding. By valuing lived experience, the student and myself were engaged active practitioners, expanding the field of design and endorsing an integrated learning model (Refer to Fig 6.3).

In Chapter 4 I answered the third and final secondary research question which was: *Why would a set of interrelated modules, which include a natural and rational approach, benefit young designers in acquiring awareness, knowing and understanding?* The values that emerged in this process-based exploration, namely the acquisition of awareness, knowing and understanding, were facilitated through diverse learning environments which explored and integrated craft, art, design and technology. Preconceptions where challenged and the way in which we see ourselves, and the way in which we experience the world. Ensemble 1 *Towards Original Thinking – Art history and biography* explored material civilization, the present worldview and developments embedded in change.

With each process the student engaged with, placed them at the heart of their inquiry as the primary instrument with which to navigate through the learning environments – developing awareness in how they perceive and think. The interweaving Ensembles ensured syntactic relations – encouraging relational knowing and understanding. The desire to take what I learnt and find ways in which to intentionally and consciously integrate, and complement the opus of Ensembles, elicited action and reflection. Aspects of Goethe's methodology, Steiner's philosophy and Scharmer's *Theory U* (2007) built capacity for interpretive understanding.

Out of my rich findings seeds were sown which, hold the potential for greater responsiveness and relational knowing in the field of design education, and in the global maker movement more broadly. My wish is that each generation of designers will "do things that no one expects – not in order to be different, but because [they] sense what needs to happen" (Holdrege, 2013: 193). This is a serious endeavour and generous space was made for play, and spontaneity.

6.2.3 Fertile ground for dynamic processes

The Irish poet W. B. Yeats (1865-1939) stated: "Education is not about filling buckets but lighting fires". Instead of filling students' brains with compulsory academic knowledge, I support the idea of igniting imagination through the delicacy of embodied learning. Participation holds the key to real transformative learning. Nothing can replace direct experience; no technical hard or software can support students better than through delicate hands-on learning experiences such the ones I have described. The freedom to discover is paramount to autonomous development, and has the potential to lead students to independent thought and manifold expression.

This small seed may seem insignificant when viewed against established models, but as with all seed it carries a germinal quality, intent or potential. In this case "to shed (or to circumvent) the many solidified structures and expectations that form the social and political concrete of institutionalized education" (Holdrege, 2013:183). As an educator, I view it as my role to craft learning environments and processes, which cultivate intrinsic ways to free students from the negative effects of institutionalised thinking and to help liberate their minds from habitual knowing.

There is no better place to play, observe, interact and explore than in the wild spaces of nature, where imaginative cognition interfaces with natural processes. Supported by action research, situational awareness, and to some extent grounded theory, the students learnt to think in integrated ways. Being embedded in interactions such as I have described in the Ensembles, makes it more possible for each student to come to the right design idea for him/herself, out of him/herself. This, "interpersonal process [is then transformed] into an intrapersonal one" (Vygotsky, 1978), whereby the salient aspects of a Goethean conversation offers the potential to give freedom to another. This is at the heart of such an egalitarian search.

The fundamental pedagogical processes of this model set out to:

1 Develop learning spaces, which promote inner and outer learning experiences and inspire original thought and deep insight. This was achieved through the *Towards Original Thinking - Art history and biography seminar.*

2 Promote conversation and social cohesion through applying the *Theory U – Field Structure of Attention.* Students were supported to find their place in the world, develop empathy for the other, and increase collective co-creation.

3 Build resilience in perceiving the world as perpetually metamorphosing, and to work with change processes imaginatively, intuitively. Ensembles 1 and 2 worked with the seasons of nature and the elements so as to provide experiences of the formative forces of change. The clay tool exercise, the watercolour study of the plant, and The Earth Activity, all involved the students in processes of metamorphosis and change.

4 Strengthen a feeling for life through methods that support the designer's ability to connect themselves to all living processes. The three themes: Wild – quality, Conversation – experience, and Transformation – developing consciousness, were theme that ran through all the Ensembles and processes, supporting awareness embedded in interaction.

5 Stimulate creativity for sustainable and responsible ways of doing design. Ensemble 5 leads the way in fostering the emergence of new leaders who seek ethical, conscious engagement by meeting social and environmental challenges.

It has never been as critical as it is now for individuals to change the way they think. I trust that the research will find a way in which to contribute practically and academically in addressing some of the issues of our environment, society, culture and humanity. Just imagine, an education institution where it is incumbent upon all educators to be actively engaged in self-development, What a different world it would be if wisdom, rather than knowledge alone is a prerequisite for the appointment as an educator!

I present in Fig 6.3 The emerging future offers an alternative, integrated meta-path in the form of a series of Ensembles or learning processes. These processes coalesce polarity, recognize disruptive patterns and dynamic relationships, position the designer as locus of knowing, and offer ways in which to meet the future with awareness. This new way is seen emerging out of the current dominant paradigm.

The emerging future

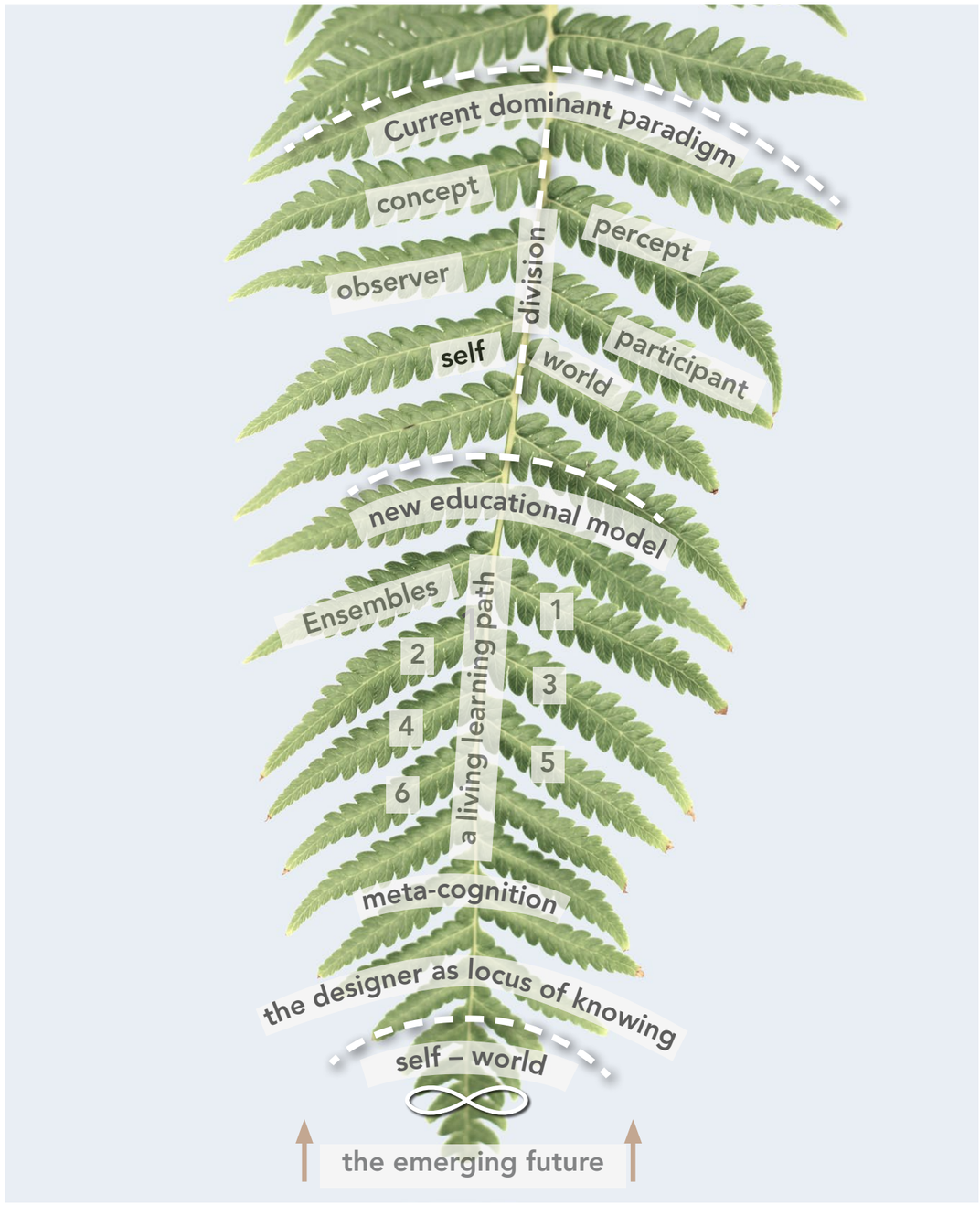


Fig 6.3 **An alternative educational model for design. Diagramme: Suskin, 2014**

around 1916 come to mind. These drawings in which, Steiner sought to depict a higher human ingenuity or spiritual science, served primarily as a mode of enlivening thought by illustrating complex spiritual pursuits. The drawings shared space with the work of the world's most celebrated contemporary artists and designers at the Venice Biennale in 2013.

Pivotal in developing a unified practice and understanding, is the ability to develop imagination. The artistic processes moved iteratively between imagination, inspiration, intuition, insight, critical knowing and reflection, gaining a comprehension of the whole range of human intelligences.

The processes in the Ensembles hold the key to inherent capacity for openness, future knowing and understanding that departs from the Cartesian/Newtonian worldview. Education must become the fertile ground in which students can develop a robust inner core as free-thinking human beings, actively questioning and critiquing the status quo, conjecturing a different future. We can no longer ignore the two billion who are hungry, the 55 million refugees fleeing for their lives, the 80 percent of bees in the USA that have been fatally poisoned by toxic crop sprays, or the cow producing 35 litres of milk a day, opposed to its natural ability to produce four litres (Guttenhöfer, 2014), and so on and so forth. In germinating new thoughts, we need fertile ground whereby designers can intervene with value and purpose. As Li Edelkoort, trend forecaster and self-professed anthropologist, comments design should offer: "new forms of spirituality in everyday life" (Trend Tablet, 2014).

6.2 Releasing the old and embracing the new

I resisted the traditional academic format of mental analysis – separating practice, assessment and findings. I chose rather to demonstrate the success of each Ensemble as an integrated part of the opus of Ensembles. Out of each Ensemble I extricated particular characteristics and qualities relevant to the theme, strands of which were subsequently built into the next unfolding Ensemble. The reserach emeged in a similar way, whereby layers of meaning where overlayed until the final work emerged out of a dynamic sensibility of connectedness, and not the poverty of a mechanical disconnectedness. I consciously worked with the emergent quality of the thesis as it presented itself, right down to the smallest detail, the font, so that the whole was evident in every part, and in each part the whole. Using the analogy of music and dance, "a rhythmical process of inquiry" (Holdrege, 2013:173) emerged, which expressed ways in which to support the flow of the research.

Through visualisation, metaphor and analogy, I characterised the learning experiences that I put to the test. More circumspectly, I described and quantified the learning outcomes, drawing on different modes of knowing that were profoundly qualitative. The methods I used had the effect of stimulating myself and the students to excavate deeply personal methods of inquiry.

6.2.1 Fields of interaction – living the questions

In the process I ambled down deviant paths whilst carrying Rilke's verse in my pocket, a field book in my hand, Goethe's methodology foremost on my mind, and employing Thoreau's sauntering eye. The research task was to discover and facilitate processes of observing, thinking and learning that could enable design students, to gain greater sensitivity and awareness. I am not concerned with solidifying a ten-year "model", and would sooner concur with Holdrege's statement: "It's not so important whether a given model stands the test of time or is soon discarded … [i]t is the gesture of the thought" (Holdrege, 2013:15). What is more important is that the educational model is part of a developmental process.

In a similar vein, I did not hold fast to my first "hypothesis", which was *"Changing the World Through Design"*, but agreed with Goethe (Goethe cited in Simms, 2005:166):

> "A false hypothesis is better than none; there is no danger in a false hypothesis itself. But if it affirms itself and becomes generally accepted and turns into a creed which is no longer doubted and which no one is allowed to investigate: this is the evil from which centuries will suffer"

The research, simply stated, combined a phenomenological questioning structure, with practical thinking. The methodologies were holistic modes of exploration and discovery, which gave expression to possible, responsible, outcomes. The methods took the form of investigating, observing, examining, drawing, describing, listening, mapping, conversing, questioning, journaling, and analysing, which combined, gave birth to this narrative thesis.

All processes and exercises were aimed at empowering students to recognise ways in which to balance analytical and perceptual aspects of cognition. The learning propensity emphasised advancing individual theories and practices that could overcome design problems by understanding the inherent relationship between things. The objectives of the study were strongly guided by the research questions and Goethe's methodology of "delicate empiricism". Out of this, a new learning model or theory in design education emerged, with the view of expanding creative faculties and capacities.

6.2.4 Sowing a seed in the field of design assessment

My personal epistemological and ontological reason for doing this thesis was to balance ideological knowledge with practical approaches, which address real issues and real change. Beyond the confines of the present educational parameters this embodied pedagogical practice offers self-authorship. In order to quell scepticism around the validity of the qualitative methods, I collected student questionnaires with which to compile matrices. The findings were not open to interpretation. Instead through individual responses I was able to make a critical assessment of the exercises and how they met the students. In cases where the responses were weak or not responded to adequately, I used other modes of assessment such as my field book and observational notes, verbal feedback from the sessions, personal engagement and attentive listening.

Fig 6.4 **Field book and inspiration. Compiled by Suskin. Photo: Patrick, 2011**

The challenge still lies in seeking appropriate assessment and marking criteria: how to give credibility to what I teach and what the students learn out of a phenomenological approach. This, as previously mentioned, will form the basis of my future research.

I have increasingly approached life from a phenomenological perspective, whether it be a natural phenomenon, man-made object or my research design itself. The methodologies served to orient myself in more perceptive ways of knowing. As I trod this rudimentary track gathering and collecting materials and interrelated resource materials, I felt truly supported, out of the richness of my lived experience. I am equally grateful to those who went before, and those who remain besides me, all of whom have contribute to this primary educational model.

Embedded in Goethe's methodologies I approached many different contexts of learning, offering my Ensemble content to farmers, various organisations such as Babylonstoren, and other educational contexts. These are listed below:

Into the Wild (2011) was a workshop created to apply design knowing with principles of social development (Refer to Appendix – D).

Design Network (2011), thirty African designers from fifteen countries participated in a workshop I presented for future visioning and design leadership which took place in Gauteng.

Biodynamic Agricultural Association of Southern Africa (2011) – an observational drawing process for 30 farmers attending The Annual Biodynamic Agricultural Conference at Bloublommetjies Kloof in the Western Cape.

The Alanus University of Arts and Social Sciences and the Robben Island Primary School (2011) was a collaborative project to develop awareness in sustainability, which included one of my processes. The project was a peace program in surmounting social and cultural barriers through art. It was a week-long program that took place on Robben Island in Cape Town.

Babylonstoren (2012) is a working farm in the Cape Winelands. The process content explores the farm as a living organism and organisation (Refer to Appendix – H).

The **Meeting Change** Workshops (2012) were crafted as a series of seminars for lecturers from different design institutions to meet, discuss and explore educational challenges together. Again I worked with organizational and in particular educational change (Refer to Appendix – G).

Anthroposophical Society (2012) working with The Life of the Society mandate of the Anthroposophical Society of the Western Cape, I established a future vision with core members. *Theory U* and Goethean conversation were used to facilitate the process.

Fig 6.5 Meeting Change – workshop for design lecturers. Photo: Suskin & Smith, 2011

Community of practice Theory U (2012-2013) exploring and practising complementary Goethean observation processes with the Cape Town Theory U Group.

These organic forms of knowing inherent to integral practice can be extended to any situation or discipline, as inferred by the workshop titles above. I have included in the Appendix two magazine articles, which described and promoted the workshops (Refer to Appendices I & J).

Throughout the research I used a self-reflexive tone to gain a balanced perspective on integrating life with the design process – moving as seamlessly as possible between the idea, appearance, material and function. Clearly the search expresses ways in which to mediate new modes of inquiry using the qualities of Goethe's delicate inquiry and investigative awareness that lead to questioning the role of the designer. The investigation proved that it is possible for students to intellectually, perceptually or even existentially read the phenomenon through understanding its structure and principles. Through a plethora of encounters with living processes the students gained a feeling for interconnectivity. In time, and with practice these experiences may help students make the shift from an abstract, detached, material disposition to taking up a thoughtful, relational and integrated position. Finally "the Goethean perspective begins to seem less abstruse and esoteric, and more worldly and part of our everyday experience" (Kossoff, 2011:89).

As an educator, a central part of my practice is to become more adept at leading students' thought processes to ever deeper levels of awareness, to encourage them to probe, intuit, play, understand and make meaning – enabling the adult's sense of responsibility to meld with the child's innate sense of wonder and curiosity. To gain a sense for the three qualities of; *Wild* in nature, the experience of *Conversation* and the consciousness of *Transformation*, I recognised that key to my role as educator, is to support students' within different learning environments, textured with human interest and care - without which, I will fail. That the learning processes amplify the possibility for developing real potential and that as an agent of change each individual can add, in whatever small way, to the upward swing of Scharmer's " U", as it aspires towards a cultural revolution.

Since process orientated-learning is non linear, nor dependent on a particular structure, theory, methodology or technique, this research demands a more delicate manner of deliberation. Through such conscious, dare I say "sacred" facilitation; a culture may emerge based on individual awareness and a living connection to the world through the way we think. This outline is only a map, not the territory – knowing the territory will require an even more disciplined and rigorous introspection.

Fig 6.6 **"The painting of the future is a colour such as there hasn't been before" van Gogh – Letters to Theo 1872-1890. Photo: Patrick, 2011.**

I live my life in widening circles

That reach out across the world.

I may not complete this last one

But I give myself to it.

I circle around God, around the primordial tower

I've been circling for thousands of years

And I still don't know: am I a falcon?

A storm, or a great song?

Rilke (1875–1926).

Chapter 7

Final Reflection

CHAPTER 7

"And now here is my secret" said the fox to the Little Prince, "a very simple secret: It is only with the heart that one can see rightly; what is essential is invisible to the eye" Antoine de Saint-Exupéry (1991:68).

FINAL REFLECTION: Wonders, thoughts, discoveries, mastery

7.1 Introduction

In my final reflection of the research, I drew on the above quote from *The Little Prince, a* story that has accompanied me throughout my life and so eloquently expresses what I deem essential – that is to develop a "heart-seeing". Each reading reveals a little more of the characters, edging closer to understanding the riddles of life. Each reading expands my understanding, connecting past experience to the present. Internalizing my thoughts through this iterative procese, I have come to love the story and know the characters better. The fox, in his deep wisdom, explains that, by awakening the heart, we can "see rightly". Like a riddle waiting to be solved, I have, over time, lived into these riddles, and questioned the underlying meaning. Because the questions are not literal, they must be lived so as to be understood. I believe that the fox's secret is what led me to discover and later explore Goethe's "open secret" (Goethe cited in Barnes, 2000:223) – the capacity to perceive what is essential, and as a prerequisite, develop new "organs of perception". The Little Prince is both teacher and student, as am I. His quest for answers indicates that the search is as important as the answers themselves, and that at the heart of it all is receptivity – love.

In our time, of late-capitalist modernity, inner perception has grown cold, and with it our hearts. In an illuminating fable for contemporary readers, The little Prince's heart opens when he learns to love the rose by caring for her: by watering, sheltering, removing caterpillars and by listening to her "when she grumbled, or boasted, or … when she said nothing. Because she is my rose" (De Saint-Exupéry, 1991:68). By paying proper attention, The Little Prince connects intimately with the rose, and in this intimate relationship he has with her, and through his empathetic gaze, she reveals more of herself to him. He connects with the archetypal nature, or "Ürphenomenon" as Goethe refers to it – the ultimate sense of oneness that is the one "secret" open to us all. We cannot learn *about* Goethe's approach we have to *do* it (Bortoft, 2007), it is in the doing that The Little Prince discovers universal love.

Nature offers us the possibility of overcoming the dualism of – our inherited Western "subject-object" view of the world and embracing a participatory way of being and experiencing life. The Little Prince's attention to the rose reveals what is essential. He experiences a tangible quality in the invisible and at the same time recognises in the rose the whole world, and "that the world is also us, and that knowing the world in this way is also a discipline of self-knowledge, of knowing oneself" (Sardello, 2001:82).

Permeating the rose with loving attention, the phenomenon "rose" reveals her true value, beauty and meaning, and grows mature and wise. The rose is "touched" by the freely given attention of The Little Prince as an act of love, and in return The little Prince is awakened. In Goethean terms it could be said that The Little Prince builds an exact picture of the phenomenon "rose" by actively penetrating the space between them, and in the process, he himself is transformed.

Goethe's methodology, and Steiner's six supplementary exercises (Steiner, 1908), gives practical indications as to how to "warm" our intellect through fully sensate acts of perception. I have attempted to apply their holistic methodology throughout my research by foregrounding personal, embodied experience in the learning process.

7.2 Perceiving change with an inner eye

In this last chapter, I draw together the different strands of my exploration with the interrogative adverb "*Why"*. The Ensembles resonate with and exemplify a proposed method of the research that is enriched by the way of biology, science, philosophy, history, art, music and literature, forming an alchemy of working ideas that are set in motion by the central impulse of human activity.

Over many years, my teaching practice was largely intuitive. Through the research process, I have had the opportunity to ground my practice in Goethe's theory, bridge the divide between concept-percept, theory and practice, knowledge and understanding. By applying Goethe's methodology to the practice of design I am proposing an expansion into a more philosophical mode of design – a more conscious practice choreographed by and out of an understanding of transformative, living processes.

