

## **CHAPTER 5**

# **INVESTIGATION, ANALYSIS AND REVIEW OF THE NEETHLING BRAIN INSTRUMENTS, CREATIVITY MODELS AND TOOLS**

### **5.1 INTRODUCTION**

In this chapter a description, analysis and review of the selected creativity tools that had been discussed in this research study, namely the Neethling Beyond Model, the Neethling Brain Instrument (NBI) and the Organisational Wellness Instrument (OWI) will be done, together with a selection of research, data and creativity literature supporting the selection of these creativity tools that was used in this research study.

Creativity implies whole brain thinking (Neethling, 2000c:4). It is an integrated functioning of left and right brain activities. There is certainly no discussion or dispute regarding the importance of divergent and convergent thinking to produce both functional and authentic solutions (Vaitkus, 2010:175). Individuals are unique in many different ways, thus their thinking preferences will also be diverse. One of the important aspects of understanding human behaviour is the ability to understand human thinking and human actions (Thagard, 2010:2).

The Neethling Brain Instrument (NBI) of Kobus Neethling (2005b), developed after extensive international research since 1980 on left/right brain functions, give many clues for a deeper understanding of the different dimensions. Results of research on the NBI have been very significant and ongoing research at a number of universities and institutions remain an essential part of whole brain science.

## **5.2 HISTORY OF LEFT AND RIGHT BRAIN RESEARCH**

Fascination with the brain's functioning, structure, wiring and potential has been researched since the early 1800s and has evolved from prior learning and observations of earlier discoveries, to studies and research. Developments and theories are interlinked, with the body of knowledge contributing and adding to new work by various scientists over the past 150 years.

A brief insight to the historical timeline of left and right brain research is as follows:

- Franz Gall 1828: pseudoscience of phrenology
- Marc Dax 1836: published article – left hemisphere trauma associated with aphasia
- Broca 1864: scientific proof of localisation of brain functions (cerebral dominance)
- Myers and Sperry 1940: experiments on split brain cats and monkeys
- Vogel and Bogen 1961: split brain operations on human beings (epilepsy)
- Sperry and Gazzaniga 1967: split brain research
- Herrmann 1995 and Neethling 1995: brain preferences (four quadrant research)
- Neethling 2000: brain instruments and the eight dimensions

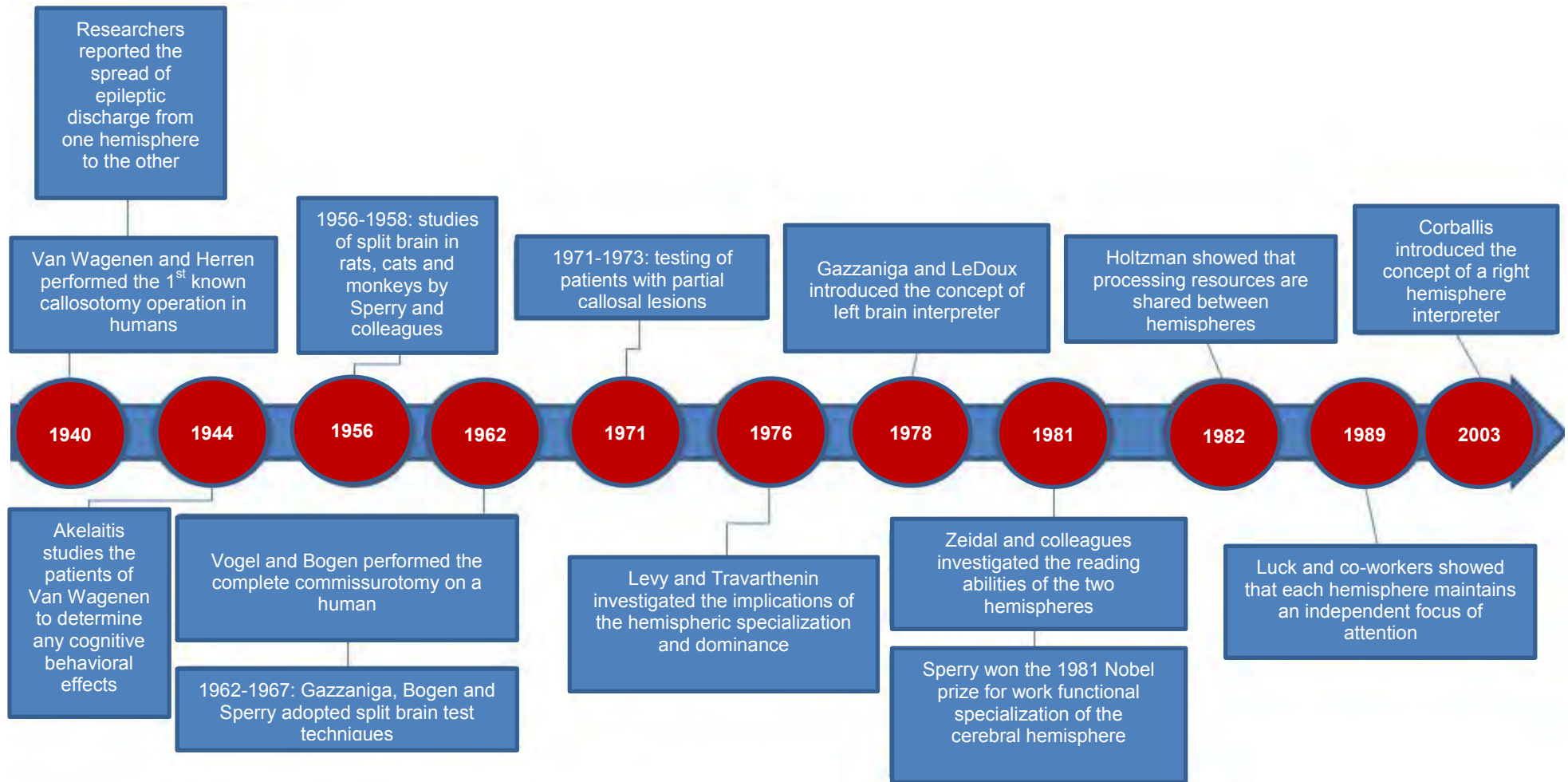
## **5.3 SPLIT BRAIN THEORY**

Gazzaniga (2005:653) states that approximately 52 years ago, Roger Sperry, Joseph Bogen and Michael S. Gazzaniga set out groundbreaking work on advanced split-brain studies. These particular studies and trials exposed cutting edge work within human brain exploration, and furthermore established volumes of knowledge regarding hemispheric expertise and integration (Figure 5.1). The most up-to-date innovations in split-brain studies repose on the foundation built by earlier research. Split-brain methodology, by itself and additionally in combination with neuroimaging, has produced knowledge towards the phenomenal regional specificity of the corpus callosum including the integrative function associated with the callosum around the understanding of causality along with the perception of an integrated sense of self.

Gazzaniga (2005:653) comments that during the 1970s, the time the contemporary period of split-brain research had started, the concept of mapping the cortical circuits of perception, memory and cognition had been groundbreaking. Although Karl Lashley had been intensely dedicated to the notion that nerve cells possessed minimal specificity, Donald Hebb was actually vigorously contending the opposite. Roger Sperry's persistent efforts in neural development, that displayed a head-on attack on Paul Weiss's thinking that function precedes form, had been well underway. Split-brain research commenced within this context (Gazzaniga, 2005:654).

**Figure 5.1 follows on next page**

Figure 5.1: Major milestones in the history of split-brain research



Source: Adapted from Gazzaniga (2005:654).

Further split-brain theory exhibits each of the brain hemispheres (left and right brain) as being identical partners executing diverse activities simultaneously to accomplish a complete product. Left brain regulates the linear, logical, and verbal capabilities, whilst the right brain regulates the visual, creative, and intuitive abilities (Table 5.1). Scientific studies suggest that learning is definitely more effective whenever both of these hemispheres (the whole brain) are participating in the process (Gedeon, 2000:259).

Gedeon (2000:260) further argues that while an individual grows intellectually, behaviours build-up for hemispheric choice. These types of behaviours, affected by a variety of social and genetic factors, commonly get more embedded with maturation. These behaviours tend to be intense and could very well control a person's thinking processes; however, this control will never be whole and is particularly possible to create utilization of the less dominant hemisphere. In spite of hemispheric choice, a person gains access to either hemisphere, transferring between the two hemispheres, along with awareness with regard to the expertise required, additionally, the given person's hemispheric personal preference.