I have been cautious about explaining and controlling, using calculative thought, categorizing, labelling, measuring facts and fixing outcomes. Rather, the phenomenological style of the research suggests paying attention to the deeper underlying patterns and stories that inform and frame the search – qualitative elements which are frequently considered un-measurable. To this end,

externally imposed, rational learning structures which limit subjective discovery and prevent fuller ways of knowing were replaced by an approach that is more personal and heartfelt.

A hermeneutical, relational approach was undertaken which involved delicately sifting through, layer upon layer of condensed material to reveal the luminous essence of my findings. In remaining open and mindful of the whole and the part, each process informing the next, each Ensemble relating to the opus of Ensembles, always following through on my phenomenological stance, coalescing the inextricably entwined processes of the research into a whole, I wondered what the map of this search might look like:

> If one could imagine a person walking through the snow, and leaving the imprints of its feet, but with every step changing the shape of its feet, and if one would behold not the trace in the snow, perceptive to the sense-organs of the physiological eyes, but the *living being* that is undergoing change while it is walking, one would *see* with the inner eye of the *organ of a plant* that is *producing* leaves (Schwarzkopf cited in Bortoft, 1996:289).

It is easy enough to imagine sets of physical footsteps located in the snow, frozen in time. It is equally possible to trace the researcher's tracks on a trail where the movement includes, events, a succession of explorations, of moments, interactions and insights – an unfolding sequential narrative – frozen in time. The challenge is to consciously and imaginatively make the shift from "seeing" only the frozen shapes to *perceiving* the flowing, living qualities of movement, change and wholeness.

Conscious attention was paid to whole and part throughout the thesis to ensure that all attributed elements were deliberate. The form and presentation of this thesis are as significant as its inner content. In this regard, with each generative activity, I found it necessary to establish its relationship to the whole, as each new activity in understanding affected the whole right down to the relationship between one word and another. This level of attention brought serious consideration to the typeface I would use and how each letter would relate to the others – and to what effect. Would it support the work artistically and would its readability assist the reader? One of Adrian Frutiger's fonts was my clear choice for the typeface. The physical marks, expressions or footprints were considered for their organic appearance, gesture, mood and proportional aspects of balance and accessibility.

Goethe's articulation of experiencing first the individual static representations of the phenomenon and then slowly moving through the other three stages, proceeds in iterative loops, drawing ever closer to the underlying patterns that can only be accessed by mobilizing our imagination and allowing the moments of encounter to confirm thoughts and feelings. I chose to use the image of a fern unfurling throughout the chapters to represent the theme of a living process. This particular fern, which was the object of my observation exercise over the last years, expresses the principle of fractals most precisely. Pietak (2011:49 -50) draws attention to how:

> ... the entire structure of the fern plant is the same in all of the individual sets-of-sets of leaves, is again similar in the individual sets of leaves, and is then mirrored in the vein pattern of the leaves themselves. While the form of the fern closely matches fractals created by mathematical algorithms, scientists still do not know how or why the fern assumes this particular geometry.

In order to achieve what Goethe implies, Holdrege (2013) recommends "thinking like a plant", which I understand to mean thinking *with* the phenomenon in ways which are mobile and organic, instead of "looking" *at* it and thinking *about* it. It is encouraging to know that, according to Goethe, everyone is capable of accessing and developing these human qualities of perception by simply cultivating a specific interior condition, or attitude, and practising perceiving. This is by no means simple, as I found out. It demands sharpening our ability to observe, explore and enter into the spontaneous flow of complex unbounded intelligence. Therein lies the potential for deep learning in the discipline of life and working with the students' whole aptitude.

It was my intention to embrace a worldview that incorporates the artistic, logical, imaginative and scientific. As I conscientiously practised Goethe's methodology, aware of new knowledge acquisition, self-formation and transformation, I could see ways in which my findings might present an emerging vision for the discipline of design or an important "epistemological tool" to guide design students and educators towards appropriate, conscious participation.

Through participating in the Ensembles, the students learnt how to produce products whereby the idea and context are inherent in the product; where what is produced has the ability to create awareness and moral sensibility for our common good. New design questions will revolve around; "What is it that we need to design"? What new forms of design will bring about the meta-change we need? If the source of design comes from a "conscious, creator concept", will aesthetic value arise within the process and not as a surface add on? This would imply "seeing into" the phenomenon and "doing design right" (Trousdel, 2012).

7.3 Meanderings and musings

My meanderings have taken me into the wild reaches of knowing and, to this end, are a testimony to working with the body. By fully participating in an emergent process, the unfolding pattern of this thesis took shape from experience, rather than from abstractions and ideas of the intellect.

By extending creativity to embrace empathy and a feeling for life, it seemed wise to go into nature and learn a living thinking there. The very iterative processes of nature invite participation, and emotion becomes a mode of knowledge. As Mary Richards (1973:5) so aptly describes, the experience of being one with the phenomena "is a point where we enter into an object or a situation outside ourselves, we flow with it, we know it ... we have the Feel of a thing". To experience the "Feel of a thing" is to identify with its archetypal generative force and to take in more and more by returning to it repeatedly.

Being "inside" the phenomenon, no longer limited by what one "knows", inspires one to engage with the seen and unseen dynamic movement of the whole, in all its magnanimity and relatedness. With a deeper understanding of wholeness that emerges out of the unification of concept and percept a new future-oriented development emerges which enables us, as designers, to draw closer to the inherent laws and truths which determine life. This life-centric approach, which everyone has the capacity to develop, points to a way of being in the world that can never be attained by a reductionist attitude because neither nature nor thinking is linear. When this is fully grasped a new reality may emerge that gives shape to new design forms that will rise above the dictates of taste – of *like* and *dislike*.

7.4 The gesture of the research

Combined, the above attitudes reveal a certain "gesture"; a movement, a spiral dance through space and time. As Goethe's science sought to discover the quintessential characteristics and gestures in botany, so I sought in each Ensemble the key qualities that provided me with insight, knowledge and understanding. The metaphors of dance and music helped characterise these qualities, and in essence, depict the mood or gesture of each process and Ensemble. As with any art – be it dance, poetry, drawing or writing – there is a need for rigour, discipline, skill, practise and refinement. To bring the new found steps of the dance into a fluid, mobile, rhythmical and social form I had to learn many delicate and deliberate manoeuvres.

The choreography of the research, was that of moving independently, together, keeping time with the rhythm, flowing with the melody, meeting the pitch, combining chords, understanding the qualities of intervals, and learning to embody all nuances of the music. This posed great challenges and elicited many questions: How many dances must I dance? How many questions must I ask in order to clarify and articulate what I am responding to? How can I make more visible to myself and the students the different steps/stages so that the whole truly corresponds to the parts, and equally the parts to the whole?

To be a successful dancer, musician, designer or educator there must be regard for the fluid, emergent nature of embodied interaction. This frequently calls for improvisation as the destination is not fixed, nor the outcome known. I had to pay attention to each phenomenon, on its own terms. I had to access the deepest recesses of my knowing until I could say that I now *know* the place in which I started, if only to recognise that I needed to start over again. In the same way that nature is cyclical, so is the process of design. This is the fundamental component of accomplishing a sustainable design.

7.5 Dynamic thoughts and discoveries

What if we imagine designers as active participants in relation to dynamically intertwining activities; activities that involve engaging with the phenomenon of life in ways that determine a life-engendering mode of practising design, where design education offers a platform for social, philosophical, political, economic and environmental discourse; whereby everyday interaction with design is enhanced by a worldview that is fluid, dynamic, and contextually meaningful? Where the designer is the "mediator" embedded within a changing world, open to quality interactions in all their delicacy as they evolve over time; where designers address rising challenges with imagination and creativity modelled off integration, interdependency, resilience and a deep connection with life. Design is so much more than an artistic structure or mere problem solving discipline. It has the potential to build imagination and meaningful engagement out of common practice for the common good. This potential lives in everyone.

As a collective of diverse and independent designers we can collaboratively think and take action together, orientating our thinking with living processes and understanding the living context in which we design. Imagine then that design *is* an essential developmental tool for exploring complex issues and for making the shift from "object thinking to living thinking" (Holdrege, 2013:32) – a shift in thinking that could fundamentally change education.

Jose Antonio Abreu (2009), musician, social activist and educator, expressed his concern for the youth of Venezuela and described his vision for education through his chosen art form – music. His concern resulted in an action, which today oversees more than 300,000 children receiving music tuition. On receiving the TED award in 2009 for outstanding humanism. Abreu, affirmed historian Arnold Toynbee's assertion that "the world was suffering a huge spiritual crisis. Not an economic or social crisis but a spiritual one". Abreu's response to this crisis was to turn to education: "Education – the synthesis of wisdom and knowledge – is the means to strive for a more

perfect, more aware, more noble and more just society". Abreu's mission is to restore human dignity – put art at the service of society and create an awareness of the human condition (Refer to Appendix – K). His striving for music as a social art was designed to shift various dimensions within the human being. His intention was "to overcome material poverty, build esteem and provide the student with a noble identity, a sense of responsibility, perseverance, social and economic improvement, acquisition of leadership".

In shifting the focus of design education from the present disconnect of heart and mind to a more connected experience of interaction and engagement, it is hoped that a more philosophical, ephemeral, transitional, imaginative, subjective orientation to design will emerge – a more tentative, considered, connected orientation, which holds the prospect of taking design beyond detached, abstract ideas.

Through ontological explorations deeply rooted in lived experience, Candice and Micah, the two BTech students whose work I presented drew on their budding understanding of Goethe's phenomenological methodology, and explored dialogue and relationships whilst negotiating possibility. By traversing personal thresholds each student established their own path of knowing and understanding by being in the flow of the process. Their experiences, memories, intuitions, associations, imaginations and concepts spoke to them out of their innate creative genius.

7.6 Traversing a new moral geography

Robert Fry (1981:62) states in his play, *A Sleep of Prisoners*, (Refer to page, 116), that "... matters are now soul size", whilst Thoreau a century ago (1817–1862) stated: "This earth which is spread out like a map around me is but the lining on my inmost soul exposed" (Thoreau cited in Milder, 1995:170). In our contemporary context the potential for making a difference should be instilled in all design contexts through awareness, aspiration and priority. The philosophical, holistic approach to learning proposed here appears as a seamless conflation of Thoreau's outer earth and innermost soul. The combination transitions borders and embraces a new geography in design education, by recognising a holistic pedagogical terrain. This approach has the potential to transform scientific knowledge into wisdom.

The Ensembles could be viewed as an inner touching, enabling the capacity for experiencing soul qualities through living inquiry. The art of the poet, philosopher, botanist, alchemist and scientist are all creative contributions to the developmental power of observation, and offer to increase sensitivity and awareness. Through this intimacy students are able to experience and understand the deeper dimensional workings of the world. The Ensembles are directional route markers, that point to responsible and ethical action.

7.7 A sensibility for movement – becoming the dance

To "dance" in unfamiliar ways, in uncertain times, fosters improvisation, and the Ensembles helped to support myself, and the students' over new thresholds, as pioneers heading towards new frontiers. At times the breadth of my research felt crushing, and my meandering encircling manner of inquiry disorderly. But it was the wider view that I sought, and felt was lacking in a lot of academic research. I was challenged throughout to bring the journey eloquently to the reader, in an active, imaginative, yet sequential way, holding attention, through vital engagement with the creative processes, conveying my findings, and discovering that consciousness is hard earned. Nevertheless it is an ideal, for which it is worth striving.

My broad approach to design education started with evolution and biography, culminating in self-authorship and leadership. My approach and methods embrace complexity and overlapping, connected states of awareness as well as a lucid, comprehensive, forms of knowledge apprehension. Practising mindfulness in education can shape thinking and being in ways that embrace vast fields of knowing and "cultures of resilience" (Manzini, 2014).

7.8 A vision for the future of design education

The *Wild* is a great place to restore inner sight and practise intuitive vision. By observing living processes, designers can tap into inner resources and inner ways of knowing, rediscover their potential and summon the courage and confidence to follow their hearts along an emerging path of discovery. The search for a better future lies in the visions of our imagination and in our ability to think. Where unashamed consumerism has caused substantial physical, emotional and spiritual poverty, ecological disaster and social injustice, this educational model proposes to restore learning to its role as a process of discovery. When one values students as active participants in the developmental stream of life, sustainability becomes more than just a buzz word – rather an attitude of involvement and a shared human journey into the unknown that hinges on agile, flexible minds and an awareness of evolutionary process.

If education is the gateway to the future, surely the university must be the key. I have offered creative ways in which to bridge the divide between mind and body, concept and percept. These

A SLEEP OF PRISONERS

The human heart can go the lengths of God...

Dark and cold we may be, but this

Is no winter now. The frozen misery

Of centuries breaks, cracks, begins to move;

The thunder is the thunder of the floes,

The thaw, the flood, the upstart Spring.

Thank God our time is now when wrong

Comes up to face us everywhere,

Never to leave us till we take

The longest stride of soul men ever took.

Affairs are now soul size.

The enterprise is exploration into God.

Where are you making for?

It takes

So many thousand years to wake...

But will you wake, for pity's sake?

Christopher Fry (Fry, 1981:62).

experiences must be embodied by the teacher and only then, when present in the teacher's soul, can they be offered to the students.

In our present age of practical concerns, what I am offering may appear like romantic idealism, but Goethe's "delicate empiricism" suggests otherwise, that nature holds the key to this open secret, the secret to comprehending the phenomenon called life. Human life has only the purpose and direction that we give it, it is up to each of us to choose our particular path. The path, should not be determined by the educator or institution, but rather by the motivating force of the teacher to help students find ways in which to weave value and purpose into their personal conceptual frameworks – so as to implement intentional design interventions. In encouraging curiosity, awe and wonder in students, a whole new world can open up for them.

7.9 Retrospection

In honouring the questions with intimate regard, integrity and compassion I developed the courage and confidence with which to traverse moral and ethical geographies, and cross personal boundaries. I consciously moved through different ways of knowing towards a deeper understanding of what is needed in order to meet the educational challenges today, with wisdom.

This research project has extended my ability to work in new ways and deepen my approach to research inquiry. Drawing on comprehensive research has supported me in "living the questions" of my research with greater awareness in the liminal spaces that might otherwise have been overlooked. And now this conclusion brings me to a creative pause, just like that portrayed in the poem I wrote, "River": "Suspended in tranquil moments of time, transient river poets settle a moment in inspired catchments to wisely ponder the sedimentary depths – …"A moment of letting go before the next creative impulse becomes apparent. I now recognise that, in completing something, whether it be a novel, poem, painting or Masters thesis, one is struck "not so much [by] what has been said as what has remained unsaid" (Swassjan cited in Bishop 2011:519). I trust that by continuing to live the questions as an educator, I will assist a new kind of thinking to come into being, and a new way of being to come into existence.

"Great secrets still lie hidden; much I know and of much I have an intimation"

(Goethe, 1749–1832).

Fig 7.1 **The Role of Designer as Mediator between Culture and Nature. Photo: Suskin, 2010**

For many years, with great delight

The spirit eagerly did strive

To discover, to experience

Nature's own creative life.

It is the eternal Oneness

In numerous manifestations revealed.

The great is small the small is great

And everything after its own kind.

Always changing, but retaining itself

Near and far, and far and near

And thus forming, reforming itself –

To wonder at it am I here

Goethe (1749–1832).

BIBLIOGRAPHY

Abram, D. 1996. *The spell of the sensuous: perception and language in a more-than-human world*. New York: Pantheon.

Abreu, A.J. 2009. The El Sistema music revolution. http://www.ted.com/talks/jose_abreu_on_kids_transformed_by_music/transcript?language=en [15 September 2011].

Acona, D. 2007. Sensemaking: framing and acting in the unknown. In Snook, S., Nohria, N. & Khurana, R. (eds). *The handbook for teaching leadership: knowing, doing, and being*. Thousand Oaks, CA: Sage.

Aitken, C. & Baxter, S. 2007. Nature's academy: an experiment in participatory design/evaluation. Paper presented at Island: an assessment of the real in the unreal: Conference of the International Association of Societies of Design Research, Hong Kong Polytechnic University, Hong Kong, 12–15 November 2007.

Alexander, C.1964. *Notes on the synthesis of form*. Cambridge, MA: Harvard University Press.

Alexander, C. 1979. *The timeless way of building*. New York: Oxford University Press.

Alexandra, J. 1996. *Mephistopheles' anvil: forging a more human future*. New York: Rose Harmony Publications.

Aoki, T. 2011. *Curriculum in a new key: the collected works of Ted T. Aoki.* Pinar, W.F. & Irwin, R.L. (eds). New York: Routledge.

Arber, A. 1954. *The mind and the eye: a study of the biologist's standpoint.* Cambridge: Cambridge University Press.

Arber, A. 1950. *The natural philosophy of plant form*. Cambridge: Cambridge University Press.

Arendt, H. 2002. *The Cambridge companion to Hannah Arendt. Villa*, D. (ed). Cambridge: Cambridge University Press.

Arnheim, R. 1969. *Visual thinking*. Berkeley, CA: University of California Press.

Arnheim, R. 1986. The two faces of *Gestalt* psychology. *American Psychologist*, 41(7):820-824, July.

Ashwell, A. 2010. Red-green colour-blind? http://www.towerlandwilderness.org/poetry-and-prose [22 June 2012]

Augustin, S. & Coleman, C. 2012. *The designer's guide to doing research: applying knowledge to inform design*. Hoboken, NJ: Wiley.

Aymes, D.W. 2014. Business practices in the light of anthroposophy. http://anthroposophysa.org.za/articles/business-practices-in-the-light-of-anthroposophy [24 March 2014].

Barnes, J. 2000. *Participatory science as the basis for healing a culture: nature's open secret.* Hudson, NY: Anthroposophic Press.

Barton, M. 2008. *Spiritual ecology: reading the book of nature and reconnecting with the world*. Forest Row: Rudolf Steiner Press.

Bateson, G. 1972. *Steps to an ecology of mind: collected essays in anthropology, psychiatry, evolution, and epistemology*. San Francisco, CA: Chandler.

Bateson, G. 1979. *Mind and nature: a necessary unity*. New York: Dutton.

Baxter, S. & Fraser, B. 2008. Steps to ecology of product innovation. Paper presented at the 10th International Conference on Engineering and Product Design Education, Universitat Polytècnica de Catalunya, Barcelona, Spain, 4–5 September 2008.

Ben-Aahron, J. 2013. Interview with the author, November 2013, Steiner House, London, UK. [Interview notes in possession of the author].

Berger, L. & Luckmann, T. 1966. *The social construction of reality: a treatise in the sociology of knowledge*. New York: Doubleday.

Berger, W. 2010. *Glimmer: how design can transform your life and maybe even the world*. New York: Penguin.

Berry, T. 1999. *The great work, our way into the future*. New York: Harmony/Bell Tower.

Beuys, J., Harlan, V., Barton, M. & Sacks, S. 2004. *What is art? Conversation with Joseph Beuys*. London: Clairview Books.

Bhengu, M.J. 1996. *Ubuntu: the essence of democracy*. Cape Town: Novalis Press.

Birgerstam, P. 2002. Intuition: the way to meaningful knowledge. *Studies in Higher Education,* 27(4):431-444.

Bishop, P. 2008. *Analytical psychology and German classical aesthetics: Goethe, Schiller and Jung*. Hove: Routledge.

Bishop, S.R., Lau, M., Shapiro, S., Carlson, L., Anderson, N.D. & Carmody, J. 2004. Mindfulness: a proposed operational definition. *Clinical Psychology: Science and Practice,* 11(3):230-241, Fall.

Bishop, W. 2011. *Awake in the labyrinth: a composition in three movements.* Raleigh, NC: Lulu Press.

Bishop, W. Interview with the author in November 2012, London, UK. [Interview notes in possession of the author].

Blandy, D. & Congdon, K.G. (eds). 1987. *Art in a democracy.* New York: Teachers College Press.

Bockenmühl, J. 1987. *In partnership with nature*. Spring Valley, NY: Bio-Dynamic Farming Association.

Bockenmühl, J. & Suchantke, A. 1995. *The metamorphosis of plants*. Cape Town: Novalis Press.

Bohm, D. 1980. *Wholeness and the implicate order.* London: Routledge.

Bohm, D. 1985. *Unfolding meaning: a weekend of dialogue with David Bohm.* New York: Doubleday.

Bohm, D. 1993. *The undivided universe*. London: Routledge.

Bookchin, M. 1982. *The ecology of freedom*. Palo Alto, CA: Cheshire Books.

Bortoft, H. 1996. *The wholeness of nature: Goethe's way toward a science of participation in nature*. New York: Lindisfarne Press.

Bradley, M. 2011. Goethe's "Delicate Empiricism": Assessing its value for Australian ecologists. *Australian Journal of Environmental Education*, 27(1):81-93, January.

Bramford, A. 2006. *The wow factor: global research compendium of the impact of the arts in education*. Münster, Germany: Waxmann Verlag.

Breitfeller, K.M. 2010. Making objects to make meaning: a theoretical framework for understanding the embodied nature of the artmaking experience. Unpublished MA thesis, Ohio State University, Columbus, OH.

Brook, I. 1994. Goethean science in Britain. Unpublished PhD thesis: Lancaster University.

Brook, I. 1998. Goethean science as a way to read landscape. *Landscape Research,* 23(1):51-69.

Brook, I. 2003. The distance learing MA in values and environment at Lancaster University. Block 4 phenomenology as method.

http://www.lancs.ac.uk/dept/philosophy/awaymave/405/block4.htm

Brower, C., Mallory, R. & Ohlman, Z. 2005. *Experimental eco-design:* design: architecture / fashion / product. Crans-Près-Céligny: RotoVision.

Brown, J. 2011. In the zone: an autoethnographic study exploring the links between flow and mindfulness for a piano accompanist. *Studies in Learning, Evaluation Innovation and Development,* 8(2):83-95.

Brown, T. 2008. Design thinking. *Harvard Business Review*, 86(6):84-92, 141, June.

Brown, T. 2009. Designers – think big. http://www.ted.com/talks/tim_brown_urges_designers_to_think_big [4 November 2012].

Brown, T. & Katz, B. 2011. Change by design. *Journal of Product Innovation Management,* 28(3):381-383, May.

Buchanan, R. 1989. Declaration by design: rhetoric, argument, and demonstration in design practice. In Margolin, V. (ed). *Design discourse: history, theory, criticism.* Chicago, IL: University of Chicago Press.

Buchanan, R. 1992. Wicked problems in design thinking. *Design Issues*, 8(2):5-21, Spring.

Buchanan, R. 2000. Design and the organization of learning. In Swann, C. & Young, E. (eds). *Re-inventing Design Education in the University: Proceedings of the Perth Conference, International Conference, School of Design, Curtin University of Technology, Perth, 11–13 December 2000.* Perth, WA: School of Design, Curtin University of Technology.

Buchanan, R. 2001. Human dignity and human rights: thoughts on the principles of human-centered design. *Design Issues,* 17(3):35-39, July.

Buchanan, R. & Margolin, V. (eds). 1996. *The idea of design*. Cambridge, MA: MIT Press.

Buhner, S.H. 1997. *The secret teachings of plants: the intelligence of the heart in direct perception of nature*. Rochester, VT: Bear.

Buchner, S.H. 2004. *The intelligence of the heart: the secret teachings of plants.* Rochester, VT: Bear.

Burke, P. 2008. Designing for disagreement. *Interactions: Experiences/People/Technology,* XV(1):46-51, January–February.

Burkhard, G. & Atkinson, T. 2000. *Intuitive practitioner: on the value of not always knowing what one is doing*. Maidenhead: Open University Press.

Burrell, G. & Morgan, G. 1979. *Sociological paradigms and organisational analysis*. London: Heinemann.

Cameron, J. 2005. *Place, Goethe and phenomenology: a theoretic journey. Janus Head. Pennsylvania:* 8(1):174-198.

Capra, F. 1982. *The turning point: science, society and the rising culture*. New York: Simon & Schuster.

Capra, F. 1988. *Uncommon wisdom*. London: Rider.

Capra, F. 1996a. *The web of life: a new scientific understanding of living systems.* New York: Anchor Books.

Capra, F. 1996b. *The web of life: a new synthesis of mind and matter.* London: HarperCollins.

Childs, G. 1996. *5 + 7 = 12 senses: Rudolf Steiner's contribution to the psychology of perception*. Stroud: Fire Tree Press.

Clandinin, D.J. & Connelly, F.M. 1991. Narrative and story in practice and research. In Schön, D.A. (ed.). *The reflective turn: case studies in and on educational practice.* New York: Teachers College Press: 258-281.

Clifton, M. 2012. *Marjorie Spock's The Art of Goethean Conversation.* http://marcclifton.wordpress.com/2012/12/24/marjorie-spocks-the-art-of-goethean-conversation/ [1] [10 June 2014].

Cobbald, J. 2009. *Victor Schauberger: learning from nature*. Edinburgh: Floris Books.

Coles, R. 1998. *The moral intelligence of children.* London: Bloomsbury.

Collingwood, R.G. 1945. *The idea of nature*. Oxford: Clarendon Press.

Colquhoun, M. & Ewald, A. 1996. *New eyes for plants: workbook for plant and observation and drawing*. Stroud: Hawthorn Press.

Colquhoun, M. 1997. An exploration into the use of Goethean science as a methodology for landscape assessment: the Pishwanton Project. *Agriculture, Ecosystems and Environment*, 63:145-157.

Cranny-Francis, A. 2013. *Technology and touch: the biopolitics of emerging technologies*. London: Palgrave Macmillan.

Cross, N. 2001. Designerly ways of knowing: design discipline versus design. *Design Issues*, 17(3):49-55, Summer.

Cross, N., Christiaans, H. & Dorst, K. 1994. *Design thinking: understanding how designers think and work*. Oxford: Berg.

Csikszentmihalyi, M. 1993. *The evolving self: a psychology for the third millennium*. New York: HarperCollins.

Csikszentmihalyi, M. 1997. *Finding flow: the psychology of engagement with everyday life*. New York: Basic Books.

Csikszentmihalyi, M. 2002. *Flow*. London: Rider.

Csikszentmihalyi, M., 2004. Flow: the secret to happiness. http://www.ted.com/talks/mihaly_csikszentmihalyi_on_flow.html [10 June 2014].

Csikzentmihalyi, M., Rathunde, K. & Whaen, S. 1997. *The roots of success and failure*. Cambridge: Cambridge University Press.

Cullinan, C. 2002. *Wild law.* Cape Town: Siber Ink.

Dahlman, Y. 2007. Towards a theory that links experience in the arts with the acquisition of knowledge. *International Journal of Art & Design Education,* 26(3):274-284, October.

Davidoff, S. 2000. *The courage to lead*. Cape Town: Juta Academic.

Davidoff, S. & Lazarus, S. 2004. *The learning school: an organisation development approach*. Cape Town: Juta Academic.

Davies, A. (ed). 2006. *Enhancing Curricula: Contributing to the Future, Meeting the Challenges of the 21st Century in the Disciplines of Art, Design And Communication: Proceedings of 3rd International Conference, Lisbon, 6–7 April.* London: Centre for Learning & Teaching in Art & Design (CLTAD).

Davis, B. & Sumara, J. 2006. *Complexity and education: inquiries into learning, teaching and research*. Mahwah, NJ: Lawrence Erlbaum.

Davis, B., Sumara, J.D. & Luce-Kapler, R. 2000. *Engaging minds: changing teaching in complex times*. Mahwah, NJ: Lawrence Erlbaum.

Davis, J. 2006. *The Goethean approach and human artifacts*. http://www.gocatgo.com/texts/goethe.artifact.pdf [25 July 2012].

Davy, J. 1985. *Hope, evolution and change*. Stroud: Hawthorn Press.

De Saint-Exupéry, 1999. *The little prince*. London: Egmont Children's Books.

De Spain, K. 1993. Dance Improvisation: creating chaos. *Contact Quarterly*, 18(1):21-27, Winter/Spring.

Descartes, R. 1968. Meditations. In Kaufmann, W. (ed.). *Philosophic classics: Bacon to Kant*. Englewood Cliffs, NJ: Prentice Hall: 22-63.

Denzin, N.K. & Lincoln, Y.S. (eds). 2000. *Handbook of qualitative research*. 2nd ed. Thousand Oaks, CA: Sage.

Devall, B. & Sessions, G. 1984. The development of natural resources and the integrity of nature. *Environmental Ethics,* 6:293-322.

Dewey, J. 1916. *Democracy and education: an introduction to the philosophy of education*. New York: Macmillan.

Dewey, J. 1958. *Experience and nature.* 2nd ed. New York: Dover.

Dewey, J. 1961. *Art as experience*. New York: Capricorn Books.

Ebach, M.C. 2005. *Anschauung* and the archetype: the role of Goethe's delicate empiricism in comparative biology. *Janus Head*, 8:254-270.

Edwards. B. 1986. *Drawing on the artist within*. New York: Simon & Schuster.

Edwards. B. 1999. *Drawing on the right side of the brain: a course in enhancing creativity and artistic confidence*. 3rd ed. New York: Jeremy P. Tarcher/Putnam.

Encyclopaedia Britannica. 1974. *Micropaedia, Volume VIII*. Chicago: Encyclopaedia Britannica Inc.

Flannery, M. C. 2005. Goethean and the molecular aesthetic. *Janus Head*, 8 (1): 273-289

Fielding, M. 2007. The human cost and intellectual poverty of high performance schooling: radical philosophy, John Macmurray and the remaking of person-centered education. *Journal of Education Policy*, 22(4):383-409.

Friedman, K. 2000. Design education in the university: professional studies for the knowledge economy. In Swann, C. & Yound, E. (eds). *Re-inventing Design Education in the University: Proceedings of the Perth Conference, International Conference,* Perth, 11–13 December 2000. Perth: School of Design, Curtin University of Technology: 13-27.

Friedman, K. 2003. *Theory construction in design research: criteria: approaches, and methods. Design Studies*, 24(6):507-522.

Freire, P. 1974. *Education for critical consciousness*. New York: Continuum Books.

Fry, R. 1981. *A sleep of prisoners*: *play*. New York: Dramatist Play Service.

Fuad-Luke, A. 2012. Pause, reflect, activate, impact: co-designing consensus and dissensus for positive societal impacts. Paper presented at the International Conference, Open Design Shared Creativity: From Chain Production to Chain Reaction, Barcelona, Spain, 2–3 July 2012. http://fad.cat/congres/en/?p=26 [6 January 2013] http://www.youtube.com/watch?v=iXkxKoESiWc [16 September 2013]

Gadamer, H. 1976. *Philosophical hermeneutics*. (trans. & ed. by Linge, D). Berkeley, CA: University of California Press.

Gadamer, H. 1977. *Philosophical hermeneutics*. Berkeley, CA: University of California Press.

Gage, N. L. 1978. *The Scientific Basis of the Art of Teaching*. New York: Teachers College Press

Gardner, H. 1983. *Frames of mind: the theory of multiple intelligences*. New York: Basic Books.

Gibson, J.J. 1950. *The perception of the visual world*. Boston, MA: Houghton Mifflin.

Gibson, J.J. 1986. *The ecological approach to visual perception*. Hillsdale, NJ: Lawrence Erlbaum.

Gibson, K.R. & Ingold, T. 1993. *Tools, language, and cognition in human evolution*. Cambridge: Cambridge University Press.

Giddens. A. 1990. *The consequences of modernity*. Stanford, CA: Stanford University Press.

Glaser, B. 1992. *Basics of grounded theory analysis: emergence vs. forcing.* Mill Valley, CA: Sociology Press.

Glaser, B. & Strauss, A. 1967. *The discovery of grounded theory: strategies for qualitative research*. New York: Aldine.

Goethe, J.W. 1970. *The metamorphosis of plants*. Cambridge, MA: MIT Press.

Goethe, J.W. 1978. *Readings in Goethean science*. Compiled and produced by Koepf, H. & Jolly, S. Wyoming, RI: Bio-Dynamic Literature.

Goethe, J.W. 1982. *The Italian journey*. San Francisco, CA: North Point Press.

Goethe, J.W. 1983. *The Italian journey*. New York: Suhrkamp/Insel.

Goethe, J.W. 1988. *Scientific studies*. New York: Suhrkamp.

Goethe, J.W. 2007. *The green snake and the beautiful lily: a fairy tale*. Great Barrington, MA: Steiner Books.

Goethe, J.W. 2010. The experiment as mediator between subject and object. (transl. by Holdrege, C.). *In Context*, 24:19-23 Fall. [Goethe wrote this essay in 1792].

Goldschmidt, G. 2003. Expert knowledge or creative spark? Predicaments in design education. Paper presented at the Expertise in Design, Design Thinking Research Symposium 6, University of Technology, Sydney, 17–19 November.

Goodwin, B. 1999. Reclaiming a life of quality. *Journal of Consciousness Studies*, 6(11-12):229-235.

Goodwin, B. 2007. *Nature's due: healing our fragmented culture*. Edinburgh: Floris.

Grene, M. 1974. The knower and the known. Berkeley, CA: University of California Press.

Groenewald, T. 2004. A phenomenological research design illustrated. *International Journal of Qualitative Methods*, 3(1):1-26, April.

Guttenhöfer, P. 2014. The mission of our times. Lecture at the Anthroposophical Society of the Western Cape, South Africa.

Haid, C. & Sam. M.M. (eds). 2002. *Annual of the literary arts and humanities*. Dornach, Switzerland: Goetheanum Press.

Harding, S. 2011. *Grow small, think beautiful: ideas for a sustainable world*. Edinburgh: Floris.

Heidegger, M. 1962. *Being and time*. New York: Harper & Row.

Hetherington, H.L. 1979. Out of the darkness. *The Golden Blade*. (31):59-69. London: Rudolf Steiner Press.

Hocking, B., Haskell, J. & Linds, W. (eds). 2001. *Unfolding Bodymind: exploring possibility through education*. Brandon, VT: Foundation for Educational Renewal.

Hoffman, M.L. 2000. *Empathy and moral development: implications for caring and justice*. Cambridge: Cambridge University Press.

Hoffmann, N. 2007. *Goethe's science of living form: the artistic stages*. New York: Adonis Press.

Holdrege, C. 2005. Doing Goethean science. *Janus Head*, 8(1):27-52.

Holdrege, C. 2011. Workshop: Towards a Thinking which is Alive: Seeing Nature Holistically. A one-week residential workshop at Towerland, Wilderness. www.proteusinitiative. org/about – us [3 February 2011].

Holdrege, C. 2011. Workshop: Seeing Nature Holistically. Three day non-residential workshop at Kirstenbosch Gardens in Cape Town. August 2011.

Holdrege, C. 2013. *Thinking like a plant: a living science for life*. Great Barrington, MA: Lindisfarne Books.

Howard, M. (ed.). 1998. *Art as spiritual activity.* Hudson, NY: Anthroposophic Press.

Huberman, A.M. & Miles, M.B. (eds). 2002. *The qualitative researcher's companion*. Thousand Oaks, CA: Sage.

Husserl, E. 1964. *The phenomenology of internal time consciousness*. Bloomington, IN: Indiana University Press.

Hycner, R.H 1999. Some guidelines for the phenomenological analysis of interview data. In Bryman R. & Burgess G. (eds). *Qualitative research, Vol. 3.* London: Sage: 143-164.

IDEO. 2011. *Human-centered design toolkit*. San Francisco, CA: IDEO. http://books.ideo.com/ [18 January 2012].

IDEO. 2012. *Design thinking for educators toolkit*. San Francisco, CA: IDEO. http://designthinking-foreducators.com [2 April 2013].

IDEO. 2013. *We help organizations innovate.* San Francisco, CA: IDEO. http://www.ideo.com [10 February 2014].

Ingold, T. 2008. Bringing things back to life: creative entanglements in a world of materials. Material Worlds Symposium, Brown University. Providence, RI, 18 April.

Innes, J. 2006. Learning and employability: a critical analysis of 'live' projects as anchors for situated learning. In Davis, A. (ed). *Enhancing curricula: contributing to the future, meeting challenges of the 21st century in the disciplines of art, design and communication.* London: cltad.

Irwin,T., Kossoff, G. & Baxter, S. 2007. Island: an assessment of the real in the unreal. Paper presented at Island: an Assessment of the Real in the Unreal: Conference of the International Association of Societies of Design Research, Hong Kong Polytechnic University, Hong Kong, 12–15 November.

Isaacs, W. 1999. *Dialogue and the art of thinking together: a pioneering approach to communicating in business and in life first*. New York: Doubleday.

Jankelson, C. 2005. *An Engagement with the Phenomenology of Leadership*. Published PhD thesis, University of Western Sydney, Hawkesbury, AU.

Jaworski, J. 2011. *Synchronicity: The inner path of leadership*. San Francisco, CA: Berrett-Koehler.

Jimenéz-Narvaez, L.M.J. 2000. Design's own knowledge. *Design Issues*, 16(1):36-51, Spring.

Johnson, M. 1989. Curriculum Inquiry Vol. 19, No. 4 (Winter, 1989): 361-377

Julier, G. 2014. *The culture of design*. London: Sage.

Kagan, S. 2008. Art effectuating social change: double entrepreneurship in conventions. In Sacha Kagan, S. & Kirchberg, V. (eds). *Sustainability: a new frontier for the arts and cultures*. Bad Homburg, Germany: VAS Verlag für Akademische Schriften: 147-193.

Kagan, S. 2012. *Toward global (environ)mental change: transformative art and cultures of sustainability*. Berlin: Heinrich Böll Stiftung.

Kagan, S. & Kirchberg, V. 2008. (eds). *Sustainability: a new frontier for the arts and culture.* Bad Homburg, Germany: VAS Verlag für Akademische Schriften.

Kant, I. 1965. *Critique of pure reason*. New York: St Martins Press.

KaosPilots. 2011. Leadership seminar, 22–24 March, Cape Town, South Africa.

Kaplan, A. 1996. *The development practitioner's handbook*. London: Pluto Press.

Kaplan, A. 1999. *The developing of capacity.* Cape Town: Community Development Resource Association.
http://www.cdra.org.za/articles [17 September 2009].

Kaplan, A. 2002. *Development practitioners and social process: artists of the invisible*. London: Pluto Books.

Kaplan, A. 2005. Emerging out of Goethe: conversation as a form of social inquiry. *Janus Head*, 8(1):311-334.

Kaplan, A. 2010. Towards a Larger Integrity: Shining a different light on the elusive notion of capacity development [9 October 2014]
http://www.proteusinitiative.org/Writings/Towards%20a%20Larger%20Integrity.pdf

Kaplan, A. 2011. Course: Complexity and Social Transformation at the Schumacher College. https://www.schumachercollege.org.uk/search/node/Allan%20Kaplan [9 November 2013].

Kaplan, A. 2014. Action Research inside a Reflective Social Practice: A Delicate Empiricism http://www.proteusinitiative.org [14 February 2015].

Kaplan, A. & Davidoff, S. 2009. Workshop: Observation, Inspiration, Intervention. A Three-Week Workshop for Social Development Practitioners, Towerland, Western Cape, 18 April–5 May.

Kaplan, A. & Davidoff, S. 2011. The singer, not the song: the vexed questions on impact monitoring and social change. The Singer not the Song: Paper from the Proteus Initiative http://www.proteusinitiative.org [18 March 2012].

Kaplan, A. & Davidoff, S. 2011. A Goethean Observation Group. The Proteus Initiative [13-14 May].

Kaplan, A. & Davidoff, S. 2012. Masters Programme in Reflective Social Practice. http://www.proteusinitiative.org/current-and-coming-programmes-workshops-and-courses/23-workshops/current-and-coming-programmes-workshops-and-courses/104-masters-in-reflective-social-practice [18 March 2012]

Kolko, J. 2010. Sensemaking and framing: a theoretical reflection on perspective in design synthesis understanding sensemaking and the role of perspective in framing. In *Proceedings of the 2010 Design Research Society (DRS) International Conference: Design & Complexity, Montreal, Canada, 7–9 July*: 6–11.

Kossoff, G. 2011. Holism and the reconstitution of everyday life: a framework for transition to a sustainable society. Unpublished PhD thesis, University of Dundee.

Krippendorf, K. 2006. *The semantic turn*. Boca Raton, FL: CRC Press.

Kuoni, C. 1993. *Energy plan for the western man: Joseph Beuys in America.* New York: Four Walls Eight Windows.

Lakoff, G. & Johnson, M. 1980. *Metaphors we live by*. Chicago, IL: University of Chicago Press.

Lakoff, G. & Johnson, M. 1999. *Philosophy in the flesh: the embodied mind and its challenge to western thought*. New York: Basic Books.

Laszlo, E. 1972. *The systems view of the world: the natural philosophy of the new developments in the sciences*. New York: George Braziller.

Lave, J. & Wenger, E. 1991. *Situated learning: legitimate peripheral participation*. Cambridge: Cambridge University Press.

Lawson, B. 2005. *How designers think: the design process demystified*. London: Architectural Press.

Leedy, P.D. 1997. *Practical research: planning and designing*. 6th ed. Upper Saddle River: NJ: Prentice Hall.

Leedy, P. D. & Ormrod, J. E. 2001. *Practical research: planning and design*. Upper Saddle River: Prentice Hall

Leistner, E. 2005. *African predicament: Africa wavering between past and modern time*. Mlalo, Tanzania: Mlalo Publishers.

Leopold, A. 1949. *A sand county almanac and sketches here and now*. Oxford: Oxford University Press.

Lester, S. 1999. *An introduction to phenomenological research*. Taunton: Stan Lester Developments. http://www.sld.demon.co.uk/resmethy.pdf [6 August 2012].

Lievegoed, B. 1972. *Towards the 21st century: doing the good*. New York: Anthroposophical Press.

Lievegoed, B. 1985. *Man on the threshold: the challenge of inner development.* Stroud: Hawthorn Press.

Lindseth, A. & Norberg, A. 2004. A phenomenological and hermeneutical method for researching lived experience. *Scandinavian Journal of Caring Sciences*, 18(2):145-153.

London, P. 2003. *Drawing closer to nature: making art in dialogue with the natural world*. Boston, MA: Shambhala.

Love, T. 2002. Constructing a coherent cross-disciplinary body of theory about designing and designs: some philosophical issues. *Design Studies*, 23:345-361.

Lovegrove, N. 2011. Call for creativity for all. *Pool Magazine*, 7. http://issuu.com/poolmagazine/docs/poolseven/17 [17 August 2011].