Table 5.1: Brain Attributes

<i>Left Brain</i>	<i>Right Brain</i>
Seeks component parts looking to discern features of the whole	Seeks the integration of component parts into a whole
Analytical	Pattern seeking
Sequential	Relational
Temporal	Spatial
Verbal	Visual

Source: Gedeon (2000:261)

#### **5.4 PAUL TORRANCE AND KOBUS NEETHLING**

Over a period of 25 years Torrance and his associates (1962-1987) had developed several batteries of test activities for use in all cultures, from kindergarten, through

graduate and professional levels. They deliberately tried to use questions/activities that were models of the creative thinking process, each involving different kinds of thinking preferences. These tests included:

- The Torrance Test of Creative Thinking (TTCT)
- What makes me run (L/R)
- What kind of person are you (L/R)
- Creative motivation scale (L/R)
- Style of learning and thinking (SOLAT also L/R)

The reliability and validity data are summarized in the norms technical manual (Torrance, Taggart & Taggart, 1984). From 1983-2003 Torrance remained the creativity mentor and teacher of Neethling—first as his M.A. and Post PhD professor at UGA and later as his mentor and advisor. The initial part of the whole (NBI) research focused on the work of Roger Sperry, Paul MacLean, Joseph Bogen, Michael Gazzaniga and David Kolb (Peter Honey and Alan Mumford developed their learning styles system as a variation on the Kolb model while working on a project for the Chloride corporation in the 1970s.) In 1984 Neethling and Torrance started to integrate the Torrance left/right brain instruments (with a strong focus on the SOLAT) and the four quadrant methodologies.

Kolb's Assimating (L1 Logical and Concise); Converging (L2 Step-by-step and practical); Accommodating (R2 Teams and People) and Diverging (R1 Different perspectives and Imagination) strongly stimulated the integration process during the initial stages.

The test (SOLAT) consisted of 28 questions. Each of those consisted of two sentences both describing preferences to things in everyday life. The four quadrant analysis was done on all 28 questions of the SOLAT. The documented research on the NBI (Venter, 2001:1) outlines the history of this battery of whole brain instruments since the late eighties. During the late nineties it became clear to Neethling and his associates that two specific thinking processes were present in each quadrant. In 2000 Neethling and Torrance scrutinised the raw scores on the NBI Adult Instrument (1991-1999: sample of 1500) and with the assistance of Dr Liezel Korf (**Addendum 5A**) the initial NBI 8-Dimension instrument was prepared.

The two Dimensions identified within the L1 quadrant, are the Realist (who prefers clarity of thinking, exactness and thoroughness) and the Analyst (who wants to discover the essence of things and dig deeper). In the L2 quadrant, there is the Stalwart (who prefers traditional approaches and appreciates rules and regulations) and the Organiser (who prefers to plan, to sort out and classify) In the R2 quadrant there is the Socialiser/Networker (who likes to network and meet people) and the Empathiser (who likes to assist and reach out to others). Lastly in the R1 quadrant we find the Strategist (who predicts and strategizes) and the Fantasiser/Imagineer (who thinks in pictures and imagines impossible ideas).

The researcher had only used the 4 dimensions NBI model within this research, as the description of the eight dimensions model is for illustration purposes only.

#### **5.4.1 Neethling Brain Instrument (NBI) research**

Kobus Neethling studied under Paul Torrance at the University of Georgia and started his research by using the SOLAT (Style of Learning and Thinking) and developed the NBI from there. There are definitely some similarities as the research on the brain by Sperry and others forms the basis of both products. Neethling's study (Torrance, 1995) of the unique human being and brain preferences had its origin in his interest in and search for the true meaning of creative behaviour. After studying creative behaviour under Torrance, Neethling pursued this area of study, but simultaneously sought the connection between creativity, thinking styles and brain dominance. After the split-brain research of Sperry and others, it was widely accepted that the right hemisphere deals with imagination, spatial awareness and day dreaming dimensions, while the left hemisphere deals with logic, words, numbers, analysis, and more (Neethling & Rutherford, 2005:69). His research of creative behaviour convinced Neethling that creativity can be developed and that an understanding of brain preferences can assist in his development. Thus building on the work of Herrman and Torrance, Neethling determined that both the left and right brain processes could be divided into two definitive categories, dividing the brain into four quadrants (Op ten Berg, 2010:5). According to Herrmann, Neethling and other whole brain students, most people show thinking preferences associated with one or more of the four quadrants of the brain (Gelter, 2003:338; Sladek, Bond & Phillips, 2010:907). These preferences, it is claimed,

consequently affect behaviour in most areas of one's life. It would therefore affect relationships, career choices, parenting style, the way people communicate, do business, learn and teach (Neethling & Rutherford, 2005:79).

Creative imagination signifies whole brain thinking (Neethling, 2009:12). It embraces a powerful integrating process of left and right brain actions and activities. There is absolutely no doubt regarding the significance of divergent and convergent thinking to produce simultaneously practical and authentic solutions (Puccio *et al.*, 2005:45). Because individuals are very different, additionally thinking preferences will also be distinctive; it remains extremely beneficial to appreciate how individuals are reasoning, thinking as well as how they may be functioning.

NBI is a widely used tool for broad application in just about any business or organisation that would like to gain advanced insights of precisely how teams and staff members could enhance the way they interact, communicate, conduct business, learn, educate, construct decisions or confront challenges. Each and every application produces a specific Brain Profile with recommendations to build a more productive and accomplished personal and professional life. The NBI includes profiles of thinking preference that are comprehensive, unbiased analysis of the individual's thinking preferences, that has no profile appearing better or worse than another. NBI splits preferences into four left/right quadrants:

- L1: analytical and factual;
- L2: organized and detailed;
- R2: interpersonal and sensitive; and
- R1: strategic and unorthodox.

Korf (2005) presents the reliability of the NBI repeatedly which includes various updates until 2009. Final results of 2005 had not been published in peer review journals, but can easily be obtained on the Kobus Neethling Group website ([www.solutionsfindings.com](http://www.solutionsfindings.com)). Venter (2001), widely recognised education psychologist and expert researcher regarding whole brain thinking in South Africa, verified the final results along with the advantages of the NBI. In his estimation the scores suggested by the instrument are generally valid indications covering the four groupings likewise valid findings can be accomplished based on the scores of an individual's thinking preferences.

Nieuwenhuizen and Groenewald (2006:78) contrast NBI along with the scientifically scored and validated Herrmann Brain Dominance Instrument (HBDI). As documented by the authors ‘the Neethling Brain Instrument (NBI) is comparable to the HBDI, furthermore, as with the HBDI, splits the brain in four quadrants. Although, it labels the quadrants in different ways, viz. the Left 1 and Left 2 and the Right 1 and Right 2 quadrants. The NBI could very well be deemed the South African version of the HBDI (Addendum 5B).

Table 5.2: NBI and HBDI comparison

<b>Characteristic</b>	<b>NBI</b>	<b>HBDI</b>
Type of Questions	Ranking, ipsative. Forced choice between 4 options on 120 questions	120 Likert scale questions, adjective pairs, and questions Asking for self-perception (e.g. hobbies, handedness, degree of introversion, work elements, key descriptors and others.
Scoring	Total score of ranks linked to each quadrant.	Total score of Likert scale options (summated rating scale) integrated with answers to other questions measured on various scales (nominal, interval)
Output	Brain dominance profile (with particular visual characteristics)	Brain dominance profile (with different visual characteristics)
Validity Studies	Construct validity established (correlations with MBTI as well as job categories) Test – retest reliability established.	Predictive validity in subject choice but mostly hailed as a descriptive model not claiming psychometric status.

Source: Korf, NBI and HBDI comparison, 2005

Op ten Berg (2010:3) comments that Neething is the source, author and creator of the NBI, that measures thinking preferences in four or eight dimensions. It can help provide

understanding and guidance in the manner in which individuals or groups choose to think and enables individuals increased awareness and sensitivity into the preferences of other individuals. Provides further clarity and insights on how through the use of creativity and comprehending a whole brain approach influences everyday life and work. At the same time to nurture excellent interpersonal relationships in the workplace, and also promote a culture of creativity. Apart from the initial NBI adult instrument nowadays there are a wide selection of personal and business applications and programs. One of these concentrates exclusively on a creativity style. Various other NBI instruments include Business, Leadership, Relationships, Parenting, Communication, Sport or a Healthy Lifestyle (Op ten Berg, 2010:4).