Lowe, D. & Sharp, S. 2005. *Goethe and Palladio. Great Barrington*, MA:Lindisfarne Books

Lowe, D. Interview with the author in December 2012. Steiner House, UK. [Interview notes in possession of the author]

Lowndes, F. 2000. *Enlivening the chakra of the heart.* Forest Row: Floris.

Lucie-Smith, E. 1984. *Thames & Hudson dictionary of art terms*. London: Thames & Hudson.

Macklin, A. 2006. Making-as-thinking: developing the embodied imaginary in architectural design education. In Davies, A. (ed.) *Enhancing Curricula: Contributing to the Future, Meeting the Challenges of the 21st Century in the Disciplines of Art, Design And Communication: Proceedings of 3rd International Conference, Lisbon, 6–7 April.* London: Centre for Learning & Teaching in Art & Design (CLTAD): 549-559.

Manzini, E. 2006. *Design, ethics and sustainability*: *guidelines for a transition phase*. http://www.cumulusassociation.org/images/stories/Working_papers/WP_Nantes_16_06.pdf [3 March 2009].

Manzini, E. 2015. *Design, when everybody designs: an introduction to design for social innovation.* Cambridge, MA: MIT Press. [In press.]

Manzini, E. & Jegou, F. 2003. *Sustainable everyday: scenarios of urban life*. Milan: Edizioni Ambiente.

Marchand, T. 2008. Muscles, morals and mind: craft apprenticeship and the formation of person. *British Journal of Educational Studies*, 56(3):245-271.

Margolin, V. 2007. Design for development: towards a history. *Design Studies*, 28:111-115.

Margolin, V. & Margolin, S. 2005. Social design: prospects for a new paradigm. Open lecture at University of Art and Design, Helsinki, Finland, 28 April. http://www.finnishdesign.fi/files/fide/trppi/Margolin_press_release.pdf [28 June 2010].

Maslow, A. 1968. *Toward a psychology of being*. New York: Van Nostrand.

Maslow, A. 1971. *The farther reaches of human nature*. New York: Viking.

Mau, B. & Leonard, J. 2004. *Massive Change*. London: Phaidon Press.

Maudsley, D.B. 1979. *A theory of meta-learning and principles of facilitation: an organismic perspective*. Toronto: University of Toronto Press.

McDonough, W. & Braungart, M. 2002. *Cradle to cradle: remaking the way we make things*. New York: North Point Press.

McIntosh, S. 2007a. *Integral consciousness and the future of evolution: how the integral worldview is transforming politics, culture, and spirituality.* St. Paul, MN: Paragon House.

McIntosh, S. 2007b. The natural theology of beauty, truth and goodness. http://www.integralworld.net/mcintosh4.html [12 May 2014].

McNiff, J. 1984. Action research, transformational influences: pasts, presents and futures. http://www.jeanmcniff.com/items.asp?id=11 [20 May 2013].

McNiff, J. 1999. Marian Nugent's research project. http://www.jeanmcniff.com/userfiles/file/Theses/Marian%20Nugent/Marian%20Nugent%20Dissertation.pdf [20 May 2013].

McNiff, J. 2002. *Action research for professional development: concise advice for new action researchers.* http://www.waikato.ac.nz/tdu/pdf/booklets/24_AR.pdf [15 August 2014].

McNiff, J. n.d. My 'unfinished symphony': prologue. http://www.jeanmcniff.com/userfiles/file/Theses/Chris%20Glavey/myunfinishedsymphony.pdf [22 May 2013]

Meneely, J. & Portillo, M. 2005. The adaptable mind in design: relating personality, cognitive style, and creative performance. *Creativity Journal*, 17(2 & 3):155-166.

Merleau-Ponty, M. 1962. *Phenomenology of perception*. (Trans. Smith, C.). New York: Humanities Press.

Merleau–Ponty, M. 1968. *The structure of behavior*. Boston, MA: Beacon Press.

Merriam, S.B. 1998. *Qualitative research and case study applications in education*. San Francisco, CA: Jossey-Bass.

Mezirow, J. 1981. A critical theory of adult learning and education. *Adult Education Quarterly*, 32(1):3-24, September.

Mezirow, J. & Associates. 2000. *Learning as transformation: critical perspectives on a theory in progress*. San Francisco, CA: Jossey-Bass.

Middleton, H. 2005. Creative thinking, values and design and technology education. *International Journal of Technology and Design Education*, 15(1):61-71.

Milder, R. 1995. *Reimagining Thoreau*. Cambridge: Cambridge University Press.

Miller, D. (trans. and ed.). 1988. *Johann Wolfgang von Goethe: scientific studies*. New York: Suhrkamp.

Miller, D. (ed). 1995. *Goethe: scientific studies (Collected Works Vol. 12).* Princeton, NJ: Princeton University Press.

Monson, C. 2005. Practical discourse: learning and the ethical construction of environmental design practice. *Ethics, Place, and Environment*, 8(2):181-200.

Moulthrop, S. 1996. *Getting over the edge*. https://pantherfile.uwm.edu/moulthro/essays/edge.html [17 December 2012].

Mugerauer, R. 1994. *Interpretations on behalf of place: environmental displacements and alternative responses*. New York: State University of New York Press.

Munhall, P.L. 2001. *Nursing research: a qualitative perspective*. London. Jones and Bartlett.

Muschalle, M. 2009. Research projects on Rudolf Steiner's worldview. (Trans. from the German original *Forschungsprojekte zur Weltanschauung Rudolf Steiners*) by Boardman, T. & Savier, G. http://www.studienzuranthroposophie.de/ResearchProjects.pdf [21 October 2013].

Nachmanovitch, S. 1981. Gregory Bateson: old men ought to be explorers, *CoEvolution Quarterly,* Fall. www.freeplay.com [13 January 2014].

Nachmanovitch, S. 1990. *Free play: improvisation in life and art*. New York: Tarcher/Putnam.

Nachmanovitch, S. 1999. *Creating space for a creative life*. www.freeplay.com [13 January 2014].

Naess, A. 1993. *Ecology, community and lifestyle: outline of an ecosophy.* Cambridge: Cambridge University Press.

Nature Institute. 2009. *Seeing nature whole – A Goethean approach*. http://natureinstitute.org/nature/index.htm [25 October 2009].

Nature Institute. 2014. *Toward a science of qualities. Learning to see life: developing the Goethean approach to science.* http://natureinstitute.org/qual/index.htm [12 February 2014].

Naussbaum, M.1986. *The fragility of goodness*. Cambridge: Cambridge University Press.

Naydler, J. (ed.). 1996. *Goethe on science: an anthology of Goethe's scientific writings*. Edinburgh: Floris.

Nelson, R. 2009. *The jealousy of ideas: research methods in the creative arts.* Melbourne: Ellikon.

Ng Foong Peng, V. 2013. Towards a holistic understanding of sense of place: a phenomenological reading of Chew Jetty, Penang. *International Journal of Humanities and Social Science* (3):20:75-83, December.

Nobel, A. 1996. *Educating through art.* Edinburgh: Floris.

Norman, D. 2010. Why design education must change. http://www.core77.com/blog/columns/why_design_education_must_change_17993.asp [20 February 2012].

Nussbaum, B. 2007. Are designers the enemy of design? http://blogs.businessweek.com/mt/mt-tb.cgi/5969.1362014642 [14 May 2013].

Orbe, M. P. 2009. Phenomenology. In Littlejohn, S. & Foss, K. (eds). *Encyclopedia of communication theory*. Thousand Oaks, CA: Sage.

Orr, D. 1992. *Ecological literacy: education and the transition to a postmodern world*. Albany, NY: State University of New York Press.

Orr, D. 1994. *Earth in mind: on education, environment and the human prospect*. Washington, DC: Island Press.

Orr, D. 2002. *The nature of design: ecology, culture, and human intention*. New York: Oxford University Press.

Orr, D. 2004. The learning curve. *Resurgence*, 226: 18-20, September/October.

Orr, D. 2011. *Ecoliteracy and ecological education*. http://www.schumachercollege.org.uk/community/david-orr-ecoliteracy-and-ecological-education [7 June 2011].

O'Sullivan, E., Morrell, A. & O'Connor, M.A. (eds). 2001. *Expanding the boundaries of transformative learning*. Basingstoke: Palgrave.

Owen, C. 2004. Responsible design. Achieving living excellence: implications, warnings and a call to action. Paper presented at the International Conference on Environmental Design for Living Excellence, Kuala Lumpur, Malaysia, 13–14 December.

Pallasmaa, J. 1995. Identity, intimacy, and domicile: a phenomenology of home. In Benjamin, D.N. (ed.). *The home: words, interpretations, meanings and environments*. London: Avery: 30-40.

Pallasmaa, J. 2000. Hapticity and time: notes on a fragile architecture. *The Architectural Review*, 207(1239): 78-84, May.

Pallasmaa, J. 2009. *The thinking hand: existential and embodied wisdom in architecture*. Bognor Regis: Wiley.

Palmer, P. 1998. *The courage to teach: exploring the inner landscape of a teacher's life*. San Francisco, CA: Jossey-Bass.

Palmer, P. 2004. *A hidden wholeness: the journey toward an undivided life*. San Francisco, CA: Jossey-Bass.

Papanek, V. J. 1984. *Design for the real world: human ecology and social change*. Chicago, IL: Academy Chicago.

Papanek, V. J. 1995. *The green imperative: natural design for the real world*. New York: Thames & Hudson.

Parthasarathy, A. 2007. *The fall of the human intellect*. USA: Vendanta Cultural Foundation.

Pasmore, V. 1980. *Victor Pasmore: with a catalogue raisonné of the paintings, constructions and graphics, 1926–1979*. London: Thames & Hudson.

Patton, M.Q. 2002. *Qualitative research & evaluation methods* (3rd ed.). Thousand Oaks, CA: Sage.

Pepler, E. 2012. WEF finds South Africa's education under the worst in the world: catastrophic tertiary drop-out statistics more than 30%. *Rapport:* 9, Dec. 2012 [Author indicated.]

Perlas, N. 2011. *Mission possible! Sow courage; harvest a new world*. Helsinki: Luova.

Peter-Ross, E. 1999. *Biodemocracy: a symbolic quest for global ideals*. Cape Town: Royal Tern Publishers.

Piening, E. & Lyons, N. 1979. *Educating as an art*. New York: Rudolf Steiner School Press.

Pietak, A.M. 2011. *Life as energy: opening the mind to a new science of life.* Edinburgh: Floris.

Pink, D.H. 2005. *A whole new mind*. New York: Riverhead Books.

Plotkin, B. 2003. *Soulcraft: crossing into the mysteries of nature and psyche*. Novoto, CA: New World Library.

Polkinghorne, J. 2002. Reductionism. In Tanzella-Nitti, G. & Strumia, A. (eds). *INTERS – Interdisciplinary encyclopedia of religion and science.* Rome: Advanced School for Interdisciplinary Research (ADSIR). http://inters.org/reductionism [10 September 2010].

Polyani, M. 1962. *Personal knowledge: towards a post-cultural philosophy.* Chicago, IL: University of Chicago Press.

Price, J. 1995. Looking for Nature at the Mall: A Field Guide to the Nature Company. *Uncommon Ground: Toward Reinventing Nature:* 186-203

Rapp, D. 2002. *Annual of the literary arts and humanities*. Dornach, Switzerland: Goetheanum Press.

Raphaely, M. 2012. Post by Mirran Raphaely. The Field Centre. http://www.thefieldcentre.org.uk/2012/09/03/mirran-raphaely/ [14 May 2013].

Richards, M.C. 1973. *Centering in pottery, poetry and the person*. Middletown, NY: Wesleyan University Press.

Richards, M.C. 1989. *The crossing point: selected talks and writings*. Hanover, NH: University Press of New England.

Richter, G. 1982. *Art and human consciousness*: Stuttgart: Verlag Urachhaus.

Rilke, R.M. 1996. *Rilke's book of hours: love poems to God*. New York: Riverhead Books.

Rilke, R.M. 2000. *Letters to a young poet*. (trans. Burnham, J.). Novato, CA: New World Library.

Robbins, B.D. 2005. New organs of perception: Goethean Science as a cultural therapeutics. *Janus Head*, 8(1):113-126.

Root, C. 2005. The Proteus within: Thoreau's practice of Goethe's phenomenology. *Janus Head*, 8(1):232-249.

Rowe, S. 2002. Book review: Unfolding bodymind: exploring possibility through education, by Brent Hocking, Johanna Haskell, and Warren Linds (eds). *The Trumpeter: Journal of Ecosophy,* 18(1). http://trumpeter.athabascau.ca/index.php/trumpet/article/view/128/145 [12 February 2011].

Sacks, S. Interview with the Director of the Social Sculpture Research Unit in January 2013. Oxford Brookes University, Oxford. [Interview notes in possession of the author].

Sacks, S. 2013. Earth Forum workshop, Social Sculpture Research Unit, Oxford Brookes University, Oxford.

Schaefer, C. & Voors, T. 1986. *Vision in action: the art of taking and shaping initiatives*. Stroud: Hawthorn Press/Anthroposophic Press.

Schank, R.C., Berman, T.R. & Macperson, K.A. 1999. Learning by doing. In Reigeluth, C.M. (ed.). *Instructional Design Theories and Models: A New Paradigm of Instructional Theory, Vol. II.* Mahwah, NJ: Lawrence Erlbaum: 161-181.

Scharmer, O. 2003. Interview with A. Zajonc, Collective Wisdom Initiative, Amherst, MA. http://www.collectivewisdominitiative.org/papers/zajonc_interv.htm [9 June 2011].

Scharmer, O. 2007. *Theory U: leading from the future as it emerges.* San Francisco, CA: Berrett-Koehler.

Schauberger, V. 2009. *A life of learning from nature*. Edinburgh: Floris.

Schilling, S. 2007. Goethean phenomenological approaches to place – developing an integral perspective of the built environment. In Tarozzi, M. & Bertolani, J. (eds). *New frontiers of phenomenology: Proceedings of the 26th International Human Science Research Conference 2007, Roverto, Italy, 13–16 June*. Trento: Università degli studi di Trento, 2008*:* 2–13.

Schön, D. 1983. *The reflective practitioner: how professionals think in action.* London: Maurice Temple Smith.

Schön, D. 1987. *Educating the reflective practitioner: towards a new design for teaching and learning in the professions*. San Francisco, CA: Jossey-Bass.

Schumacher College. http://www.schumachercollege.org.uk/ [19 April 2009].

Seamon, D. 2000. Phenomenology, place, environment and architecture: a review of the literature. *Environmental & Architectural Phenomenology Newsletter*, 16. http://www.arch.ksu.edu/seamon/seamon_revieweap.htm_[July 18 2009].

Seamon, D. 2005. Goethe's way of science as a phenomenology of nature. *Janus Head*, 8(1):86-101.

Seamon, D. & Zajonc, A. (eds). (1998). *Goethe's way of science: a phenomenology of nature*. New York: State University of New York Press.

Seeley, C. 2006. Wild margins: playing at work and life. Published PhD thesis, University of Bath.

Seeley, C. 2006. Interlude: Glimpsing a Goethean way of seeing. Interlude in Published PhD thesis, University of Bath.

Seeley, C. 2011. A thought piece on artful knowing for a sustainable future. Paper presented at Ashridge International Research Conference, Ashridge, 10–12 June.

Selby, D. 2004. Dancing earth: radical interconnectedness and its implications for sustainability education. *Resurgence*, 226:21-24.

Senge, P. 1999. *Leadership in living organizations.* San Francisco: Jossey-Bass.

Senge, P., Scharmer, C.O., Jaworski, J., Flowers, B.S. 2005. *Presence: exploring profound change in people.* London: Nicholas Brealey.

Sepper, D. L. 1988. *Goethe contra newton: polemics and the project for a new science of color.* Cambridge: Cambridge University Press

Sewall, L. 2000. *Sight and sensibility: the ecopsychology of perception.* New York: Tarcher.

Shafir, T. 2011a. The tabula rasa and the labyrinth. Design Academy Eindhoven. http://www.designacademy.nl/Portals/0/www/corporate/research/Essay_Milano2011.pdf [11 October 2011].

Shafir, T. 2011b. *The Milan breakfasts – Activate the future*! Design Academy Eindhoven. http://vimeo.com/40773846 [9 November 2013].

Sheldrake, R. 1981. *A new science of life*. London: Blond & Briggs.

Shor, I. & Freire, P. 1987. *Pedagogy for liberation: dialogues on transforming education*. Westport, CT: Bergin & Garvey.

Shotter, J. 1999. Writing from within 'living moments': 'withness-writing' rather than 'aboutness writing'. Paper presented at the Fourth National Writing across the Curriculum Conference: Multiple Intelligences, Cornell University, Ithaca, NY, 3–5 June.

Shotter, J. 2005. Goethe and the refiguring of intellectual inquiry: from 'aboutness'-thinking to 'withness'-thinking in everyday life. *Janus Head* 8(1):132-158.

Silverstein, M. 1993. The first roof: interpreting a spatial pattern. In Seamon, D. (ed.). *Dwelling, seeing, and designing: toward a phenomenological ecology.* Albany, NY: SUNY Press: 77-101.

Simms, E. 2005. Goethe, Husserl, and the crisis of the european sciences. *Janus Head* 8(1):160-172.

Spock, M. 1985. *Teaching as a lively art*. Hudson, NY: Anthroposophic Press.

Spock, M. 1983. The Art of Goethean Conversation. http://www.consciousconversation.com/Essays/TheArtofGoetheanConversation.htm

Sprong, L. & Nicolson, M. Thingking. http://www.thingking.co.za [14 September 2012].

Sprong, L. & Nicolson, M. Thingking. www.thingking.co.za/projects/fixperts/ [12 November 2013].

Steiner, R. 1886. *Grundlinien einer Erkenntnistheorie der Goetheschen Weltanschauung.* Berlin and Stuttgart: W. Spemann.

Steiner, R. 1908. Esoteric lessons. www.wn.archive.org/lecture/GA266 [28 July 2014].

Steiner, R. 1922. *Goethe as the founder of a new science of aesthetics*. (Trans. Metaxa, G.). London: Anthroposophic Press.

Steiner, R. 1923. The true, the beautiful and the good. http://www.southerncrossreview.org/37/steiner.htm [6 November 2012].

Steiner, R. 1964. *The philosophy of freedom*. London: Rudolf Steiner Press.

Steiner, R. 1974. *The stages of higher knowledge: Imagination Inspiration Intuition*. Hudson, NY: Anthroposohic Press.

Steiner, R. 1978. *Readings in Goethean science*. Westerly, RI: Leo F. Manfred.

Steiner, R. 1995. *Intuitive thinking as a spiritual path*. (Trans. Lipson, M.). Hudson, NY: Anthroposophic Press.

Steiner, R. 1998a. *Art as spiritual activity: Rudolf Steiner's contribution to the visual arts*. Howard, M. (ed.). Hudson, NY: Anthroposophic Press.

Steiner, R. 1998b. *Eurythmy as visible singing*. (Trans. Stott, A.). Stourbridge: Anderida Music Trust.

Steiner, R. 2000. *Nature's open secret.* Barnes, J. (ed.). Hudson, NY: Anthroposophic Press.

Steiner, R. 2003. *Art*. (compiled by Stockton, A.). London: Rudolf Steiner Press.

Steiner, R. 2005. Series of 9 lectures given in Berlin, Germany between 14 October and 9 December 1909. (Trans. by Davy, C. & Von Arnim, C.). London: Rudolf Steiner Press.

Steiner, R. 2008. *Spiritual ecology: reading the book of nature and reconnecting with the world*. (Trans. & revised, by Barton, M.) London: Rudolf Steiner Press. http://www.wn.rsarchive.org/lecture/GA266 [28 July 2014].

Swanwick A., Anster, J. & Farrie, R. 1982. *The spiritual-scientific basis of Goethe's work*. Spring Valley, NY: St George Publications.

Talbot, M. 1996. *The holographic universe*. London: HarperCollins.

Talbott, S. 2007a. *Devices of the soul*. Sebastopol, CA: O'Reilly Media.

Talbott, S. 2007b. Technology and human responsibility. http://netfuture.org [4 July 2011].

Talbott, S. 2007c. The language of nature. *The New Atlantis*, 15:41-76, Winter.

TEDxTableMountain presentations 2012 http://tedxtablemountain.org/ [9 January 2012]

Thackara, J. 2005. *In the bubble: designing in a complex world*. Cambridge, MA: MIT Press.

Thoma, H. 2003. All at the same time. *Resurgence*, 216:15-17, January/February.

Thoreau, H.D. 2007. *I to myself; an annotated selection from the journal of Henry D. Thoreau*. (Ed.) J.S Cramer. New Haven, CT: Yale University Press.

Tisdall, C. 1974. *Art into society, society into art.* London: ICA.

Tisdall, C. 2010. *Joseph Beuys*. London: Thames & Hudson.

Torbert, W. 2001. The practice of action inquiry. In Reason, P. & Bradbury, H. (eds). *The handbook of action research*. London, Sage: 250-260.

Trend Tablet. 2014. Lidewij Edelkoort
http://www.trendtablet.com/ [3 April 2014]

Trousdel, I. Interview with the founder of the Living Water Institute in November 2012, Emerson College, Forest Row, UK. [Interview notes in possession of the author].

Van der Ryn, S. 2005. *Design for life*. Layton, UT: Gibbs Smith.

Van Houten, C. 1999. *Awakening the will: principles and processes in adult learning*. London: Temple Lodge Publishing.

Van Manen, M. 1989. Pedagogical text as method: phenomenological research as writing. *Sunnybrook Review*, 7 (2):23-45.

Van Manen, M.2007. Phenomenology of practice. *Phenomenology Practice*, 1(1):11-30.

Varella, F.J., Thompson, E. & Rosh, E. 1991. *The embodied mind: cognitive science and human experience*. Cambridge, MA: MIT Press.

Vezzoli, C. A. Manzini, E. 2008. *Design for Environmental Sustainability.* London: Springer-Verlag London Ltd

Villa, D. (ed.). 2000. *The Cambridge companion to Hannah Arendt.* Cambridge: Cambridge University Press.

Vygotsky, L.S. 1978. *Mind and society: mind in society: the development of higher psychological processes.* Cambridge, MA: Harvard University Press.

Wahl, D. 2005. "Zarte Empirie": Goethean science as a way of knowing. *Janus Head* (8)1:58-76.

Wang D. & Wagner S. 2007. A map of phenomenologyfor the design disciplines. *Environmental & Architectural Phenomenology*, 18(1):12–15, Winter.

Waters, J. 2014. Phenomenological research guidelines.
http://www.capilanou.ca/psychology/student-resources/research-guidelines/Phenomenological-Research-Guidelines/ [20 June 2013].

Wertheim-Aymes, D. 2014. An imagination.
http://anthroposophysa.org.za/articles/business-practices-in-the-light-of-anthroposophy [12 April 2014].

Whyte, D. 2002. *The heart aroused: poetry and the preservation of the soul in corporate America*. New York: Currency Doubleday.

White, P. 2014. Anthroposophy and Steiner schools: time for a reassessment? *New View Magazine*. Issue (71):18–23, Spring.

Wilbur, K. 2000. *Sex, ecology and spirituality* (collected works, volume 6.) Boston, MA: Shambhala.

Wilson, F. 1998. *The hand: how its use shapes the brain, language, and human culture*. New York: Pantheon Books.

Wilson, S. 2006. *The organic of craft: the influence of Goethe's holism*. Dundee: University of Dundee Press.

Winkler, F.E. 1960. *Man: the bridge between two worlds.* 6th ed. New York: Harper & Brothers.

Zajonc, A. 2008. Arthur Zajonc.
http://www.arthurzajonc.org [22 July 2010].

Zajonc, A. 1999. Goethe and the phenomenological investigation of consciousness. In Hameroff, S.R., Kasniak, A.W. & Chalmers, D.J. (eds). *Towards a science of consciousness III*. Cambridge, MA: MIT Press.

Zajonc, A. 2006. Contemplative and transformative pedagogy. *Kosmos Journal*. V(1), Fall/Winter.
http://www.arthurzajonc.org/uploads/Contemplative_Pedagogy%20Kosmos.pdf [27 November 2012].

Zander, B. & Zander, R.S. 2000. *The art of possibility.* Boston, MA: Harvard Business Press.

Zeylmans van Emmichoven, F.W. 1963. *The foundation stone*. London: Rudolf Steiner Press.

Zeylmans van Emmichoven, F.W. 1964. *The reality in which we live*. Sussex: New Knowledge Books.

LIST OF FIGURES

Appendices

March 2012

ATT: Cape Town Mayor Patricia de Lille
[and the Cape World Design Capital 2014 programme team]

Dear Patricia de Lille and the Cape Town World Design Capital 2014 programme team

FOUR PROPOSALS:
CAPE TOWN WORLD DESIGN CAPITAL 2014

With the Cape Town Partnership having successfully placed the global spotlight on the Mother City for 2014, the following four proposals provide some possible pathways by which to realise a socially and environmentally integrated and responsible approach to local World Design Capital initiatives in the coming two years.

With Cape Town at centre stage, all eyes are on us, and the broader social context of being in South Africa and on the continent of Africa needs to be at the forefront of all related projects. One of the greatest challenges will be to balance professional ambition with aspects of intelligent future-minded development. Together we need to construct a bridge between today and tomorrow that will serve to harmonise the history of our turbulent past and meet the future on its own terms. But what will give us the desired advantage? How do we create a shared history, common knowledge, accountability, social and environmental responsibility, and, above all, a shared goal and future? Can we find innovative answers, which address ecological considerations and social dynamics right from the start?

These considerations may already well be at the top of the Cape Town Partnerships priority list. The following four mini-proposals are made in the spirit of offering skills and experience where needed to complement and work in partnership with existing structures so as to ensure that these higher goals are attained.

PROPOSAL # 1:
SOCIAL FACILITATION AND SUPPORT

My first proposal is to offer social facilitation and support to the Design Capital organising team. As skilled facilitators with an original, nuanced approach, and specific experience in the world of social development and design, we are able to assist with and provide innovative processes and structures for interaction within the team, promoting sensitive and meaningful social relations. A balance needs to be sought between inspiration, opportunity, resourcefulness and collaboration in order to ensure that the right action is taken. When this is possible, the group can accommodate all potential, possibility and the integration of good ideas.

With design leading the city of Cape Town to a new paradigm, designers will need to explore diversity, embracing the perspectives of local people and getting to know what they perceive as useful, desirable and beneficial. The focus should be on seizing the creative opportunity, sharing complex knowledge, and creating a high-performance team that works collaboratively, effectively and meaningfully. It may help to develop an open space in which the Cape Town Partnership can focus on progressing dialogue through facilitated processes. It is the facilitators role/responsibility to:

- hold together the threads of a process
- feel through what is needed and what is being asked
- help design the processes of engagement and to change direction when necessary
- take participants through the process design - sometimes known and sometimes unknown
- respond to participants
- offer insights
- share perceptions and experiences
- tie threads together
- sum up sessions
- help to make overall meaning of the process

I offer this service in partnership with The Proteus Initiative www.proteusinitiative.org a Cape Town-based organization, which facilitates learning processes and conversations for individuals and groups in the social sphere. Proteus associates work locally and globally as social and organizational development consultants in response to specific requests from organisations concerned with social renewal.

Our task as facilitators is to listen at a deeper level, to hear the questions, the possibilities, the direction that suggests itself, and to help, through the process to make that more conscious for all involved. Our aim is to create spaces where conversations can take place, where people really hear one another, listen to the underlying currents, observe finely what is taking place and build a shared understanding together.

CROSS-POLLINATION

PROPOSAL # 2:
ACTION GROUP

This second proposal is a motivation for the establishment of an action group, made up partly by members of the Cape Town Partnership, partly by others in the field of design and socio-ecological expertise. It is proposed that the action group include social anthropologists, green designers, sustainability experts and others, who are accustomed to coming together to expand competence. Considering that the honour of being named World Design Capital 2014 has placed Cape Town in the global spotlight, it is crucial that we pay attention to social complexity right from the start and set the stage for a high quality, multi- layered, multi-cultural, multi-sited programme of events and activities.

It would be the role of the action group to evaluate all proposed initiatives, and to support and guide designers in making socially and ecologically informed decisions regarding the future of Cape Town. The aim of this group would be to understand the contributions and concerns of all the designers, including the possibilities for cross-pollination/fertilization between designers and design initiatives. It would be the action group's responsibility to forge links between design participants and civic action groups or communities in need of innovative design solutions, thereby ensuring that all participant design projects are rooted in a shared ethic of social inclusiveness and ecological consciousness. It would also be ideal to ensure that the decisions and selections made are not extravagant, but based on the real and relevant needs of communities as they confront the future. Adopting this approach will result in satisfying and empowering the people of the larger Cape Town area by fostering hope, stability and human dignity, rather than approaching the project with a market-driven sensibility geared only towards satisfying the customer.

The collaboration between the Cape Town Partnership and our selves would be to foster co-learning, co-creating and co-initiating in the development phases of all Design Capital 2014 initiatives to ensure that the same deeper intentions are shared by all the projects involved in the broader Design Capital 2014 project. The action group would be responsible for guiding all design processes and ensuring community empathy and solidarity across the full range of participating projects.

CROSS-POLLINATION

PROPOSAL # 3:
CROSS-POLLINATION WORKSHOPS

The third proposal is to create a learning environment in which to accommodate emerging designers and professionals interested in exploring integrated systems and focusing on social aspects and sustainability in design.

The Cross-Pollination project promotes the role of designer as mediator between culture and nature and is hosted by Karen Suskin, Helen van Zyl and associates (such as acclaimed designers Haldane Martin and Heath Nash and social development practitioners from The Proteus Initiative). The workshops are for professionals and students interested in exploring the emerging design field, sharing generative theories, practical ideas and imagining a common future.

The Cross-Pollination initiative offers workshops to open dialogue and explore:

- deepening individual and collective purpose towards defining the design intention
- the connecting patterns in nature and living concepts in thinking
- extending respect for social and environmental concern
- responding to imperatives arising out of change
- leadership - leading design towards an integrated and balanced future

IDEO www.ideo.com an award winning global design and innovation consulting firm, is interested in collaborating with the Cross-Pollination project in 2014. They will bring a strong emphasis on human-centered design for those who need it the most; those facing poverty every day. IDEO is an international design organisation focused on social enterprise and on developing foundations with which to innovate solutions to the world's most dire poverty-related challenges. Their slogan is: Imagine, a world without poverty. Now let's create it!

Together we propose a week-long workshop around issues of social design and ecological awareness for 2014, examining the relationship between nature and culture. Through rigorous discipline and exercise, both structured and wild (outside in nature) the workshop will actively explore how emergent and professional designers can respond to human needs by adding value and meaning to emerging circumstances. In perceiving the qualities and values that guide our design work, we hope to deepen practice both individually and collaboratively, offering new approaches to social and ecological renewal.

CROSS-POLLINATION

PROPOSAL # 4:
AWARENESS-BUILDING WILDERNESS RETREAT - TOWARDS A NEW DESIGN INTEGRITY

This joint proposal bringing together Cross-Pollination, the Proteus Initiative and IDEO is for a week-long programme at Towerland , a wilderness retreat nestled in the Langeberg mountains in the Southern Cape, South Africa, which will afford slowing down, making time and space to explore and experience, observe and question concerns and ideas among participating design practitioners. Interdisciplinary designers' both African and International are in for a thought provoking experience as we relate processes of metamorphosis in nature to the interconnectedness of all things, in particular social complexity. In deepening understanding and perception of complex processes in nature, we offer the possibility of understanding and working with radically different, more appropriate and organic approaches to social design. This will enable designers develop qualities of attention, awareness and openness in their practice with respect to environmental and social concern.

Time will be given to sharing practice appreciatively, critically, responsively and enquiringly (each bringing a case study). Together we will bring our strivings within the broad framing of a genuinely holistic and living response to our world. Towerland is a truly inspiring and wonderful venue to explore nature, conversation and human unfolding. Participants will be encouraged to understand the world, their work and develop new faculties to engage in new ways of practising design. We aim to achieve three things through this week-long programme:

- further development of social and ecological consideration for each design practitioner
- further development of a new body of social design practice informed by living thinking
- development of a written document for wider dissemination

The Proteus Initiative and Cross-Pollination will facilitate this process, and IDEO will present and assist in furthering discussions around social design integration within a global context.

TAKING THESE PROPOSALS FURTHER

Each of the above four proposals is made with the central aim of advancing social and ecological design awareness, which we believe will be the key ingredient to Cape Town's success as World Design Capital 2014. We believe that each of these four proposals could be of great long-term value to the Cape Town Partnership, maximizing the positive outcomes of your already existing goals and plans for 2014. We would welcome the opportunity to meet and discuss how these proposals might be fine-tuned to meet your needs, and will happily provide you with detailed programmes and quotations on request. We look forward to hearing from you soon.

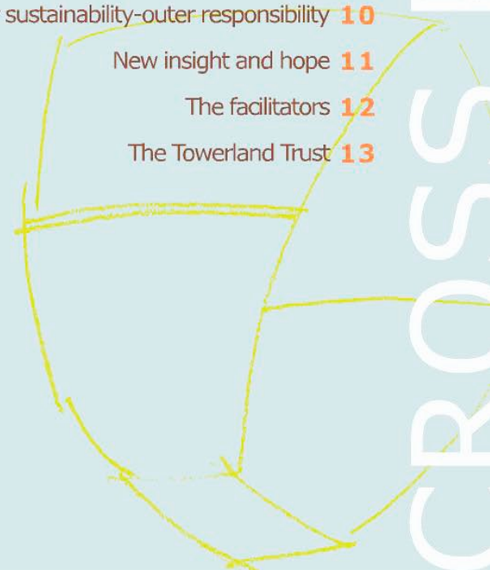
Warm Regards

Karen Suskin
www.karensuskin.co.za
0820444047

THE ROLE OF DESIGNER AS MEDIATOR BETWEEN CULTURE AND NATURE

CROSS POLLINATION

CONTENTS



CROSS POLLINATION

THE ASPIRATION OF THIS WORKSHOP

IS TO MOVE OUT OF FIXED PATHS OF KNOWN THINGS INTO A WAY OF DOING DESIGN WITH GREATER OPENNESS AND AWARENESS - OPENING DIALOGUE BETWEEN CONNECTING PATTERNS IN NATURE AND LIVING CONCEPTS IN THINKING.

THE SHIFT we are experiencing in design is a response to a complex mix of some of the negative features of modern life: over consumption, depleted natural resources, alienation from nature, and anti-social behaviour. An imperative for this shift are the radical changes taking place in nature herself; we are being rocked out of our complacency by global climate change and ecological catastrophe.

The problems we face have been caused in large measure by the disconnected way in which we think about and relate to the world. We ca no longer afford to view life through the familiar lens of materialism alone, but must evolve a way of thinking that recognises nature as teacher. We must expand our field of vision to encompas the living world as our university. By returning to nature's genius we may find that we can craft interconnected and intelligent design solutions which benefit both people and nature.

DOING DESIGN DIFFERENTLY begins with observation of nature - from the large scale dynamics of the seasons to the small-scale intricacies of germination and development - in an attempt to bring the student's thinking closer to the "thoughts" of nature. This obviously entails cultivating openness and avoiding pre-formed ideas. The course will provide access to a broader field of perception where many unexamined meanings we have inherited can be evaluated.

A further stage of doing design differently will involve practice in visualizing how one contextual moment in the process of design metamorphoses into another. It is hoped that this in turn will make for a more profound involvement in the design process as a whole, leading to an enhanced feeling of responsibility and design integrity of idea, production process and the end product.

In all our endeavours the language of nature will always be the central focus. It is a powerful source for the stimulation of organic thinking, a thinking which is fluid and flexible and enlivens the student's ability to perceive connections between things. This includes the ability to "fill in the spaces" that cannot be filled by the senses alone. This will involve schooling the imagination (and possibly deeper levels of cognition that it relates to) so that it becomes a reliable tool of knowledge. Designers with such a background will, we feel, contribute wisely and wholeheartedly to the design intention, not necessarily imitating nature, but as inspiration for creating a more sustainable future.

THE INTENTION OF THE COURSE is to enter into the world of natural, mutually dependent processes that make up the dynamics of life.

Some of these processes are visible to us, while others are not. If we are to enter into the natural world of on-going change and movement we must seek new levels of understanding that can see connecting patterns. The student will discover how each part of the process/ system, although an autonomous entity in itself, is an expression of the regulatory action of the whole. The design modules will engage with process (the journey) in such a way as to not stipulate a fixed destination or outcome, but cultivate new, more integrated ways of determining the end product.

The course will examine different ways of seeing and turn thinking around, inside out, even upside down, by viewing design from a multiplicity of inter-related perspectives.


fig.1

The student designer will find him/herself becoming actively engaged in both being observer and participant in the process, and gain a feeling and understanding for how one principle in the varying process is always giving way to yet another, newer impulse. For instance In Module 2. the student will observe the seasonal organization of plant growth in the transition from winter to spring. If we can school our powers of observation and attention so that we participate imaginatively in such processes then, when we come to the design process, it too can be trusted to unfold in such an organic and connected way.

This organic unfolding, whether on a small scale or a larger evolutionary scale, would be familiar to the student from the insights they gained in Module 1. This module considers the unfolding of personal biography against a backdrop of the greater unfolding of humanity.

THE CHALLENGE is to develop new insights, techniques and skills with which the designer can regularly enter into the various activities and processes of design which will liberate him/her from ingrained patterns and entrenched habits that lead to mediocrity. At the same time the student is presented with an opportunity to practice an inter-disciplinary approach to design and find ways in which to collaborate.

THE WORKSHOP is broadly experiential and involves a range of practitioners as diverse as the students. The practitioners are working out of a shared concern and interest in creating space for designers to engage in more authentic and life-engendering ways of doing design. Learning from nature and her living processes is a direct and immediate way in which to understand living systems and develop an integral design approach. This approach introduces a new framework for design that includes merging technology and nature and is consistently relates to place, nature and people.

THE LOCATION for the workshop is the outdoor studio of the Langeberg Mountains. Towerland is situated in the southern Cape.
(see page 13 for more information on Towerland)

Design students from diverse disciplines will meet in a place which is essentially wilderness. Here, *through intimate proximity to the living forces of nature, real meeting can take place, real conversations can be held, and new thinking and practice appropriate to our collective future, can be nurtured.*

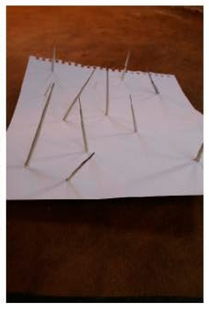
While the studio space is informal the course is highly structured. It is designed to guide the student's self-development, and hone new skills and tools with which to harvest meaning around issues of ecology and social revitalization.

THE PROCESSES support, orientate, activate and enliven the living transformative potential of the designer. The processes are designed to encourage both mental precision and creative freedom and to help shift awareness in such a way that outward experience can be given meaning through inner reflection. This will involve acquainting the students with ways of extending and deepening their thinking. The processes will be guided by the facilitators and sustained by individual and group work. The varied activities are organically embedded in the process of ongoing discovery, whatever the topic.

THE EXERCISES all challenge the accepted perception of reality with plenty of scope for openness, artistic expression, varied inquiry, vulnerability, doubt, wonder and curiosity in making new discoveries. The exercises are complemented by internal questioning based on enhanced awareness and deepend thinking. The extended creative processes are introduced so as to stimulate ecological and social dialogue around new ways of thinking design and doing design. Some of these ways will not have been unlocked by prior learning.

The exercises will also advance the designer's awareness of the *fragile tissue of connections*. This, it is hoped, will inspire the students to make their own methodologies and practice – and hence the designs resulting from them - *more in tune with the ecological fabric of life*.





AMONGST THE MANY TASKS given, the participant will naturally take an enormous step into a field of imagination. This will help to re-enliven, and increase the creative tension between the familiar and the immediacy of experience. The unfolding of any design process is always a dynamic interplay between inner knowledge and creative exploration, although both are simultaneously on the inside and the outside. Thus the design intention or brief interacts responsively with the potentialities that will eventually become the product.

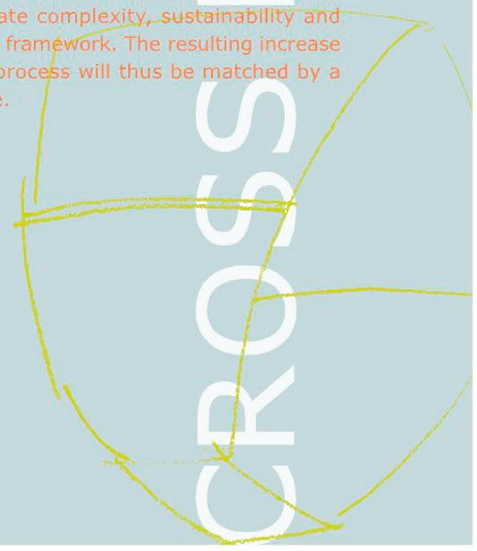
PARTICIPANTS will compile a journal and portfolio of work. The course will culminate in a research and development component that includes ecological and social aspects in design. The course will assist young designers in meeting present and future challenges which requires active participation, commitment and self-reflection.



AN OVERVIEW OF THE SIX DEVELOPMENTAL MODULES

The series of modules places emphasis on design as a developmental tool that pervades all aspects of the shaping and patterning of our lives. The modules are organized in such a way that the student is led supportively through successive stages of an integrated methodology. At the same time, however, there is scope for the students to navigate their own path through the processes. In other words, there are guidelines but no fixed path, destination or outcome; rather each student is encouraged to cultivate new and integrated pathways in deriving an authentic outcome.

Sequentially the modules are a means of unfolding creative capacity and extending our ability to penetrate complexity, sustainability and responsibility within a developmental framework. The resulting increase in the understanding of the design process will thus be matched by a corresponding increase in confidence.



TOWARDS ORIGINAL THINKING - ART HISTORY AND BIOGRAPHY

Module 1.

The first module traces the parallels between individual biography and the "biography" of humanity as epitomized in the history of Art. Coming to the insight that each one of us has a personal relationship to this large-scale developmental history, can help us connect with our original intentions and personal authenticity.

In this module, therefore, we will study the phases of our own life in relation to the phases of world history, and thereby, it is hoped, discover something essential about the direction of our own thinking. The cut of our own mind is our mark, and we will explore how we place it in the world and the potential it may have for influencing the world.