#### **5.4.2 NBI reliability and validity**

**Addendum 5A** outlines the statistical reliability and validity of the NBI; As far as validity is concerned, factor analysis, which would be the conventional method to investigate construct validity, could not be used here due to the ipsative nature of the measure. Problems with exploratory factor analysis of this kind of data have been widely reported. Further ipsative data does not lend itself well to factor analysis. Factor analysis in turn is the basis for which we determine construct validity (i.e. the basis for understanding the psychological phenomena the researcher is hoping to measure). As a result it is not surprising that the reliability of ipsative scales has consistently been shown to be lower than that of normative scales (Bartram, 1996:30)

These reliability and validity of the NBI include (Addendum 5A):

- Test-retest **reliability** of the subscales.
- **Criterion related validity**: If the scale correlates in the theoretically expected directions with proven measures of similar or patently dissimilar attributes.
- **Internal consistency** of the four subscales (i.e. the 4-point ordinal scale is treated as a small continuous scale in order to calculate item-total correlations and Alpha coefficients.) This cannot be done for the whole scale, since there is no variance in the total score.
- **Discriminant validity**: If the scale discriminates between groups it is theoretically and intuitively expected to discriminate between, this serves as support for the construct validity of the scale.
- **Construct validity**: as factor analysis is not applicable to this type of data, this

could not be established. A cluster analysis of items was performed to investigate the preliminary clustering of items

For this reason the correlation of NBI scores with other scales was used to gather evidence of construct validity. The NBI was correlated with the MBTI in two samples (Korf, 2005).

When one compares the scales of the NBI and the MBTI, one logically expects some of them to correlate with one another. If they correlate in the ways in which one expects them to, it adds to the existing evidence of validity of the new scale.

The following expectations were formulated for the correlations between these two instruments.

### ***L1***

One would expect individuals with a strong L1 preference on the NBI to be stronger on sensation (S) than intuition (N), stronger on thinking (T) than on feeling (F) and, more inclined to use judgment (J) than perception (P). On E / I, no specific direction can be predicted, although one might expect a slightly higher correlation with introversion (I) than extraversion.

### ***L2***

The L2 quadrant can be expected to correlate in much the same directions as L1 with the MBTI scales, except that one would expect a slightly stronger correlation with S and J than in the case of L1.

### ***R1***

As for the R1 quadrant, the expectations would be that it would correlate positively with Intuition (N) rather than Sensation (S) and with Perception (P) rather than Judgment (J). There can be no clear expectation in terms of Thinking and Feeling (F), and one might expect a slightly higher correlation with Extraversion (E) than Introversion.

### ***R2***

R2 scores may be expected to correlate positively with Feeling (F), rather than Thinking (T). They may also be moderately more inclined to use Perception (P) rather than judgment. No clear expectations can be formulated in the case of the other two MBTI

scales. The two instruments were correlated (test – retest reliability) with one another in a sample of 182 people.

The following results were found (Korf 2005):

Individuals who tended to make use of L1 functioning seemed more introverted, detail orientated, thinking (analytical) and stuck to schedules and procedures. Individuals who predominantly use L2 have much the same profile, except that they are even more strongly detail orientated and more inclined to follow schedules and procedures. R2 individuals on the other hand, tended to be more extraverted, think in “big picture” terms, be guided by their feelings and more flexible with regard to schedules and procedures.

The R1 dominant individuals showed much the same profile, but are even less detail orientated and less inclined to be bound by procedures. In terms of thinking and feeling, R1 individuals seemed to have a balance between thinking and feeling preferences. The fact that the NBI correlates with an existing instrument such as the MBTI in the expected directions, adds to the evidence for the validity of the NBI (Korf, 2005).

These findings add to evidence of both convergent and discriminant validity (Addendum 5A) as the theoretical expectations in terms of strength and direction of correlations were confirmed (Korf, 2005).

The research on the NBI to establish the reliability and validity of the instrument is summarised below, with full reliability and validity findings in Addendum 5A. Reliability (test-retest reliability) is generally regarded as the consistency that an instrument measures. If the measure is administered and then repeated on the same sample after a period of time, one would expect a high correlation between these two administrations (>0,80). The test-retest reliability coefficient of the NBI on a sample of 37 respondents were 0,851 (L1), 0,840 (L2), 0,867 (R1) and 0,918 (R2), with scores >0.80 indicating high correlation, and thus well within the acceptable range. Another way of investigating reliability is through internal consistency measures. These measure the degree to which items “group together” as intended. Usually, test-retest reliability coefficient values of >0,70 are regarded as acceptable (Korf, 2005). The values for the NBI were as follows on a sample of 1588 people: 0,6812 (L1), 0,7459 (L2), 0,8209 (R1), 0,7734 (R2). Most

values are therefore acceptable, and some items have since been changed to increase internal consistency of the subscales.

Table 5.3: Test-retest Reliability NBI with 8-12 months between T1 en T2

<b>Test- retest reliability</b>	<b>L1</b>	<b>L2</b>	<b>R1</b>	<b>R2</b>
N=37	0.851	0.840	0.867	0.918
N=4000	0.79	0.82	0.86	0.83

Source: Korf, 2005

Validity of a measure refers to whether the instrument measures the constructs that it purports to measure (Maree, 2012:38; Welman *et al.*, 2006:142). Correlations with existing measures in the expected directions, for example, add to the construct validity evidence of the instrument. The NBI was correlated with the MBTI in two samples (Korf, 2005:5). The theoretical expectations in terms of strength and direction of correlations were confirmed (Korf, 2005:5). Correlations ranged from 0,20 to 0,70 and where no correlations were expected, the correlations were negligible. This adds to evidence of both convergent and discriminant validity.

Another approach to construct validity is to compare subgroups which are expected to differ on the NBI. If they do in fact differ in the expected directions, this adds validity evidence. The subgroups that were compared include males and females, different occupational groups, managers versus non-managers, and the general population vs. specialised law enforcement officers. It was found that gender groups differ in stereotypical fashion, with males obtaining significantly higher scores on L1 and R1, while females score higher on L2 and R2 (N = 1374). Significant differences were found between individuals in managerial positions and those who are not. Managers scored higher on R1, while non-managers scored higher on L2. Managers made significantly more use of Front Brain and Right brain thinking in general, compared to non-managers. Law enforcement officers showed a stronger preference for both left brain quadrants, relative to the general population, but showed a lower preference for R2. Seven occupational groups were compared and differences were found in the expected directions, e.g. stronger preference for left brain quadrants amongst individuals in administrative and analytical positions, a stronger R2 preference amongst the helping

professions, and strong R1 preference for individuals in management and strategic positions.

Reliability is generally regarded as the consistency with which an instrument measures the construct that it is measuring. If the measure is administered and then repeated on the same sample after a period of time, one would expect a high correlation between these two administrations (>0,80). This measure of temporal stability is referred to as test-retest reliability. The test-retest reliabilities of the NBI on a sample of 37 respondents were 0,851 (L1), 0,840 (L2), 0,867 (R1) and 0,918 (R2) and thus well within the acceptable range (Note in the comment – only 37 people did the measure twice even though the total sample was very large).

Another way of investigating reliability is through internal consistency measures such as Cronbach's alpha. These measure the degree to which items "group together" as intended. Usually, values of >0,70 are regarded as acceptable (Korf, 2005).

Table 5.4: Cronbach alpha norms

<b>Cronbach's alpha</b>	<b>Internal consistency</b>
$\alpha \geq 0.9$	Excellent (High-Stakes testing)
$0.7 \leq \alpha < 0.9$	Good (Low-Stakes testing)
$0.6 \leq \alpha < 0.7$	Acceptable
$0.5 \leq \alpha < 0.6$	Poor
$\alpha < 0.5$	Unacceptable

Source: George and Mallery, 2003

The values for the NBI were as follows on a sample of 1588 people: 0,6812 (L1), 0,7459 (L2), 0,8209 (R1), 0,7734 (R2). Most values are therefore acceptable, and some items have since been changed to increase internal consistency of the subscales.

Table 5.5: Internal Consistency NBI in Two Groups (Cronbach Alpha values)

<b>Internal Consistency</b>	<b>L1</b>	<b>L2</b>	<b>R1</b>	<b>R2</b>
N=1588	0.68	0.75	0.82	0.77
N=686	0.68	0.73	0.78	0.83

The results obtained seem to give fairly strong support for both the validity and reliability of the NBI (Korf, 2005).

## **5.5 NEETHLING CREATIVITY MODELS**

### **5.5.1 Creativity models**

#### **5.5.1.1 Creativity four circled model**

The Neethling creativity philosophy describes the world of creativity captured from various perspectives, starting from the immediate environment and prevailing culture, to the self reflection of creativity within the person, the experience throughout the creativity journey, and the intended outcomes while embarking and travelling on the creativity journey.