AN INNER AND OUTER DIALOGUE - THROUGH THE SEASONS OF NATURE

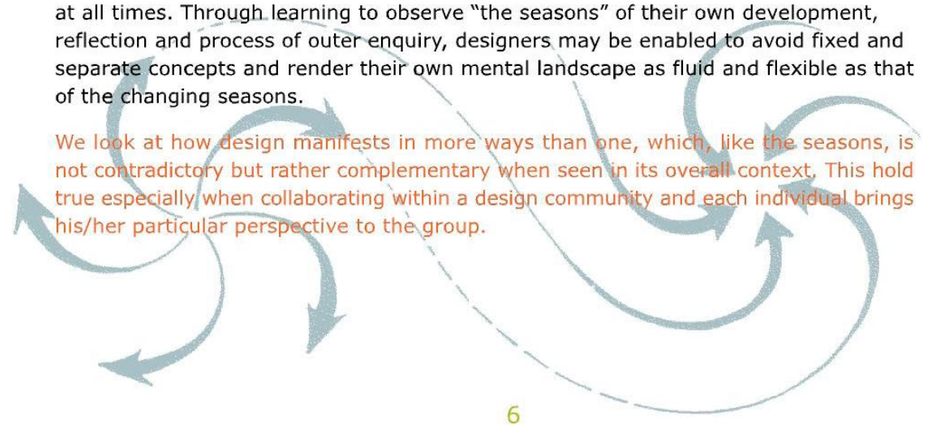
Module 2.

This module explores the polarity in the seasons both in terms of how they oppose and of how they complement each other. If we approach, say winter and summer in this way, we are summoned to engage our imagination in perceiving how this polarity constitutes a dynamic whole.

The outer landscape intensifies inner reflection and this inner movement and awareness may stimulate approaches to design which embrace opposites, opposites which enhance each other every bit as much as day and night, blue and orange.

The module helps us to re-contextualize design and gain deeper insight into transformation by enhancing our ability to keep the unifying idea or principle of organization in view at all times. Through learning to observe "the seasons" of their own development, reflection and process of outer enquiry, designers may be enabled to avoid fixed and separate concepts and render their own mental landscape as fluid and flexible as that of the changing seasons.

We look at how design manifests in more ways than one, which, like the seasons, is not contradictory but rather complementary when seen in its overall context. This hold true especially when collaborating within a design community and each individual brings his/her particular perspective to the group.



ADVANCING DESIGN CONCEPTUALIZATION - THROUGH THE FOUR ELEMENTS

Module 3.

The four elements - earth, water, air and fire - are qualitatively embedded in any landscape. The language of landscape is a gestural one and filled with potential metaphors that unite the factual with the creative. Thus new forms of design can arise that preserve their essential connection to life.

From ancient times, the same qualitative elements were acknowledged in the human being, for example; the air in the breath of our lungs, the bones as minerals in our bodies etc. Here again a creative interplay is explored between the microcosm of the human being and the macrocosm of the elemental earth, and this in turn has a bearing upon the products of design and their cultural and ecological effects.

This qualitative way of meeting nature will give us the possibility of drawing on gesture and metaphor as ways of engaging in different modes of cognition and creating new language in describing design and the design process. This can be done through a comprehensive appreciation of the qualities of each element as an idiom in communicating design.

The module includes the observation of the plant through the cycle of the four elements. The student will experience both the discrete quality of each element but also the interdependency as displayed so clearly in the growing plant. This new way in which to engage with the design cycle promotes an imaginal and enquiring quality that gets closer to being able to "think growth". In the next module "growth" is referred to as that intermediary space that we can only access through our imagination. This ability to be in the entire unfolding process of continual transformation encourages designers to get a firmer grip on design as a developmental tool.

Furthermore this module explores how engaging with the elements in this way can become a tool for unlocking "stuckness" in the design process. Perhaps the design is too grounded, too solid, too box like, or a social situation or organization is fixed and immovable in its approach. Then the element of air can be introduced to bring in the balance. The element of water may be required to move the organization or design process into movement once more.


fig.2

These thought-possibilities give rise to ways in which to articulate design concepts with clear and conscious intention. How can we learn to read imbalances in design and organizations and find ways in which to adjust with them?

THE ARCHETYPE - AND THE GENERATIVE IDEA

Module 4.

This module will look at the archetype behind the design, in the particular study of the plant and animal. We will ask: where is the archetype? Does it lie embedded in every plant, animal, human being and chair?

By observing the leaf sequence in the plant, we approach what might be called the "generative idea" at work within the process of growth. Each finished leaf is like a "footprint" of this idea, though not the idea itself. We have to take the step from formation to transformation through finding a way of perceiving the transitions between the leaves. This can only be done in imagination, and in attempting this we move from the fixed forms of the leaves to the continually unfolding process of growth itself. Is this the face of the generative idea?

Filling in gaps between the leaves in imagination like this is an intense exercise in flexibility and cultivates an inner feeling for the overall "growth movement" of the plant- a gesture of a higher order. We will explore how the approach to such an archetypal gesture might then relate to the design, say, of a chair.

The next task is to reconstruct inwardly, in an unbroken flow, the unfolding plant to its flowering. In doing this, the student will strengthen his/her ability to thinking "with" or "climb inside" the process of continuous creation.

How do we conduct ourselves in relation to this living world of change? Through understanding such interrelationships and mutual dependencies we may arrive at a new experience of what "becoming one with" the process of design might mean. From the wide perspective of such holistic processes the designer may find the courage and the ability to overcome the separateness in our fractured existence and shift our everyday approach in design to one which acquires a sense for sustainability, and one which arises from deep within ourselves.


fig.3

Can that which is hidden be revealed in the developmental process and how do we make space for this greater thing to emerge?

THE NATURE OF DESIGN - SUSTAINABLE PRACTICE

Module 5.

This module looks at design as a pro-active path from the perspective of inner responsibility and outer sustainability.

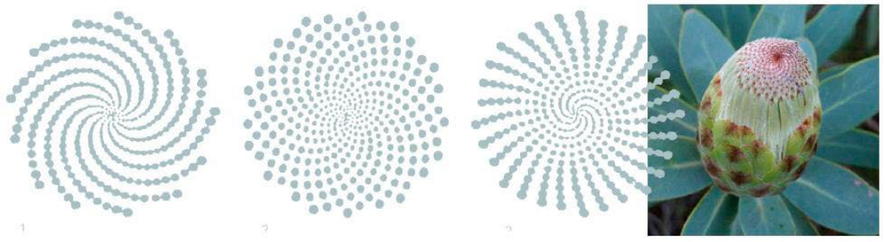
Should we now choose to move our thinking from the passive looking at things to a more participatory, active and engaging way of seeing the underlying patterns and their connections, we can tap into new and more vibrant patterns of organizational form. This is not always a forward, forecasting path but from time to time demands that designers take a step back and use backcasting, to en-vision a "response-able" intervention.

fig.4

Biomimicry is introduced at this point as a valued and supportive methodology for solving *worthy design challenges*.

The radical shift means that we no longer see ourselves as something "in here" and nature as something "out there", separate from ourselves. Instead we get closer to describing what sustainability means when we apprehend, as William Blake did, the world in a single grain of sand. Are we more capable of "seeing" the connecting patterns or underlying currents when we gaze over a landscape, when we meet others or when working together in an organization?

How can I continue to practice learning to read the context better in determining appropriate action?



LEADERSHIP - INNER LEADERSHIP AS NECESSITY FOR SUSTAINABLE AND RESPONSIBLE DESIGN PRACTICE

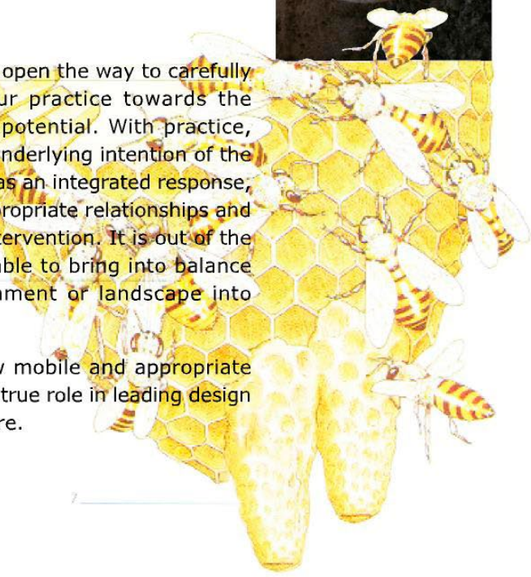
Module 6.

If we have by now accepted that it is our thinking which governs the way we see the world, we may already have made the decision to change our perception of the outer world by shifting the inner world, the world of self. This means that we take a deeper look at ourselves and the things we design in relation to their context and the greater environment. More sensitive and effective ways in which to design will entail removing the shadows of abstractions that we place between ourselves and the world, becoming more finely attuned to ourselves, to others and the environment in which we live.

The real challenge lies in being truly present and conscious in the moment of confronting design decisions. These need to be made with integrity and equanimity, no matter how big or small.

Developing personal leadership will open the way to carefully leading ourselves, others and our practice towards the realization of unique and original potential. With practice, designers will learn to discern the underlying intention of the design brief and design accordingly as an integrated response, interweaving the necessary and appropriate relationships and connections into the outcome or intervention. It is out of the desire for wholeness that we are able to bring into balance our inner, self and outer, environment or landscape into harmony.

Only then will designers forge new mobile and appropriate responses to the task of taking up a true role in leading design into the heart of a sustainable future.



To become conscious of what it is that provides the impetus for design at present, and to nurture design for the future, requires of us our inner discovery of leadership.

NEW INSIGHT + DESIRED PATHS

Out of the practice-based experience of Cross-Pollination inevitable a door opens, and a light shines on new ways of perceiving and practicing design. As designers, can we respond to the imperatives arising out of change – are we facing this time of crisis and opportunity alone or together? The participants are invited to bring questions that relate to their dynamic field of design, and explore these questions through the creative and reflective processes in the workshop. As designers, how do we design in such a way that our design is life-supporting, life enhancing? How do we facilitate the connection between our process of design and the deeper patterns of nature? The course will explore nature's own "language" in denoting the ability to "read" these patterns –patterns that if we look carefully enough, will reveal the ways in which they connect to life. The intention is to enhance living concepts in our thinking which can lead to an integrated and balanced way of doing design in the future.

OUR HOPE is that each designer will find the courage to cross self imposed boundaries and take up THE ROLE OF DESIGNER AS MEDIATOR BETWEEN CULTURE AND NATURE, responding sensitively to design challenges and possibilities in diverse contexts. Sitting at the locus of these intersecting points the designer will develop a more fluent and personal understanding of the principles in design that relate to supporting life. The processes will not only support, but orientate and activate the living transformative potential of each participant and may significantly contribute to new knowledge in the field. We hope that conversations started here continue beyond the duration of the workshop.

The approach to this curriculum is aligned with the following authors:

Steve Talbot, Craig Holdrege, Margaret Colquhoun and Axel Ewald, Joseph Beuys, Shelly Sacks, Nigel Hoffmann, Seth Millar, Henri Bartoft, Rudolf Steiner, Christopher Alexander, Johann W. von Goethe, Alan Kaplan, Sue Davidoff, Martyn Evans and Simon Sommerville, Coen van Houten, Gottfried Richter, Sim van Der Ryn, Owen Barfield, John Shotter, Norman Skillen, Malte C. Bach, John Cameron, Brent D. Robbins, David Bohm, Lev S. Vygotsky, Ludwig Wittenstein, Franciso J. Varela, Martin Heidegger, Edmund Husserl, Janine M. Benyus, C. Otto Scharmer, Peter Senge.

fig.1,2,3 Haldane Martin, *fig.4* Scott Garcia

THE FACILITATORS ON THE PROGRAMME

KAREN SUSKIN

Karen is an interdisciplinary designer and design educator who was a proponent of all things 'sustainable' before it became a buzz word. She is also a multimedia artist who exhibited at the Spier Contemporary Exhibition 2010. Whether it is designing a garment, creating an art installation, working with community, collaborating on a design for a piece of furniture, or mentoring a student, she is aware of the context and the need to find environmentally sensitive, ethical ways of working. Karen shares her striving for an integrated world view with both local and international designers, and design institutions. She has inspired emergent designers across disciplines to engage socially and to envision more life-engendering ways in which to deepen authenticity and integrity.

ALLAN KAPLAN AND SUE DAVIDOFF

Allan and Sue are teachers, writers and Development Practitioners involved in Social Process. They are the authors of *The Development Practitioner's Handbook*, *Artists of the Invisible*, *The Developing of Capacity, Dreaming Reality – The Future in Retrospect and The Learning School*, *The Courage to Lead*, *Changing your Teaching*. Their work is an attempt to realize the full consequences of true participation, of socio-ecological complexity, and of an emerging consciousness which holds freedom and responsibility as a generative polarity in the quest for wholeness. Together they have established the Towerland Wilderness as a space for learning through immersion in nature. Allan and Sue run an international Masters programme in social development and have links with Oxford Brookes University UK, University of Cape Town SA and the Metropolitan University UK.

HELEN VAN ZYL

Helen trained in creative education. Her field of work spans ecology, biodynamic agriculture, sustainable living, community and market gardening, counseling and personal/organizational leadership. Helen is a process art facilitator. Process places emphasis on the experience so that it can manifest as a well-considered and integral part of the solution or end product, in whatever form it may take. Entering into diverse dialogue with nature, the artistic process deepens self awareness and originality. These processes ensure that thinking does not override the creative process or inhibit the freedom to create. Helen provides interactive spaces for practical involvement and inspiration through the artistic coupled with social interaction.

THE TOWERLAND TRUST by Allan Kaplan and Sue Davidoff

Towerland is a mountain wilderness situated in the Langeberg mountains of the southern Cape, South Africa. It is a refuge for pristine mountain fynbos (the most diverse floral kingdom in the world), and is a landscape of hills and ravines, imposing mountain peaks, a generous river and meandering streams, countless walks, infinite views, and the abundant wildlife of the Cape Floral Kingdom.

Without the fixed and straight lines of the built environment, there are no longer any restrictions to our inner movement. Indeed, since there is nothing other than nature herself in our external world, there is nowhere to go except within. The unbounded outer spaces, the natural lines, cycles, rhythms and movements of nature call us back to ourselves, to those unbounded and infinite inner spaces, to a less rational consciousness. The outer wilderness reflects and enables us to reach into our inner wilderness – into those spaces which are normally unconscious, which are often repressed and unknown.

As we travel deeper and further within, so our understanding and our self-knowledge expands and deepens until we are able to embrace our own depths more fully. Consequently our engagement with the world is deepened as it comes from a centre of enhanced depth and breadth.

Buildings are simple and aesthetic, constructed of clay, stone and wood with 'living roofs' of succulent plants, in a landscape which encourages both community and solitude. Water is gravity-fed from the stream and spring, there is no electricity; the elements of nature are experienced in their grace and power. The space is basic, relaxed and exquisite.

13

TEDx CapeTown
x = independently organized TED event

Into the Wild TEDx TableMountain May 2012

I would like to bring your attention to three main themes, which I will weave through my presentation – Wildness, Conversation and Transformation. My aspiration is that your eyes widen a little and your eyebrows lift, just a touch!

Please do this with me. Let your finger tip approach the palm of your other hand and, delicately, respectfully - touch - and retract.

In this momentary meeting, one part of your self met another, 'conversed', was awoken, and became keenly conscious of the other, and itself.

Now consider the notion of getting familiar with what we would otherwise call a 'thing' and which from now on I will refer to as a 'phenomenon'. 'Phenomenon' is a word that derives from the Greek, meaning - 'to appear." When we experience a phenomenon such as a beautiful sunset, we go silent, filled with wonder and a heightened awareness similar to that which you felt when touching your palm. We know how the photographic stop frame sequences the infinitesimal, changes of a sunset or a flower opening - here the technology is active and does the imagining for you. I am suggesting, that you become the active imaginative creator of sequences.

In order to do this we must slow down, still our rational mind - which cannot stand uncertainty and unknowing – and at the same time be aware of the danger of the cursory response of dismissive familiarity - "Oh! I know that plant, it's a wild geranium". Chances are we know very little - besides recognizing and naming it. In flexing our imaginative muscle we gain the ability to 'think' growth – and through this develop a more flexible and agile way of thinking, a thinking, which embraces Life.

As often as possible I immerse myself in the Wild world of nature – brushing against the tough leaf body of the Fynbos, touched by the fragility of its flowers, sensing the unseen. By stretching my imagination into the depths and mystery of a flower, the phenomenon communicates information that I couldn't get in any other way. It is here in the Wild that we discover unexpected conversational partners to help limber up our stiff thinking.

Steve Talbot of the New York Nature Institute asserts that 'If humankind fails to embrace with its sympathies and understanding – every wild thing, then both we and the world will to that extent be diminished.' Here 'wild' pertains to a quality, alive and generative as opposed to the concept 'Wilderness' - a place more controlled and tame, possibly a place for that last wild - 'thing'.

Some years ago I took a group of design students on a trip into the extreme and brutally beautiful desert of the Richtersveld - to work on a project with a group of indigenous people.

The bus journey came to an abrupt halt in the 'apparent' darkness after we temporarily lost sight of the car ahead that was guiding us. In the silence of the desert night, suppressed snivellings of panic started to well up from these 20-something year olds - faced with no cell phone reception and deeply in the wild - the unknown. I told the students I was getting off the bus and invited them to join me. Tears streaming down faces, arms clasped around themselves, they shambled off the bus.

The stillness of the desert communicated its silence to them and slowly their mouths dropped open as they awoke to the immensity and life of the night sky. I could not have asked for a more apt transition from one inner landscape to another.

We all must find the courage to step off the bus, off that erosion causing, rational path, into the untamed, ungroomed, 'slippery slope' of the wild and find our way back to ourselves, and the world. Post-modern relativism has taken us away from ourselves into a prison of sleepy abstraction. From Christopher Fry's play "A Sleep of Prisoners" comes the urgent plea: ' Will you wake, for pity's sake?'

Now I want to turn to the specifics of conversation. All conversational encounters involve a breathing rhythm of minute inner gestures or movements. In sympathy one leans forward with interest to listen to, to experience another, then in an opposite gesture of antipathy (not necessarily in a negative way) retracts a little to reflect, just as you experienced in touching your palm and retracting your finger.

Some 200 years ago poet/scientist Johann Wolfgang von Goethe urged us to move beyond shallow, disconnected observation and become participants - one might say – conversation partners with our world. But today's fragmented interrupted, a-rhythmic way of life leaves little possibility for silence, or for that matter a breathing conversation. And with 'phenomenal' technology we run the risk of simply amassing data without wisdom. Our mental thinking has deprived us of our profound engagement with the world, reducing it to the notion of a piece of real estate.

This thinking has passed its sell-by date.

Looking at nature as a collection of unrelated units, resources, products or mechanisms leads to such insanities as feeding animal remains to herbivores such as cows, where conversation becomes instead, as Talbot asserts,' a mad, free-associating soliloquy.'

Goethe gave us qualitative processes with which to develop new "organs of perception", and make them trustworthy. For one of the first exercises in my Cross-Pollination workshop, to ease participants into their power of imagination,

I give this instruction:-

"Hold a bean in your hand and observe it with all your senses; then with your mind's eye discover the bean's emergent life, moving through your imaginations of, root, shoot, leaf, flower, fruit - and new seed in an uninterrupted flowing activity.

Then with a fake, imitation bean repeat the exercise."

You will discover in doing this exercise yourself that the first bean sends an invitation to 'converse', to participate in its metamorphosis, like 'infinity in the palm of your hand' whereas the imitation bean is ready made with no journey of inner development to share.

I encourage my students to place themselves in the flow and life of every phenomenon they encounter whether it be a community need, artistic process, institutional conflict, design brief or family issue - in the hope of deepening their practice and their thinking 'towards a genuinely, holistic and living response to our world'.

In bringing social sensitivity and ecological awareness closer together they explore the role of designer as the mediator between culture and nature – this is done with the same sensitivity and intent with which you touched your palm with your fingertip.

Wholeness is a way of seeing. We can no longer afford to view the whole as a no-thing – a 'nothing', nor issues environmental as something we manage with merely our – mental ability. The repercussions of ignoring wholeness, of remaining stuck in a detached observer status, as clever gathers of data are already evident in the extreme angst and chaos that is rife throughout our societies, where people are demanding - conversation, transformation, inclusion.

Traditional Science is largely a science that in its proclaimed impartiality has only managed a partial awareness of Life. We acknowledge the absurdity of Apartheid as a political system, yet we continue to practice 'separate development' in our fundamental scientific approach, where we avoid investigating what lives between. In contrast, the broad framing of a Goethean practice is the pursuit of a composite knowledge - the striving to see the whole – and the whole is the sense of interdependence, of belonging together, of - conversation. It is the African understanding found in the word - Ubuntu.

A hundred years ago D.H. Lawrence warned of the risks of not striving for this:

'Sanity means the wholeness of the consciousness,

And our society is only part conscious, like an idiot.

If we do not rapidly open all the

Doors of consciousness

And freshen the putrid little space

In which we are cribbed

The sky blue walls of our unventilated heaven

Will be bright red with blood'

Teetering on the precipice of our collective future, each individual is summonsed as never before to remember our greatest human potential, which is our full consciousness and this full consciousness is dependent on our ability, through sensitive conversation with wildness, to transform our thinking.

(see video of this presentation in https://www.youtube.com/watch?v=jlyUjyshBws)

CROSS-POLLINATION

'The major problems in the world are the result of the difference between the way nature works and the way people think'

Gregory Bateson

Into the Wild

Processes designed to encourage spontaneous, vital thinking

It is evident that our intellectual mode of thinking has limited our ability to perceive the world in its wholeness and aliveness. By exploring dynamic processes in nature we can playfully explore and creatively connect with new ways of thinking and – through this – doing design in the future.