Kobus Neethling captures his creativity work within Torrance (2000:158) attributing many of his achievements, thinking and development to the contribution, teaching and mentorship of Paul. E. Torrance by capturing this relationship in the Creativity Four-Circle Model (**Figure 5.2**).

Figure 5.2: Creativity Four Circled Model



Source: Neethling, Whole brain thinking, 2005

**Environment & Culture:** explains the current environment being experienced, its challenges and complexities, its norms and rules and the everyday work-life. In addition the culture captures the prevailing traditions, heritage, customs, values and principles that exist within the company, team, family or individual household.

**You:** refers to the individual experiencing or undergoing the change management, transformation, uncomfortable state, diverse aspects and realisation of the need to operate differently. There is a desire for personal re-invention and for drastic and a revitalised sense of perception and attitude.

**Journey:** encompasses the actual creativity re-awakening, the “aha” moments, the profound experience of functioning in a different world, the achievement of extraordinary accomplishments, and the multiple of experiences and interactions encountered along the creativity journey.

**Outcome:** depending on the initial journey, personal expectations and capacity, the creativity outcomes could be vast or abundant, and conversely also limiting or restrictive. It is the sum total of the derived benefit or misfortune of embarking on the creativity journey, within a specific environment dominated by particular culture, and the end point of the reinvented person, group, company or society.

The foundation of the four circled model is the relationship, association and connection between you, journey and the outcomes, which in a sense forms the ingredients to the creativity recipe, all embedded in the prevailing environment and culture.

Neethling (2004:10) further stating, that he became further aware of research of Mills and Pransky (1994) regarding psychological health, in which they develop theories based on a set of principles which focus on current findings about nature of conditioning, as well as evidence concerning the existence of higher order feelings, insights and perspectives. The bottom line remaining is that each person is the thinker of his or her own thoughts Neethling (2004:10).

#### 5.5.1.2 Neethling Beyond Creativity Model

Neethling Torrance (2000:7) of the SA Creativity Foundation with his tribute in Paul Torrance: The Ultimate Beyond outlines the concept of Beyond (Figure 5.3 and 5.4) and its impact on individuals, small groups, large companies, and the masses.

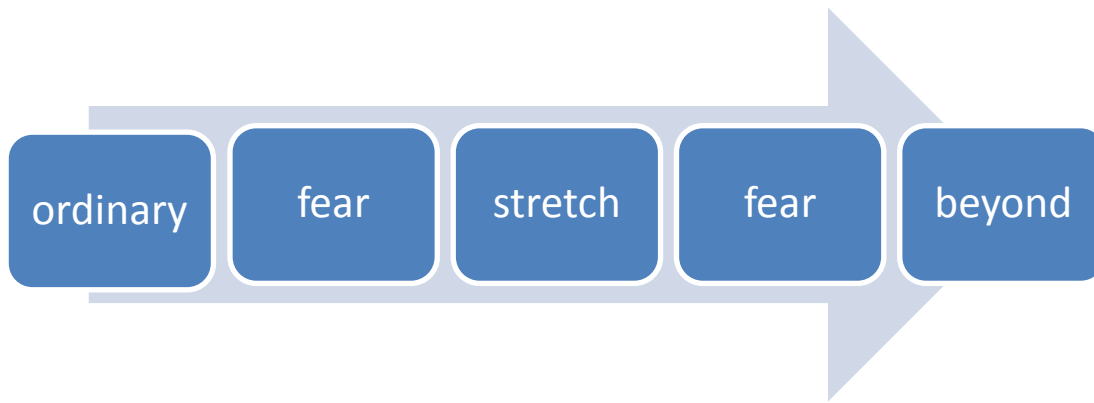
Figure 5.3: Neethling Beyond Creativity Model



Source: Beyond Model, Kobus Neethling, revised and updated, 2008

The Neethling beyond creativity model (graphically simplified in **Figure 5.3** below) transcends various zones of development within the creativity journey. Firstly encountering **Everyday Creativity** which is adapting to the known, creativity within rules and traditions, always planned creativity, creativity without mistakes. Secondly moving into the **Stretch Creativity** zone, otherwise known as the exploratory zone, which explores creativity in uncomfortable circumstances, creativity that is willing to risk, openness to outside ideas, able to shift the paradigm and challenge obsolete beliefs. Finally accelerating into the **Beyond zone**, which is the ability to create new playing fields, make impossible possible, change environments, step into the unknown in spite of violent opposition and remain passionate and excited about the other side of the wall. **Fear zones** are experienced when confronted with either the unknown or state of being uncomformable, and the realisation that some different needs to be done or experienced urgently

Figure 5.4: Neethling Beyonder Model simplified



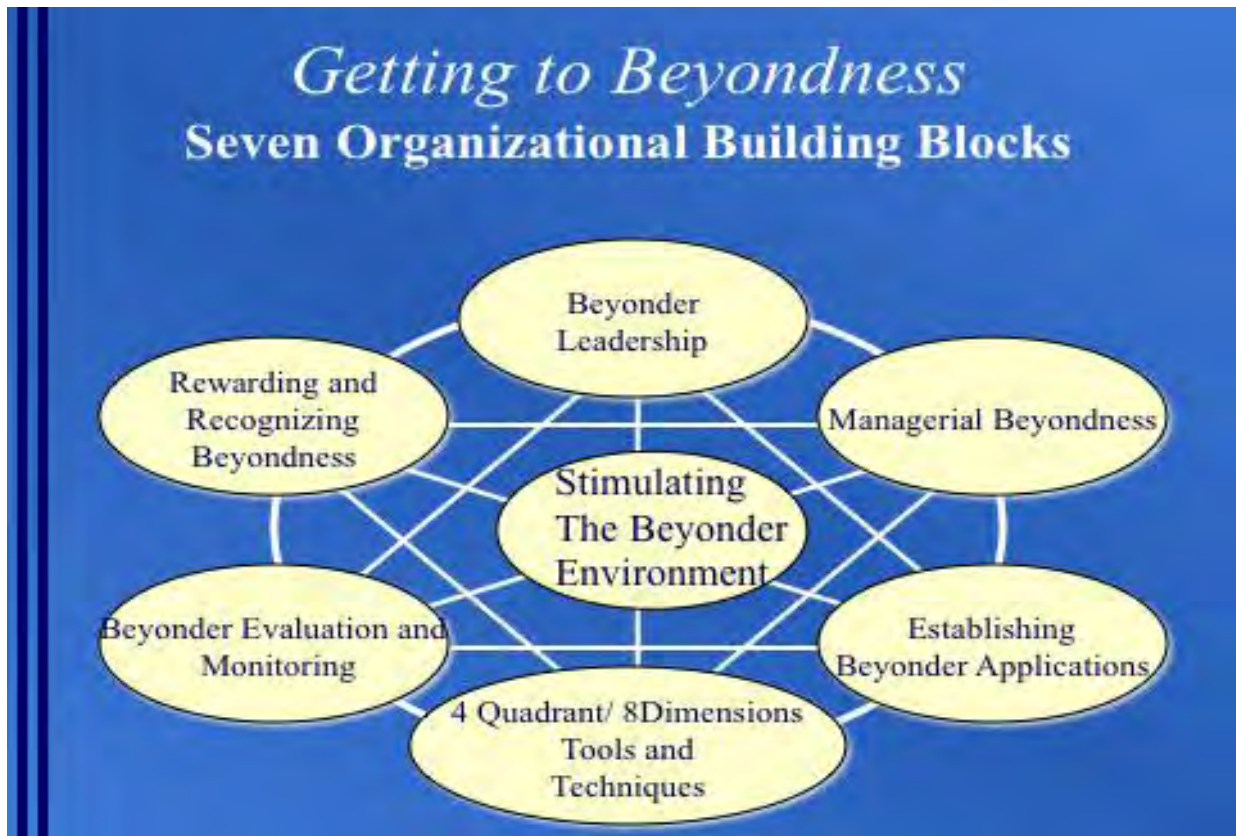
Source: Korf, NBI and HBDI comparison, 2005

### 5.5.1.3 Creativity building blocks

Successful creativity requires knowledge and understanding of Whole Brain Thinking: zig-zag and orderly; edging and centering; chaos and discipline. Individuals and organisations do not only value new ideas, new products and new processes, rather they value the way newness is presented. New ideas need to add value and in today's business world, that value must be measured and derive some form of shareholder value.

Neethling (2005) identified seven organisation building blocks to crafting a holistic creativity environment to derive enhanced cultural and performance benefits.

Figure 5.5: Neethling Seven Organisational Building Blocks



Source: Neethling, 2005. Seven Organisational Building Blocks

***Beyonder Leadership***: the executive ownership, engagement and management of Beyonder thinking, extraordinary achievement and leading by example.

***Managerial Beyondness***: the various levels of management interaction, execution and ownership of the Beyonder thinking and application.

***Establishing Beyonder Applications***: understanding the requirements of moving into the Beyond zone, and using the creativity tools (NBI, OWI, Beyonder Model) available to facilitate and drive the move to Beyondness.

***Four (4) quadrant / eight (8) dimensions Tools and Techniques***: outlined in **chapter six** and **chapter seven** as applications used within the Beyonder journey.

***Beyonder Evaluation and Monitoring***: various metrics either derived from the NBI and OWI or developing company specific financial, behavioural or diagnostic metrics.

**Rewarding and Recognising Beyondness:** implementing a reward and recognition system either financial or status driven recognition within the company to acknowledge individuals for going Beyond and achieving the extraordinary.

**Stimulating the Beyond Environment:** continuous and ongoing creativity activities and interventions to maintain the momentum and energy, brought about in the Beyond environment, which then sparks new levels of achievement and exploring new boundaries for Beyondness.

#### 5.5.1.4 The Beyond breakthrough line

Our thinking in essence is who we are, thus important to identify our way of thinking. To identify any forms of negative or closed thinking in order to change our thinking, and in so doing change our lives. Below the Line thinking primarily involves negative thinking and attitudes that prevent us from successes, where-as Above the Line thinking is about always choosing positive alternatives and in so doing making the right choices.

Figure 5.6: Above and Below the Line Model

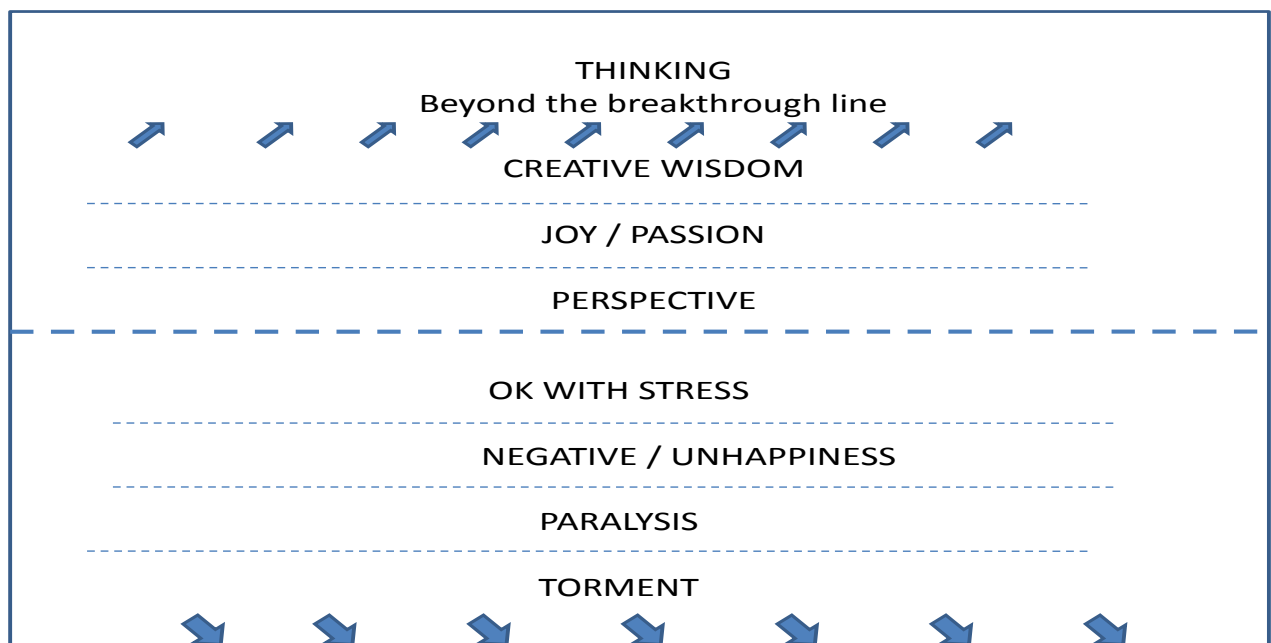


Source: Neethling, 2009. The Beyond Breakthrough Line

Furthermore, Neethling (2000) outlines in Torrance (2000:160) the characteristics of Above the Line individual and the many facets that drive such people:

- Thinking does not depend on your circumstances – it is your choice.
- Blaming others and your circumstances for your discontent, is giving up your freedom of choice, it is being controlled, instead of being in control.
- Thinking can be changed.
- Below the line thinking and creativity do not go together.
- Negativity is a learnt habit and the cycle can be broken.
- It is possible to think and live above the line for most of the time.
- In order to live a fulfilled and joyous life, our thinking must take us above the line. We therefore must make the right choices. Instead of choosing anger, impatience, stress, dissatisfaction, etc. we have to look for the positive alternatives.
- When studying the Above the Line Thinking table, identify your own thinking at this point in your life. This is the first step towards change, growth and the freedom of flight.

Figure 5.7: Neethling Breakthrough Line



Source: Neethling, 2000. Crossing the Breakthrough Line Model

**Figure 5.7** entrenches the notion that each individual is responsible for his or her own thinking choices. If you then realise that thinking comes from your own mind, you also begin to understand that you free yourself from living at the mercy of your conditional thoughts (Torrance, 2000:161). Thinking positively or negatively is personal choice, and thus making that conscious decision determines the outcome of your actions, state of mind, levels of energy and achievements. Moving past the stages of perspective, joy, passion and creative wisdom, means entering into the world of limitless possibilities called beyond the breakthrough line. It is in this zone where creativity is redefined and the impossible made possible.

Liberation comes when you allow your natural creativity and joy to develop into a special wisdom (Torrance, 2000:161).

Thus the critical need for Beyonder Teams, which in essence comprise teams of individuals that have been trained to master the art of moving beyond the breakthrough line, and the ability to pull people from below the line into the Beyonder zone. By implication, if you enter the Beyonder zone, it redefines a different culture, energy, performance behaviour and environment.

## **5.6 WHOLE BRAIN THINKING**

The NBI philosophy is grounded on the principles of whole brain thinking and preferences in that individual's thinking preferences are located over four quadrants of the brain in varying degrees, depending on the individual profile. A distinctive ability is to understand the four thinking preferences quadrants, and the ability to transfer, extract and react using the four quadrants' preferences as a basis for decision-making, communication, response activation and thinking.

### **5.6.1 Seven pillars of whole brain creativity**

1. Whole brain thinking and doing – eight- dimensional
2. Thinking, doing and motivating above the line
3. Thinking and doing creatively
4. Emotional fitness

5. Embracing change (going beyond)
6. Being courageous (physical, moral, social, creative courage)
7. Purpose-driven passion

## **5.7 NEETHLING FOUR AND EIGHT DIMENSIONS MODEL**

Since the beginning of the 1980s Neethling (2005:67) planned to study the association between creativity, thinking styles and brain dominance. Neethling's groundwork of creative behaviour indicated that creativity could be developed and that an awareness of brain preferences can support this particular advancement. As reported by Neethling many people demonstrate thinking preferences connected with one or even more of the four quadrants of the brain. Most of these preferences as a result have an effect on behaviour in nearly all aspects of everyday life (Claerhout, 2009:3).