STRANDS INFORMING THE IDEA

This four-day immersion is aimed at professional designers, design educators and students, as well as individuals involved in organisational development for whom, design can play a key role in the context of current opportunities. The design panorama that awaits us, elicits an active search for new instrumentalities adequate to the task of supporting each individual in their effort to become active participants in culture. As design activist Richard Buchanan states ' Products should be personal pathways in the otherwise confusing ecology of culture'.

If design is to be a tool for transformation, (the focus of the Design World Capital 2014 – Live Design and Transform Life) then it is surely less about 'managing' the problems differently, and more about developing a quality of seeing that can deepen understanding regarding transformative process. This is vital if we are to form critical relationships between citizen, culture and nature.

The way we are, the way we think, how and what we see, how we relate to others as well as, to ourselves – the rudiments of a social sensibility – will determine what we do and how we negotiate the present crisis, and design the future.

IMMERSION INTO PROCESS

A considered and thoughtful immersion into the organic world of nature – particularly where it is pristine and wild – allows a new kind of thinking to form which can distinguish our projects. Primarily we will focus on ecological and social design, informed by the principles of nature. These principles in essence generate the energy with which to expand ways of observing, paying attention, developing awareness, being open and making time for reflection and self-awareness, as the harbinger for right action.

CROSS-POLLINATION

ECOLOGICAL DESIGN PRINCIPLES

We will delve into the design principles and logics, which underpin various forms of social organisation in order to find organically consistent and coherent (living) ways of organising for socio-ecological action.

Participants will learn a different way of working with their crafts and disciplines, with their publics and with ways of organising, through this facilitated immersion into the very living processes which we are sworn to protect, yet which we often distort through the very 'management' principles that we employ in our projects to protect them.

The sessions, insights and learning over the four days will be documented and disseminated more broadly through written and artistic publication.

A COLLABORATIVE PROCESS – the facilitators

Between Karen Suskin, Al Kaplan and Sue Davidoff (socio-ecological development practitioners) and the Wilderness – we will create a place where real conversations can be held and new thinking, new faculties and new practices, appropriate to our collective future, can be nurtured.

VENUE: We look forward to you and your staff's participation as you step INTO THE WILD. Towerland Wilderness Retreat is a refuge for pristine mountain fynbos situated in the Langeberg mountains of the southern Cape - with imposing mountain peaks, a generous river and abundant wildlife. The beautiful meeting space and accommodation is all built from natural materials and complements the wild open spaces.

DATES: 10, 11, 12 + 13 September 2012
INVESTMENT:

Warm regards

Karen, Al and Sue

For further information please contact Karen at cross-poll@icon.co.za or refer to:

www.karensuskin.co.za and the link to-Cross-Pollination Workshops
www.theproteusinitiative.org
www.towerlandwilderness.org

COPPER

AN IMAGINATION BY DAVID WERTHEIM AYMES

Magic begins when I find realities in the simple things around us – in my ability to objectively meet the world with love and openness and with basic, grounded, discipline of soul, exercised by the ''I'. Copper Can we confirm that what we see is actually a consequence of a spiritual activity? In collecting the facts about copper, with an open mind, we may for example discover the following broad facts:

Five hundred years ago, or around 1500 AD, copper was found in utensils and jewellery. Most copper reserves were under the ground in an unprocessed form. In the 1800's copper was present in many more physical locations e.g. for lighting. In the early 1900's copper was even more widely visible above the surface of the earth wherein it had lain for millennia in cars, water pipes on trains, more utensils, in many homes, not only of the rich. In the late 1900's copper was everywhere – in kettles, fridges, computers, household wiring, every street light and every radio.

If we consider how the various copper products got there, we can determine the following. Firstly, the original copper items were rough and large. In the early 1900's copper was used in an immense number of electrical cable installations that required a lot more processing than utensils did. More recently, copper is found in very fine and processed forms, even as refined as film and very fine wire. Secondly we can say that copper products proliferated exponentially from the late 1800's until the late 1900's in the complex process of electric cabling, and then becoming very fine and detailed.

The exercise here is to take one inner picture every year of where copper manifested on earth over the past 500 years and to string these 'slides' into a sequence of pictures that you then show to your inner eye at motion picture speed. One will see before ones inner eye copper starting underground and as this motion picture progresses, one sees it being extracted from the ground, exponentially, and converted into more and more products, with ever refined technology and automation, which towards the end of the motion picture become very fine components of computers and other instrumentation. Not only this, but you will also see that copper is spread over the surface of the world mainly where humans live and not much where there is no human settlement.

What came first, the movement of the physical copper in the motion picture you just experienced, or the thought that man needed the best material available to conduct electricity? Of course, the movement of the physical copper did not happen on its own, with mankind only watching its movement with interest. It moved as a consequence of mankind's thinking and development of consciousness around electricity, copper, and many other areas of knowledge and lead to ever increasing levels of automation etc. The deduction can be made that as mankind mastered his thinking, the movement of manifested copper accelerated, with large rough products becoming smaller and finer in greater volume only at the end. It could only appear like this because mankind dominated copper, in his thought world, in a progressive way.

Thoughts are spiritual; they have no material substance. If one puts on a pair of magic glasses that see only copper and nothing else, one would see, if one flew around the earth, webs of copper everywhere. One would see them from 30 000ft above sea level, also really fine webs if one zooms in close or uses a microscope. The surface of the earth is covered in a web of copper with the odd copper vase, fruit bowl, watering jug or fire screen also visible. Did the copper move there on its own or did man's thinking initiate this incredible migration of copper from within the earth to this mass of webs? From this experience, and in the interest of our future, one could say that certain questions would follow logically:

What are we doing with our current thinking each day?

What are we creating?

How do we prepare and exercise our imagination?

David Wertheim Aymes welcomes comment and questions dwa@bosungroup.co.za

CROSSPOLLINATION 1

THE ORIGINAL THINKING - biography workshop 2012 - 2013

INTRODUCTION

The biography module spans three days and traces the parallels between one's individual biography and the "biography" of humanity, as epitomized in the history of Art. Transformational change is considered from these perspectives of the individual and the collective.

BACKGROUND

Art History represents outer biography - the larger, developmental unfolding of humanity. Personal biography is viewed not only as outer events, but also one's inner journey and experience. Individual experience highlights the phases of personal development

Understanding how societal and personal biographies interweave allows us to view design not just as perfunctory tool, but rather as a process that enables us to ask deep and urgent questions about the current global situation, and to envision the future we want to create.

AIM

The Biography module aims to involve designers in exploring integrated pathways that allow us to see ourselves in relation to broader world responsibilities. Through a multiplicity of artistic processes and activities we aim to enable participants to recognize themselves as consummate works of art, and to develop a greater sense of awe and wonder about the world.

THE WORKSHOP

This carefully structured experiential programme takes place in an informal relaxed studio space. The processes are designed to activate and support outward experience, and to encourage meaning making through inner reflection. The creative processes stimulate dialogue around new ways of thinking and designing, which are in tune with issues of ecology and social revitalization.

THE FACILITATORS:

KAREN SUSKIN is an interdisciplinary designer and design facilitator who is aware of the changing design context and the need for more ecological, ethical and social responsiveness. Karen has inspired designers across disciplines to envision more life-engendering ways in which to illuminate integrity -linking the intelligence of head, heart and hands.

HELEN VAN ZYL is a process art facilitator who places emphasis on the experience so that thinking does not override the freedom to create. In whatever form it may take the artistic process deepens self-awareness, originality and opens space for practical involvement and inspiration through individual and social interaction.

Please see attached workshop programme and cost.

For further information please contact
Karen Suskin 0820444047 cross-poll@icon.co.za

CROSS-POLLINATION

MEETING CHANGE
Through creative, integrated design processes

THE OPPORTUNITY
We are living in the midst of change – geopolitical change, social change, institutional change, climate change. As design educators during this time of transformation, we find ourselves in a pivotal position, mediating between our students and the dynamic field of design.
As professionals and mentors, how can we best respond to the imperatives arising out of these shifts – the demands for social justice, ecological sustainability, responsible innovation? What curriculum content, teaching methods, research questions, even personal outlooks, are most appropriate and helpful in this changing context?
And are we facing this time of crisis and opportunity alone or together? Can we build a community of practice in which we can listen to one another, share generative theories and practical ideas, imagine a common future, and rekindle our inspiration?
Meeting change is an opportunity for design educators to do just this.

THE AIM
Meeting change aims to facilitate an opportunity for design educators to meet as a community of reflective practitioners, to share collective wisdom, and to explore emerging opportunities in the field of design education through participation in creative, integrated and reflective processes.

THE PROCESS
Meeting change is a short course comprising four contact days, during which we meet together in a studio setting to participate in creative activities, and to hone our skills of close observation, deep listening, and embodied learning.
The course can be offered as a four-day block, or alternatively as a two-day block followed by two separate workshop days. This latter model allows participants to apply what they are learning between contact sessions. Participation in the entire course is essential.
Please contact the presenters for dates and venues of forthcoming programmes. Alternatively, you may wish to offer **Meeting change** as a staff development process in your institution or faculty at a time that suits your programme.

WORKSHOP OUTLINE
We use processes such as close observation, deep reflection, and supportive listening to help us develop a more fluent and personal understanding of the principles of design. This enables us to respond generatively and with sensitivity to *design challenges* in diverse contexts. It also helps us to understand the *design education process* more deeply, enabling us to make significant contributions to new knowledge in this field.
The **Meeting change** process is inspired by the work of Otto Scharmer, author of *Theory U*, an approach to innovative leadership that integrates both professional and personal development.

CROSS-POLLINATION

MEETING CHANGE
Through creative, integrated design processes

The Meeting Change forum attempts to make sense of the changing landscape of design, and to explore ways in which design education can meet the future. The aim of the forum is to facilitate an opportunity for design educators to meet as a community of reflective practitioners, to share collective wisdom, and to explore emerging opportunities in the field of design education through participation in creative, integrated and reflective processes.

CURRICULUM DEVELOPMENT
The topic for the next meeting is **Curriculum Development.** We are thrilled that Prof. Chris Breen will be our guest speaker. Chris has lectured for many years at UCT, and has been instrumental in grading the curve of academia so that it is not overly analytic, but embraces a thinking which is more culturally comfortable "Chris has a unique way of facilitating by never giving answers, but leading people to gain insight and ask questions to get to their own answers." www.chrisbreen.net
One of the greatest challenges is to move students out of being mere recipients of ready-made knowledge, and to value learning from experience. We may then ask: What is the quality of experience that we want our students to explore? What common core process, methodology or curriculum can guide the embodiment of these experiences?

Please confirm attendance with Rhiannon and enlarge the community of discourse by encouraging your colleagues to participate. We ask that you share successful methods which have emerged out of your own integrity of practice. New participants can refer to our blog: crosspollination-cape.blogspot.com to acquaint themselves with the learning journey thus far.

THE FACILITATORS
PROF. CHRIS BREEN is a passionate educator who has for the past 26 years lectured, at the School of Education, UCT. He is now a freelance consultant, teaching courses to various corporate organizations whilst keeping a finger on the pulse of education. Chris is interested in how creativity plays an important role in education with his focus on the enactivist saying, that 'I act therefore I am'. Chris's intention in education is to bring teaching out of the head into the body.

KAREN SUSKIN is an interdisciplinary designer and design facilitator who is aware of the changing design context and the need for ecological, ethical and social responsiveness. Karen has inspired designers across disciplines to envision more life-engendering ways in which to illuminate integrity - linking the intelligence of the head, heart and hands.

HELEN VAN ZYL is a process art facilitator who places emphasis on the experience so that thinking does not override the freedom to create. In whatever form it may take the artistic process deepens awareness, originality, and opens space for practical involvement through individual and social interaction.

RHIANNON REID is an Interior Design facilitator dedicated to enhancing student learning through innovative - sustainable practice. Rhiannon promotes academic leadership through organizational structures that support relating, conversing, thinking and acting together.

DATE: 2 August 2011 **VENUE**: Cape Town City Hall **TIME**: 8:30 for 9:00 until 15:00
COST:

CONTACT : Rhainnon 084 397 7675 reid.vri@gmail.com

CROSS-POLLINATION

EXTENDING APPRECIATION FOR ORGANIC FOOD –
THROUGH THE CREATIVE PARTICIPATION OF YOUR PATRO

"The question we should be asking is not how many people the world can feed but how many it can feed well"

David Nicholson

Proposal

'Why Organic?' A training course for (Babel restaurant) staff

We are pleased to announce a series of experiential workshops for restaurant staff on the importance of organic food, and invite the staff of [Babel restaurant] to participate. We acknowledge the commitment of [Babylonstoren] to sourcing local produce and serving 'own grown' vegetables in the Babel Restaurant. This series of workshops will further enhance what you have already achieved.

Course purpose

The purpose of this training is to deepen ecological awareness and the understanding of the importance of organic and biodynamic food growing. The workshop is designed to support and enhance the balance, harmony and cycles of your established gardens.

Our approach develops enthusiasm for life-long learning. We give staff the opportunity to experience the value of organic food, to reflect on the restaurant's vision and purpose, and to respond with commitment and enthusiasm.

Course outcomes

Each course module develops understanding of the particular topic, and enables participants to appreciate the importance of their work in the 'big picture' of sustaining and re-enlivening our planet. Participants will gain significant knowledge that will enable them to engage in conversations with patrons about organic food, and the vision of Babel Restaurant.

The nature and style of the course

The course consists of a series of experiential modules. Each includes practical demonstrations, active participation, conversation, artistic expression, role play and fun. The interactive style of the course fosters team building. We take account of the season, connecting ourselves to the rhythms of nature through seasonal food. Each participant receives a notebook and printed notes

CROSS-POLLINATION

EXTENDING APPRECIATION FOR ORGANIC FOOD – THROUGH THE CREATIVE PARTICIPATION OF YOUR PATRONS

We trust you have read through our proposed staff development programme. Our hope is that you will participate in one or more of the modules and reap the long term benefits.
To connect your patrons with the responsively creative work being done in your establishment we have four workshops on offer, the overarching theme is:

DEVELOPLING A HEALTHY RELATIONSHIP TO OUR FOOD.

WORKSHOP New perspectives on garden produce and the food on our table.
This three hour session will review the history of food, discover what led farmers to change from organic, intuitive farming to industrial farming, and how to restore farmers' organic produce back to the local table. This session will include direct participation in the form of a visit to the garden, a talk and conversations that are informative, creative and fun. Included, a delicious organic lunch/breakfast, nutritiously prepared.
The other workshop topics are:

WORKSHOP Creativity - through the living world of nature
In this session we learn new ways to observe and be creative with the four basic elements: earth, water, air and fire. Once we have re-discovered the basic elements in the garden, we will see how they apply to our physical bodies and how to be creative with the elements in the kitchen.

WORKSHOP The Seasons – polarity and transformation
Each changing season in the garden bestows a different range of fruits and vegetables which inform and nourish our varied diet. This exploration summons us to perceive how the seasons oppose and complement each other. By observing the changing seasons we will gain deeper insight into transformational processes which may render our own mental landscape more fluid and flexible.

WORKSHOP Harvesting – life's fruits
In harvesting the fruits of the garden we nourish ourselves. In this module we discover how the different components of the whole plant: root, leaf, flower and seed offer unique nutritional advantages for our well being. An overview on the grains as a main source of nutrition over millennia will also be presented.

The workshop objectives: are to create awareness around the concept of organic/biodynamic food growing, preparation and nutrition, bringing a deeper understanding and enthusiasm for ourselves, family and friends. The sessions are designed to unfold sequentially and may take many different forms, for example: one workshop a week for 3 weeks, once a month for three months, one workshop per season, or a three day residential.
The workshops can also be a half or full day with a simple breakfast/lunch - themed seasonally – this option could be explored by your selves, us and restaurant staff. It is also possible that we fit the four workshops over three consecutive full days- catering to locals or visitors staying over in your accommodation.

CROSS-POLLINATION

Reflective report

We will submit a report on completion of the course to highlight areas of progress and point out any areas that may need further attention. As this is an exciting new course, we welcome surprises, and trust that we will generate creative solutions together.

Course modules

Each of the modules can stand alone or form part of a course.

MODULE 1: GUIDING PRINCIPLES OF ORGANIC GARDENING

New perspectives on garden produce and food on the table. A visual presentation traces the evolution of food (much like the evolution of art), identifying what led farmers to change from natural, organic, intuitive farming to chemical, industrial farming. We share fresh ideas on how we can return organic produce to our tables.

MODULE 2: HARVESTING LOCAL SEASONAL PRODUCE

The stages of the growing plant and the stages of the food garden. A practical session in the garden highlights seasonal planting, sowing, thinning out, weeding, soil fertility and harvesting. Together with the chef, we explore the aesthetic connection between seasonal garden produce and designing settings for the table.

MODULE 3: A LIVING UNDERSTANDING OF NUTRITION

Experiencaing the garden through the wholeness of nature. We simplify challenging concepts of nutrition, enabling staff to understand the nutritional value of fresh produce, both for their own wellbeing and in order to communicate this to the patron.

MODULE 4: DYNAMICS OF WORKING TOGETHER

Personal awareness, pride, respect, trust, leadership and possibility in our daily work. Just as important as connecting with organic produce is connecting with our colleagues. By means of social exercises, we strengthen and improve existing social skills and explore and practise new stills. We make time to honour one another's work and celebrate diversity.

Additional modules:

The course can be expanded to include additional modules on topics such as:

- Raw and cooked food
- Creating a balanced diet
- Food types: dairy, meat, eggs and honey
- Growing seasons
- Soil fertility and composting
- Planting
- The role of insects
- Social relations, team work and developing responsibility.

Course fees:

A non-refundable deposit of 50% will secure your booking. The balance is payable on completion of the module or course.

We look forward to welcoming your staff at one of our workshops.

THE ROLE OF DESIGNER AS MEDIATOR BETWEEN CULTURE AND NATURE

By Suné Stassen

CROSS POLLINATION

Karen Suskin is a true change agent. Her commitment and passion for design education and her exhaustive search for new and more integrated ways of doing design have lead to the development of a creative and innovative teaching practice. A practice shared in Cross-Pollination. "The Cross-Pollination workshops explore the role of designer as mediator between culture and nature and endeavour to understand nature as a powerful source to stimulate an organic type of thinking that is fluid and flexible. A thinking which enlivens the ability to perceive connections between things – the connection to us, others and that of the environment," she explains.

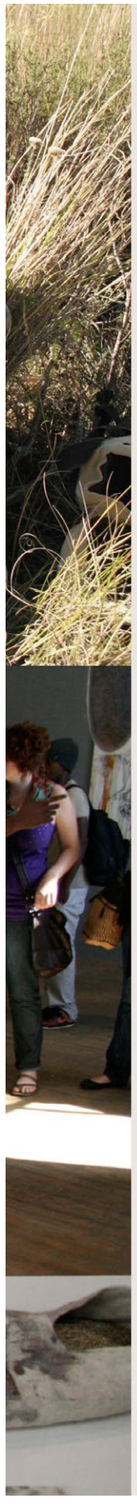
As an interdisciplinary designer, educator, multimedia artist, Karen can be found exhibiting her art work at major venues one day, and on another day mentoring and motivating aspiring designers to change their manmade world into one that is more inclusive, collaborative and sustainable.

"Designers, like all citizens, are required to become agents of change," she says. But in most formal institutions "personal development is not given the attention it deserves and this is a critical component of the work that I do. Cross-Pollination confronts prevailing conventions and urges participants to find more authentic and integrated ways in which to arrive at the outcome" explains Karen.

She has always followed a sustainable path, long before the rest of us became aware of the necessity for it. One of her largest creations was the construction of her straw-bale home 12 years ago. She achieved this with the help of husband Anthony, family and a small local workforce.

Karen explains that Cross-Pollination addresses change within and outside the design studio. Its teaching methods are aligned with David Sogge who said: "learning has to move to the heart of practice."

So what exactly is Cross-Pollination all about? "The shift we are experiencing in design is a response to a complex mix of some of the negative features of modern life like over-consumption, depleted natural resources, alienation from nature and anti-social behaviour. A manifestation of this shift is the radical changes taking place in nature herself – we are being rocked out of our complacency by global climate change and ecological catastrophe.



The problems we face have been caused in large measure by the disconnected way in which we think about, do and relate to the world. We can no longer afford to view life through the familiar lens of materialism alone, but must evolve to a way of thinking that recognises nature as our teacher. We must expand our field of vision to encompass the living world as our university. By returning to nature's genius, we may find that we can craft interconnected and intelligent design solutions, which benefit both people and nature" says Karen.

Karen explains that the Cross-Pollination series of workshops that she presents is really a response to the above and an invitation to all who want to explore and develop new ways of thinking, learning and doing design in a more connected and intelligent way. "The challenge is to make space for the emergence of new insights through developing our self-knowledge and consequently expanding and enhancing our engagement with the world which we inhabit."

So who exactly is the Cross-Pollination audience? Cross-Pollination creates a forum for design educators interested in exploring better practice to come together to develop their personal skills as well as a sense of camaraderie within their field of expertise. The workshop series is relevant to all design educators committed to self-study and building future capacity. "Support is given for developing new learning systems, developing partnerships and future networks in the form of cross-institutional collaboration, envisioning and re-structuring of a department, or developing an institutional working group. The other area that Cross-Pollination focuses on is the emergent design student" says Karen.