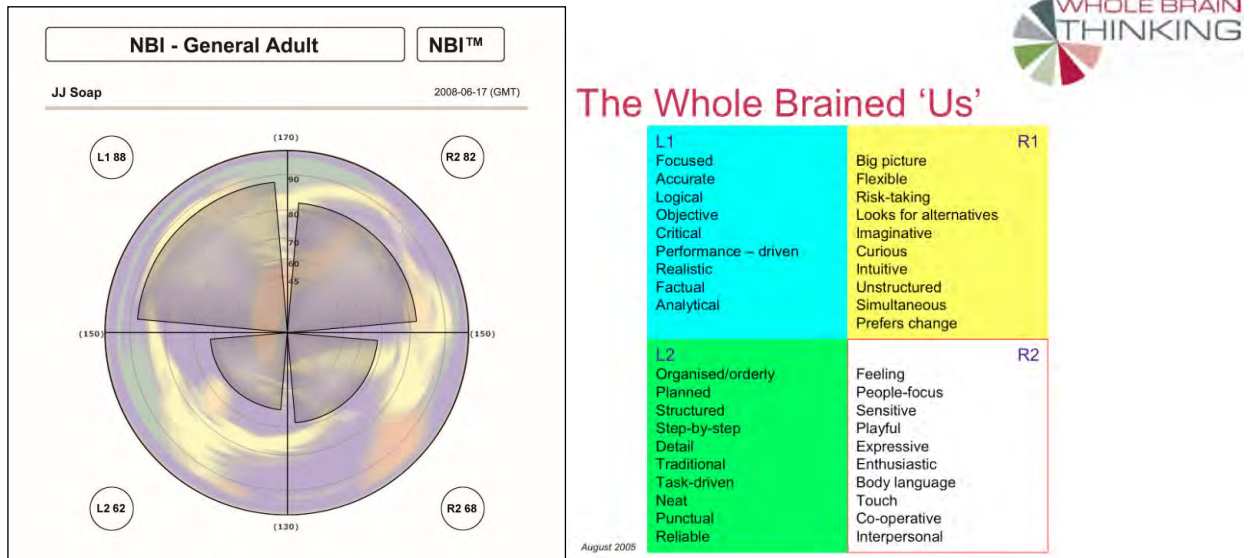
### **5.7.1 Myer-Briggs Type Indicator (MBTI) and the Neethling Brain Instrument (NBI) comparison**

The Myers-Briggs Type Indicator theory is grounded in the psychological type as originally developed by Carl Jung, outlining the existence of two dichotomous pairs of cognitive functions (Betsch & Glöckner, 2010:284; Romo, 2012; Meunier, 2011:813):

- rational (judging) functions: thinking and feeling; and
- irrational (perceiving) functions: sensing and intuition.

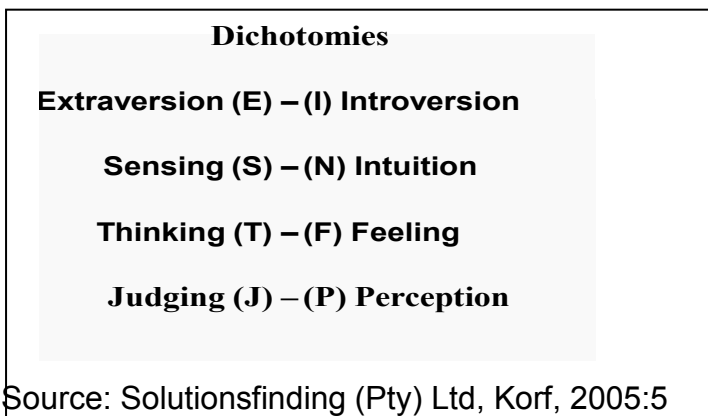
Briggs and Myers further developed the theory of psychological type, on which the MBTI is based. Specific observation by the researcher is that the MBTI was only used for validation purposes of the NBI (Addendum 5B).

Figure 5.8: Neethling thinking preference model



Source: Solutionsfinding (Pty) Ltd, Kobus Neethling Group, 2000c:18

Figure 5.9: Myers Briggs Type Indicator



Source: Solutionsfinding (Pty) Ltd, Korf, 2005:5

MBTI classifies psychological differences into four opposite pairs, or dichotomies, including a resulting 16 possible psychological types. Important to observe is the important principle that none of these types is better or worse. Briggs and Myers dictated that individuals naturally prefer one overall combination of type differences. Individuals find difficulty in using their opposite psychological preferences, with the benefit of improving proficiency and enhancing behavioural flexibility with continuous consciousness, awareness, practice and development.

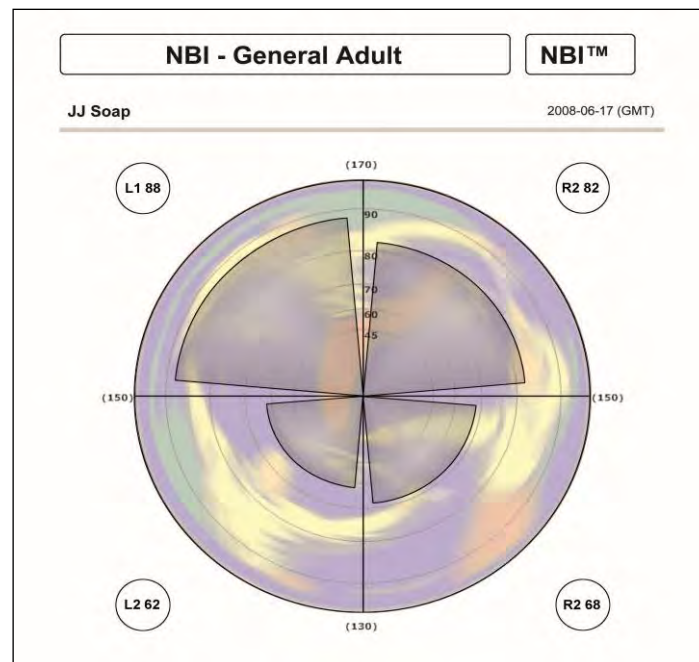
These 16 psychological types are referenced by four letter abbreviations; the first letters of each of their four type preferences are used as descriptors in meaning. Intuition uses the abbreviation N to distinguish it from Introversion.

## 5.7.2 Whole brain: four quadrant model

As outlined in section 5.4.2, the NBI is administered either manually or electronically through the SolutionsFindings database platform, by an individual participant and produces profiles of thinking preference that are detailed, descriptive and unbiased analyses of the individual's thinking choices, with emphasis on the fact that no specific profile is basically better or worse when compared. Various reports are available that could incorporate individual profiles and produce a group profile, as an indicator of collective thinking preferences. NBI splits preferences into four left/right quadrants:

- L1: analytical and factual versus L2: organised and detailed
- R2: interpersonal and sensitive versus R1: strategic and unorthodox

Figure 5.10: NBI four quadrant model



Source: Solutionsfinding (Pty) Ltd, Kobus Neethling Group, 2000c:15

Table 5.6: NBI four quadrant model

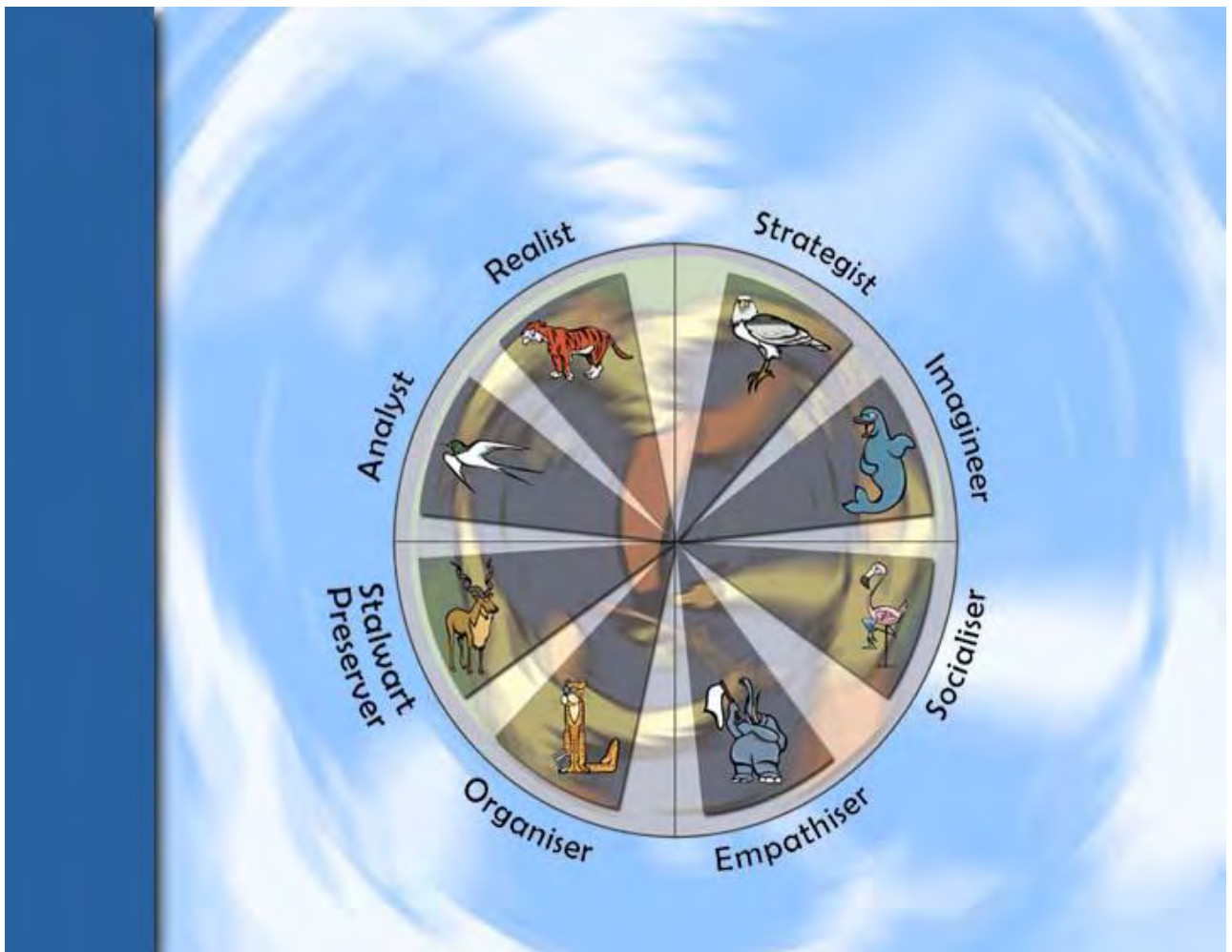
<b>THE FOUR QUADRANT SUMMARY</b>			
<u>TOP LEFT (L1)</u>		<u>TOP RIGHT (R1)</u>	
Focus	Rational / Real	Immediate thinking	Assimilate
Essence / Core	Factual memory	Designing	Picture thinking
Accuracy / Correctness	Tangible	Risk-taking / Edging	Variety
Exactness	Measuring	Speculation	Real
Look for real meaning	Critical	Holistic / Big picture	Curious
Diagnostic	Well-argued	Enquiring	Unorthodox
Investigation	Solid info	Synthesis (connect)	Flexible
Critical probing	Well-argued	Imaginative	Artistic
Problem solving (facts)		Blend together	
Analysing (digging deeper)		Probe the conventional	
Performance driven		Not time conscious	
Realistic/Clinical		Simultaneous (doing many things at same time)	
Faultless (important to do right)		Zig-zag thinking	
Looks for clarity		Comfortable with unfamiliar	
Mathematical / Financial		Unstructured / Unsystematic	
Sound Research			
<u>BOTTOM LEFT (L2)</u>		<u>BOTTOM RIGHT (R2)</u>	
Habitual	Disciplined	Non-verbal cues	Touch
Conventional	Neat and tidy	Co-operation	Nurturing
Time-driven	Cautious	Take part	People-focus
Administrative	Routine	Responsive	Receptive
Regular	Detail	People awareness	Support
Systematic	Methodical	People perceptive	Involved
Painstaking	Careful	Playful	Respectful
Hands-on		Accessible	Approachable
Organised / Orderly		Expressive	Teamwork
Punctual / Prompt		Participative	Nurturing
Planned / Efficient		Communicative	
Meticulous / Thorough		Sensitive / Empathy	
Step-by-step approach		Sociable (one-on-one and groups)	
Follows rules and regulations		Nurturing	
Likes stability and steadfastness		Atmosphere / Mood important	
"Practice makes perfect"			

Source: Solutionsfinding (Pty) Ltd, Kobus Neethling Group, 2000c:18

### 5.7.3 Whole brain: eight quadrant model

Every single quadrant can be viewed as being a distinct dimension, or each quadrant could be separated into two dimensions. As a result of universal application of the tool and growing popularity associated with the phrase 'whole brain' within the last couple of years, at present Neethling applies the term '8-dimension brain' instead of 'Whole Brain Instruments'.

Figure 5.11: NBI eight quadrant model



Source: Solutionsfinding (Pty) Ltd, Kobus Neethling Group, 2000c:20

Figure 5.12: NBI eight quadrant explanation



Source: Solutionsfinding (Pty) Ltd, Kobus Neethling Group, 2000c:11

**The researcher only used the NBI four quadrant model within this research study.**

#### 5.7.4 NBI Questionnaire

Typically it will require approximately 15-30 minutes administering the NBI instrument. The NBI is a simple 30-question diagnostic survey. Every single question includes four answers. It is important to rate each and every response provided. Responses reveal the thinking preferences. Immediately when a person finishes their NBI profile online, scoring is concluded automatically. Since it is a self-analysis, the majority of people instantly recognize their results as reliable (Neethling, 2005b). This is additionally verified through the experience of Koen Zonneveld, the NBI Dutch representative (op ten Berg, 2010). Shorter instruments which include Creative Style only have 15 questions and consume a shorter period of time, although these instruments do not have the 8 dimensions. **Addendum 5D is an insert sample NBI questionnaire.**

#### 5.7.5 Organisational Wellness Indicator (OWI)

**Addendum 5E** outlines the validity and reliability testing of the Organisational Wellness Indicator.

For many years Kobus Neethling studied some of the most dynamic companies in the world, realising that there were at least 10 critical factors of the creative environment, which are essential for company success in the 21st century. He used these factors to develop a model that focuses on the positive and negative aspects of the (creative) environment. Should any of these factors start moving below the critical point (below the line), they begin to affect organizational performance, on numerous levels including cultural, financial and productivity levels.

Each of the 10 factors is plotted as 'above the line' (positive) or 'below the line' (negative). "Above the line" factors contribute to the 'wellness' and creative environment while "Below the line" factors can destroy the organisation if left unchecked. Questionnaire results are unbiased and confidential, and captured in a comprehensive summary report available for action to be taken to address areas of concern (**Addendum 5F**).

Ten critical factors are contained within the Organisational Wellness Instrument (OWI) assessment and analysis structure. An additional two independent factors can be added

and included depending on the company's specific assessment requirements and particular areas of investigation that needs focus. Factors are listed below:

1. Trust – levels of personal trust amongst individuals, teams and management
2. Learning – degree of learning, skills transfer and training provided to enable job fulfilment
3. Gratification – degrees of motivation, job satisfaction and happiness in the workplace
4. Language – ability to communicate, understand and translate instructions and job requirements and expectations
5. Ownership – levels of individual, employee and teams buy-in for initiatives and strategy within the company.
6. Energy – extent to which individuals, teams and employees show the necessary urgency, sense of excitement and determination in performing tasks and duties
7. Change – ability of all stakeholders to make a conscience transformation whether personal or required.
8. Interaction – degree to which all individuals and groups work together productively to achieve the company's goals and objectives
9. Creativity – ability to perform task, jobs and projects differently and a break from conventional methods.
10. Communication – various information flows through the company to various levels within the company and to the external marketplace.
11. Company choice of additional factor to be measured
12. Company choice of additional factor to be measured

When any of these factors start moving below the critical point; they begin to affect parts of the organisation, or in severe cases, the entire organisation. OWI can measure the degree to which each of these factors can contribute, or take away – from the “WELLNESS” of the organisation. **Addendum 5G is an insert sample OWI questionnaire.**

#### 5.7.5.1 Above and below the line indicators

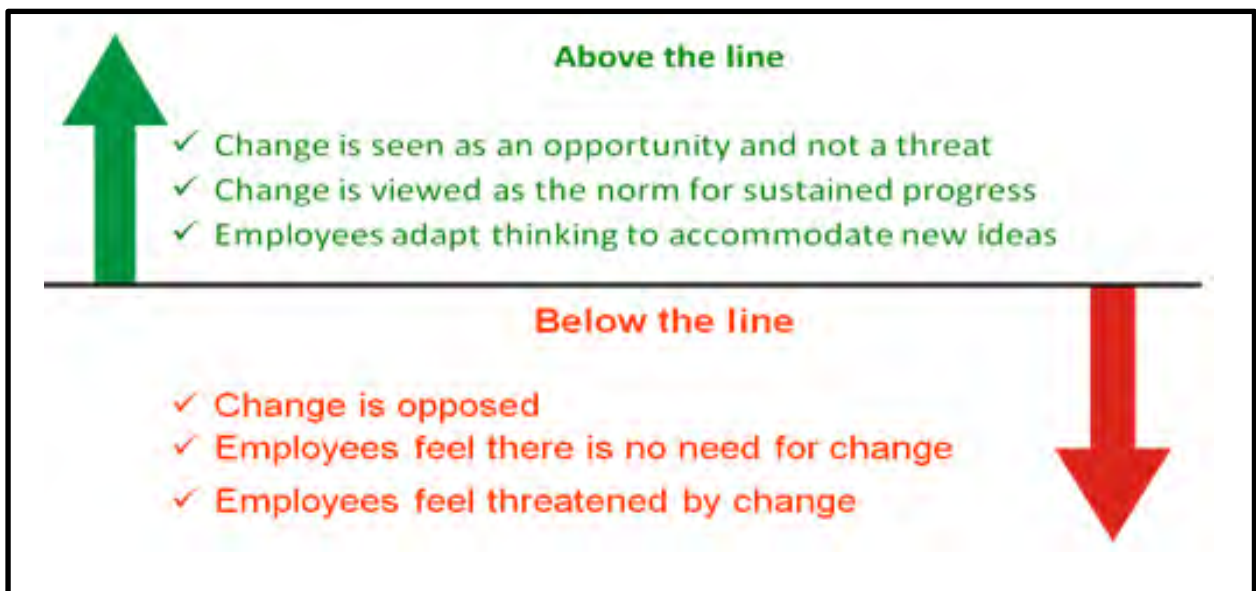
The above and below the line framework, plots the mood, change, transformation and current “state of play” prevalent within the organisation at a specific point in time. It

captures the perceptions, realities and attitudes of individuals, teams, groups or the measured specific collective within two distinct behavioural areas, namely:

**Above the Line:** all perceptions, observations, thinking and change that is positive biased, supportive, productive, enhancing and creates an energizing environment and state of mind.