The student programme helps designers understand that the primary function of design is not perfecting form. This definition is far too narrow and completely ignores design's vital connection with cultural life and nature, hence the title of the workshops. Karen says that design education cannot be excluded from this mismanagement and material manipulation. She continues: "there is enough evidence that we are doing something wrong. Cross-Pollination creates a forum in which to learn individually and collectively, and where the principles of self-organisation and transformation are explored."

Cross-Pollination is part of the Cape Peninsula University of Technology's design programme and is presently being offered to all design institutions across disciplines nationwide. Karen, Haldane Martin, an industrial designer, process art and social facilitator Helen van Zyl and two social development practitioners Alan Kaplan and Sue Davidoff, facilitate a week-long residential process. This takes place bi-annually in a wilderness area outside Cape Town where students and professional designers from diverse disciplines participate in an extended creative process, inspired by close observation of nature.

So why is it so important for designers to become agents of change? The current ecological crisis and the social dilemma we are facing call for a different type of action.

"Through ecological catastrophe it is clear that our existing world is unsustainable and that nature is nudging us towards some sort of shift which could be that of inner responsibility and outer sustainability," says Karen.

"Humanity is crossing a major threshold. The boundaries that surrounded consciousness centuries ago are no longer fixed, and it is not only the physical world which implies reality. Instead of sending voyagers to discover unknown continents, the exploration of inner frontiers is taking place" (Lievegoed, 1985:223). According to Karen, this less travelled and rather uncertain path summons us as designers to become agents of change.

It's moving from an intellectual, conventional materialistic outlook that views the human being as '**ego system**' to an outlook that views the human being as '**ecosystem**' which includes man and nature as mutually interdependent. "Only then do I believe will we find a more life-engendering way of doing design in the future."

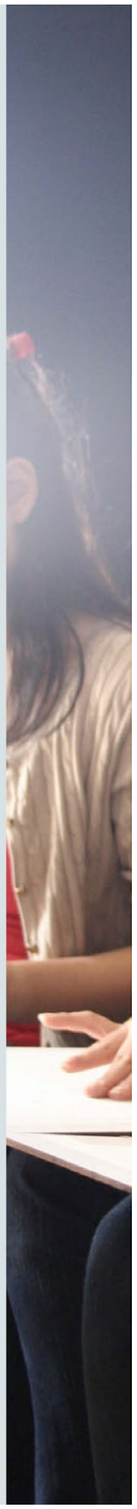
How do we do this? This is achievable through establishing different methods of teaching. Designers must engage in a learning journey, which enables them to gain a grasp on the complexities and the relations between man and nature and all the delicate nuances between. "It's a new way of developing a 'living thinking' approach which is as flexible, agile and adaptable as Nature herself. This entails accurately and sensitively 'reading' or observing the connecting patterns that make up the dynamics of life," says Karen.

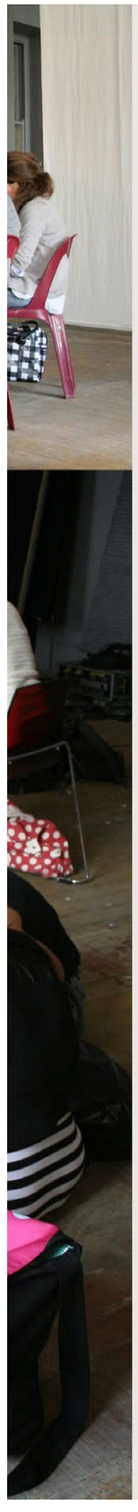
In rising to the challenge of change, Karen says that "design education must address its present traditional definition of knowledge and ask: How do we shift educational systems from traditional knowledge and the **known** to being in the **knowing** and liberate design from its own ingrained patterns and entrenched habits? Furthermore, in accepting the less recognised modes of perception such as intuition, inspiration and imagination, I believe the design process will unfold in more organic, conscious and connected ways."

"Once the designers are equipped with this knowledge and understanding, it should become second nature for them to develop their own experiential pathways and align their personal potential and ability to harness creativity with purpose-filled intention and innovation."

As William Blake so beautifully said: "To see a **world** in a grain of sand, and **heaven** in a wild flower…" suggests the unity of micro- and macrocosm and establishes the possibility for designers to experience the world as an interconnected whole. Our modern way of living and modes of gathering knowledge has numbed our ability to mobilise our thoughts. We need to learn again how to understand the fine relationships between things and find new methods to partner them so that we can create a true overview of the needs of the world. "Only now we can truly move towards a human agency that can positively contribute to meaningful change," explains Karen.

"The lawfulness we experience in nature is a golden thread that runs through the





Cross-Pollination programme and guides understanding towards our own individual purpose and that of humanity. I believe this is the way to empower designers in leading design to the heart of a sustainable future."

The intention of Cross-Pollination is that each designer finds the courage with which to cross self-imposed boundaries and discover a living balance between their holistic mode of thinking – which includes imagination, intuition and inspiration and acknowledge these faculties as trusted modes of cognition – alongside the complementary analytic and rational mode of thinking. "This way we can reground our knowing through lived experience, enabling us to find new ways of being in the world in the future. ""Now the design process becomes more conscious and our actions all the more responsible," explains Karen.

She says that the six modules included in the workshops are "sensitively designed to embrace change and redirect attention from the **object** or end product to the **process**, **the** journey. The designer is cautioned not to try and fix the design result prematurely with a solution, but rather understand to their best ability the experiential nature of each process and create space for a deep emersion into each project."

Although the studio space is informal and the workshops broadly experiential, the course is highly structured and disciplined. The creative process will stimulate both personal and collective dialogue around new ways of thinking that is in tune with issues such as social revitalisation, ecological sensitivity and new economical development.

And the difference between the Cross-Pollination methodology and that of biomimicry? Karen concludes: "I see Cross-Pollination as a universal approach to design that doesn't only consider the technical aspects of design challenges, but also the transformation of the designer and his/her relationship to society and the environment. Cross-Pollination shares the values and life principles subscribed to by biomimicry, and both are inspired by a vision of a just and sustainable world. Cross-Pollination is an integrated approach to design that strives to avoid creating the problems that require technical solutions." <

Population growth and overconsumption of natural resources pose immense challenges for people and planet in decades to come. Cape Town-based multimedia artist, designer and educator KAREN SUSKIN *shares her vision of the designer as the mediator between culture and nature, an idea captured in her* CROSS-POLLINATION INTO THE WILD *workshops.*

The intertwining problems of population growth and environmental stress cannot be addressed through predominant intellectual structures – which limit our ability to perceive the world holistically. We need to explore the dynamic processes of nature to discover, and creatively connect, with new ways of thinking and fulfilling the future needs of people and planet. Design is a major opportunity for us to accomplish this work.

Today's designers have immense responsibility. Any designed object could be used by millions, and could possibly influence (for better or for worse) the way we, as consumers, behave. Because we are running out of natural resources, we cannot afford for designs to be solely profit-driven. As our planet strains to cater to populations exploding on an unprecedented scale, the need for a new design discipline becomes ever more essential.

In response, the designer must cultivate a quality of thinking which is as flexible and agile as nature herself, and which can engender a new living-design ethos. If the designer fulfills the responsibility to open up to the everyday miracles of life, he/she can help the rest of us, even as adults, rediscover the sense of wonder of our first kindergarten encounter with a butterfly.

The designer has to shift from the engrained, intellectual mode of seeing and thinking to the perceptive mode, to imagination, inspiration and intuition. In our perceptive mode we rediscover the relationships that lie between things: It is here, in the in-between spaces, between pupae and butterfly, seed and first shoot, that the processes of growth and life exist in unison. The designer has to immerse himself in these natural, dynamic processes in order to instill meaning and value throughout the design process.

Several South African designers are working in integrated, perceptive ways, including Haldane Martin, Heath Nash, Etienne Bruwer, Keith Struthers, Avice Hindmarch, and Tania Katzschner, among many others.

Haldane's Baba Papa chair is a perfect example of a designer working as mediator between culture and nature. The process began with Haldane's experience of lying on smooth, waterworn rocks near where his young children were playing. Using acutely observed sense perceptions, he mobilized his imagination, and captured his experience in 3D form on the computer. By holding back his own urge to intervene intellectually in the creative process, he gave the experience the chance to express its own gesture - and an ergonomically shaped recliner started to emerge. In going beyond this initial stage, Haldane combines his ability to think perceptively and conceptually until the idea has a life of its own as an organically contoured, lightweight recycled stainless steel chair with a removable felt seat.

By understanding the cultural and social context in which a product or service occurs, the designer regulates the design idea to ensure that it supports user behavior – whilst faithfully weaving his/her understanding of ecological complexity and sustainability into the design-production continuum.

In learning to see, and to read the world as a web of interconnected relationships, we can design with greater intimacy, integrity and compassion. We can design products rooted in social inclusiveness and ecological consciousness. The enlightened designer will steer us successfully through the challenges that lie ahead.

Karen Suskin's next Into The Wild *workshop takes place September 10-13, 2012. The workshop is a four-day retreat into the indigenous flora of the Towerland Wilderness in the Langeberg Mountains of the southern Cape. Its aim is to relate processes of metamorphosis in nature to transformative processes in ourselves, and to heighten perceptions of social and ecological contexts in design. For further details, email cross-poll@icon.co.za or visit www.karensuskin.co.za.*

Left: felt garment by Karen Suskin. Above: Suskin's workshop guides designers into playful problem-solving

JOSE ANTONIO ABREU AT BEING AWARDED THE TED PRIZE

Jose Antonio Abreu: My dear friends, ladies and gentlemen, I am overjoyed today at being awarded the TED Prize on behalf of all the distinguished music teachers, artists and educators from Venezuela who have selflessly and loyally accompanied me for 35 years in founding, growing and developing in Venezuela the National System of Youth and Children's Orchestras and Choirs.

Since I was a boy, in my early childhood, I always wanted to be a musician, and, thank God, I made it. From my teachers, my family and my community, I had all the necessary support to become a musician. All my life I've dreamed that all Venezuelan children have the same opportunity that I had. From that desire and from my heart stemmed the idea to make music a deep and global reality for my country.

From the very first rehearsal, I saw the bright future ahead. Because the rehearsal meant a great challenge to me. I had received a donation of 50 music stands to be used by 100 boys in that rehearsal. When I arrived at the rehearsal, only 11 kids had shown up, and I said to myself, "Do I close the program or multiply these kids?" I decided to face the challenge, and on that same night, I promised those 11 children I'd turn our orchestra into one of the leading orchestras in the world. Two months ago, I remembered that promise I made, when a distinguished English critic published an article in the London Times, asking who could be the winner of the Orchestra World Cup. He mentioned four great world orchestras, and the fifth one was Venezuela's Youth Symphony Orchestra. Today we can say that art in Latin America is no longer a monopoly of elites and that it has become a social right, a right for all the people.

During the recent tour by the Simon Bolivar Youth Orchestra of Venezuela of U.S. and Europe we saw how our music moved young audiences to the bottom of their souls, how children and adolescents rushed up to the stage to receive the jackets from our musicians, how the standing ovations, sometimes 30 minutes long, seemed to last forever, and how the public, after the concert was over, went out into the street to greet our young people in triumph. This meant not only an artistic triumph, but also a profound emotional sympathy between the public of the most advanced nations of the world and the musical youth of Latin America, as seen in Venezuela, giving these audiences a message of music, vitality, energy, enthusiasm and strength.

In its essence, the orchestra and the choir are much more than artistic structures. They are examples and schools of social life, because to sing and to play together means to intimately coexist toward perfection and excellence, following a strict discipline of organization and coordination in order to seek the harmonic interdependence of voices and instruments. That's how they build a spirit of solidarity and fraternity among them, develop their self-esteem and foster the ethical and aesthetical values related to the music in all its senses. This is why music is immensely important in the awakening of sensibility, in the forging of values and in the training of youngsters to teach other kids.

Each teenager and child in El Sistema has his own story, and they are all important and of great significance to me. Let me mention the case of Edicson Ruiz. He is a boy from a parish in Caracas who passionately attended to his double bass lessons at the San Agustin's Junior Orchestra. With his effort, and the support of his mother, his family and his community, he became a principal member in the double bass segment of the Berlin Philharmonic Orchestra. We have another well-known case -- Gustavo Dudamel. He started as a boy member of the children's orchestra in his hometown, Barquisimeto. There, he grew as a violinist and as a conductor. He became the conductor of Venezuela's junior orchestras, and today conducts the world's greatest orchestras. He is the musical director of Los Angeles Philharmonic, and is still the overall leader of Venezuela's junior orchestras.

He was the conductor of the Gothenburg Symphony Orchestra, and he's an unbeatable example for young musicians in Latin America and the world.

The structure of El Sistema is based on a new and flexible managing style adapted to the features of each community and region, and today attends to 300,000 children of the lower and middle class all over Venezuela. It's a program of social rescue and deep cultural transformation designed to the whole Venezuelan society with absolutely no distinctions whatsoever, but emphasizing on the vulnerable and endangered social groups.

The effect of El Sistema is felt in three fundamental circles -- in the personal/social circle, in the family circle and in the community. In the personal/social circle, the children in the orchestras and choirs develop their intellectual and emotional side. The music becomes a source for developing the dimensions of the human being, thus elevating the spirit and leading man to a full development of his personality. So, the emotional and intellectual profits are huge -- the acquisition of leadership, teaching and training principles, the sense of commitment, responsibility, generosity and dedication to others, and the individual contribution to achieve great collective goals. All this leads to the development of self-esteem and confidence.

Mother Teresa of Calcutta insisted on something that always impressed me -- the most miserable and tragic thing about poverty is not the lack of bread or roof, but the feeling of being no-one, the feeling of not being anyone, the lack of identification, the lack of public esteem. That's why the child's development in the orchestra and the choir provides him with a noble identity and makes him a role model for his family and community. It makes him a better student at school because it inspires in him a sense of responsibility, perseverance and punctuality that will greatly help him at school.

Within the family, the parents' support is unconditional. The child becomes a role model for both his parents, and this is very important for a poor child. Once the child discovers he is important for his family, he begins to seek new ways of improving himself and hopes better for himself and his community. Also, he hopes for social and economic improvements for his own family. All this makes up a constructive and ascending social dynamic. The large majority of our children belong, as I already mentioned, to the most vulnerable strata of the Venezuelan population. That encourages them to embrace new dreams, new goals, and progress in the various opportunities that music has to offer.

Finally, in the circle of the community, the orchestras prove to be the creative spaces of culture and sources of exchange and new meanings. The spontaneity music has excludes it as a luxury item and makes it a patrimony of society. It's what makes a child play a violin at home, while his father works in his carpentry. It's what makes a little girl play the clarinet at home, while her mother does the housework. The idea is that the families join with pride and joy in the activities of the orchestras and the choirs their children belong to. The huge spiritual world that music produces in itself, which also lies within itself, ends up overcoming material poverty. From the minute a child's taught how to play an instrument, he's no longer poor. He becomes a child in progress heading for a professional level, who'll later become a full citizen. Needless to say that music is the number one prevention against prostitution, violence, bad habits, and everything degrading in the life of a child.

A few years ago, historian Arnold Toynbee said that the world was suffering a huge spiritual crisis. Not an economic or social crisis, but a spiritual one. I believe that to confront such a crisis, only art and religion can give proper answers to humanity, to mankind's deepest aspirations, and to the historic demands of our times. Education being the synthesis of wisdom and knowledge, it's the means to strive for a more perfect, more aware more noble and more just society.

With passion and enthusiasm we pay profound respects to TED for its outstanding humanism, the scope of its principles, for its open and generous promotion of young values. We hope that TED can contribute in a full and fundamental way to the building of this new era in the teaching of music, in which the social, communal, spiritual and vindicatory aims of the child and the adolescent become a beacon and a goal for a vast social mission. No longer putting society at the service of art, and much less at the services of monopolies of the elite, but instead art at the service of society, at the service of the weakest, at the service of the children, at the service of the sick, at the service of the vulnerable, and at the service of all those who cry for vindication through the spirit of their human condition and the raising up of their dignity.

CA: We are going live now to Caracas. We are going live to Caracas to hear Maestro Abreu's TED Prize wish.

JA: Here is my TED Prize wish -- I wish that you help to create and document a special training program for 50 gifted young musicians passionate about their art and social justice and dedicated to bringing El Sistema to the United States and other countries. Thank you very much.

The Original Thinking - biography seminar

DAY ONE

Reflective questions

NAME: ……..

TICK your design discipline

Surface - Industrial - Fashion - Graphic - Jewellery

1. How well did you participate and pay attention today??
   (5 = full attention 1 = not attentive)
2. When drawing your hand what thoughts / feelings surprised you??
3. What worthwhile thought-contribution did you make to any one of the sessions today, or not make, that you would like to make now?
4. Was there a moment when you felt adrift, unsure of what was going on and felt you missed the point / meaning?
5. Why do you think this was, your experience, and what can you learn from it?
6. How easy/difficult was it for you in the social exercise (making the hand tool) to let go of the clay model and allow another student to work on it?
7. In what way do you think the introduction to world-self (History of art and evolution) may help you locate yourself in relation to the future?
8. Do you think you may include the above insights in your BTech research, and how could these insights direct your future development?
9. Do you think your culture, nationality, sex, race, religion affects how you are able to engage? Please elaborate.
10. Write down the title of your pastel drawing inspired by early childhood.
11. What new insight / feelings / awareness did you perceive in reflecting on your earliest childhood memory?
12. By considering the viewpoints of others whether you agreed or disagreed will ensure an all rounded problem solving approach, do you generally agree/ disagree?
13. What skill or set of skills could you develop that would make collaboration more possible in the future (refer to the appreciative agreement list)
14. What aspect of today's presentation did you value the least, if any?
15. What aspect of today's presentation did you find most stimulating?

The Original Thinking - biography seminar

DAY TWO

Reflective questions

NAME: ……..

TICK your design discipline

Surface - Industrial - Fashion - Graphic - Jewellery

1. In the movement exercise this morning you experienced leading and following. In your childhood were you a leader or a follower?
2. When contemplating your hand in the drawing exercise did you have any particular thought or insight?
3. How present were you today? Did you keep up with the two presenters, without your mind wandering too much finishing off their sentences? (1 = no concentration 5 = full concentration)
4. During the Earth Activity what surprising or significant thoughts did you have?
5. How important in your view is originality and ingenuity, and is this what we need in designing the future?
6. Do you think you will trust your other intelligences and not only your intellect after doing these processes?

The Original Thinking - biography seminar

DAY THREE

Reflective questions

NAME: ……..

TICK your design discipline

Surface - Industrial - Fashion - Graphic - Jewellery

1. In the drawing of your hand, would you agree that each day you saw a little more?
2. Would you consider using Theory U in your BTech?
3. In which case would you be keen to learn more about the Theory U Methodology?
4. Do you have faith in global leadership? What are your concerns?
5. What is "your" personal world like?
6. What did you name your metaphoric tool?
7. Collectively what potential does this toolkit have?
8. What promise for the future does your tool hold?
9. Did you find working with the other disciplines beneficial?
10. What is the title of your research proposal - even if tentative?
11. What lies at the heart of your research?
12. By expanding your imagination will you increase your ability to become an original problem solver?
13. Has the workshop widened your ability to orientate yourself in the changing world, tackle new problems and face emerging problems?
14. What aspect of the workshop was least interesting?
15. What aspect of the workshop was most inspiring?

Appendix M – Ethic Approval

CAPE PENINSULA UNIVERSITY OF TECHNOLOGY

Checklist and Evaluation of Dissertation / Thesis Proposal

Faculty	Informatics & Design	**Department**	Design	**Degree**	M Tech
Candidate	Karen leigh Suskin		**Date submitted**	May 4 2009	
Title	Interconnective practice for a democratic design education				
Supervisor	Alettia Vorster Chisin		**Co-supervisor**		

		Yes	No	Un-clear	Comment
1.	**Research Topic**				
1.1	Is the research problem/question clearly stated?	x			Clearly stated research problem
1.2	Is the problem/question researchable?	x			The problem can be researched
1.3	Is the topic significant?	x			Topic has significant implications for teaching and whole approach to design
1.4	Is the scope appropriate for the qualification?	x			Scope is adequate for M Tech degree
1.5	Is the research appropriately delimited?	x			Specifically focused on developing pedagogic modules
1.6	Are the research aims clear?	x			Aims of research are clear
1.7	Are the assumptions stated?				
1.8	Is the terminology adequately defined?	x			A glossary of terms is provided
2.	**Literature review**				
2.1	Is the literature relevant to the problem?	x			
2.2	Has an adequate conceptual framework been developed?	x			An appropriate framework has been develpoed
2.3	Is the literature current?	x			Fairly recent literature has been used
2.4	Has the relationship between the research topic and previous research been outlined?	x			Research topic has been linked to previous work
2.5	Are textual referencing and bibliographic citation correct and consistent?	x			The Harvard system has been adhered to
3.	**Methodology**				
3.1	Does the research design address the research problems/questions?	x			A qualitative deisgn has been proposed aligns with research questions
3.2	Are the data collection/production methods appropriate?	x			Various data collection methods are proposed
3.3	Are the data analysis methods appropriate?	x			A framework for analysing data is provided
3.4	Have ethical considerations been addressed? [1]	x			Researcher has undertaken to meet all ethical requirements
4.	**General**				
4.1	Is the proposal free of writing/typographical errors?	x			Proposal is reasonably free of maor errors
4.2	Does the proposal appear to be free of plagiarism? [2]	x			Sources used are acknowledged
4.3	Is the research manageable in terms of timeframe?	x			It could be difficult if candidate has full teaching load