**Below the Line:** counterproductive, destructive thinking, hazardous motivational levels, insecurity, all bordering on a negative working environment and negative frame of mind of stakeholders.

Figure 5.13: Above and Below the Line Indicator Tool



Source: Copyright © 2000: Kobus Neethling & Solutionsfinding (Pty) Ltd NBI®

#### 5.7.5.2 Integrating the ten critical factors with above and below the line thinking

Figure 5.7 outlines the ten success factors of the OWI measures within the above and below the line model. An indication of the specific thinking, attitudinal preferences and behavioural implications with functioning within either the continuums of above or below the line.

Figure 5.14: OWI measured factors

*Trust*

Above the line	Below the line
<ul style="list-style-type: none"> <li>• Employees can be open about what they think/feel</li> <li>• No fear of consequences when they differ</li> <li>• Genuine support is experienced</li> <li>• The company's sincerity is not questioned</li> </ul>	<ul style="list-style-type: none"> <li>• Employees are afraid to express their opinions</li> <li>• Employees doubt the sincerity of management</li> <li>• They keep their ideas and opinions to themselves</li> </ul>

*Learning*

Above the line	Below the line
<ul style="list-style-type: none"> <li>• Employees experience ongoing personal growth</li> <li>• They feel they can initiate their own training</li> <li>• Differences in learning styles are respected</li> </ul>	<ul style="list-style-type: none"> <li>• Inadequate on-going personal growth</li> <li>• Training and development is haphazard and sporadic</li> <li>• Training is not available to everyone in the company</li> </ul>

*Gratification*

Above the line	Below the line
<ul style="list-style-type: none"> <li>• The place of work is a fun place</li> <li>• Employees are relaxed</li> <li>• Humour is an integral part of the culture</li> </ul>	<ul style="list-style-type: none"> <li>• Fun/laughter is not acceptable</li> <li>• Work is a serious matter</li> <li>• Socialising is not encouraged</li> </ul>

*Language*

Above the line	Below the line
<ul style="list-style-type: none"> <li>• Positive language is the norm</li> <li>• The language is that of encouragement and support</li> <li>• Negative language is emphatically discouraged</li> </ul>	<ul style="list-style-type: none"> <li>• Negative language is the norm</li> <li>• The language is that of doom and gloom</li> <li>• Positive language is not encouraged nor supported</li> </ul>

*Ownership*

Above the line	Below the line
<ul style="list-style-type: none"> <li>• Every employee feels it is his/her company</li> <li>• Employees form an integral part of goals and strategy</li> <li>• Each employee assumes responsibility for own job performance</li> </ul>	<ul style="list-style-type: none"> <li>• The dominant mentality is one of US and THEM</li> <li>• Employees feel they have no say in the management of the company</li> <li>• This is just A company and not MY company</li> </ul>

*Energy*

Above the line	Below the line
<ul style="list-style-type: none"> <li>• The atmosphere is dynamic and energetic</li> <li>• Employees are passionate about their jobs</li> <li>• They are essentially motivated to work and produce</li> </ul>	<ul style="list-style-type: none"> <li>• Employees are lethargic</li> <li>• They have little interest in the future</li> <li>• There is apathy and a lack of involvement</li> </ul>

*Change*

Above the line	Below the line
<ul style="list-style-type: none"> <li>• Change is seen as an opportunity and not a threat</li> <li>• Change are not viewed with suspicion, but as the norm for sustained progress</li> <li>• Employees are prepared to adapt their thinking so as to accommodate new ideas</li> </ul>	<ul style="list-style-type: none"> <li>• Change is opposed</li> <li>• Employees feel there is no need for change</li> <li>• Employees feel threatened by change</li> </ul>

*Interaction*

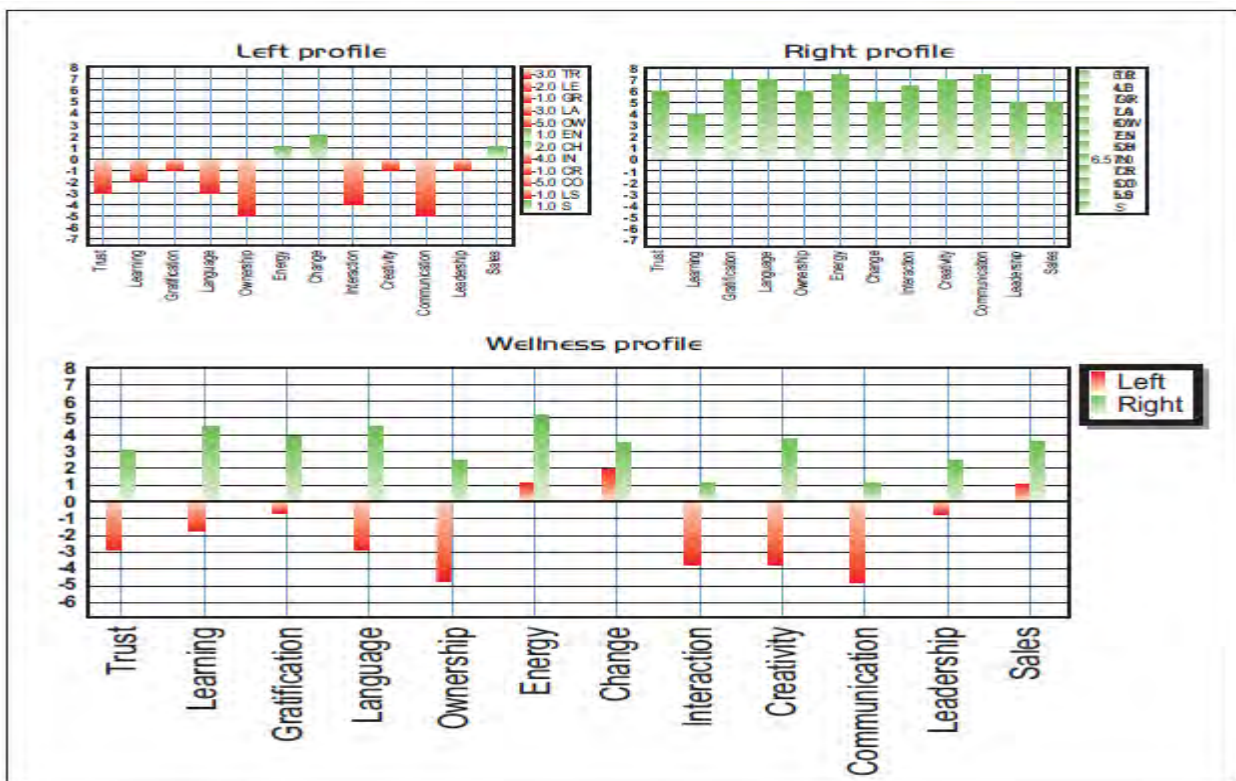
Above the line	Below the line
<ul style="list-style-type: none"> <li>• Employees show genuine interest in one another</li> <li>• Ideas and initiatives are supported and encouraged</li> <li>• They do not fear one another or management</li> </ul>	<ul style="list-style-type: none"> <li>• To criticise and condemn others has become the norm</li> <li>• Very little support and understanding among staff</li> <li>• Fault-finding, animosity and destructive criticism are the order of the day</li> </ul>

Above the line	Below the line	Above the line	Below the line
<ul style="list-style-type: none"> <li>Challenging outdated rules and regulations are encouraged</li> <li>To ask, investigate and enquire are integral components of the company culture</li> <li>There is a receptiveness to new ideas and to discovering new ways of doing things</li> </ul>	<ul style="list-style-type: none"> <li>Questioning old-fashioned rules is not permitted</li> <li>New ideas are discouraged</li> <li>Employees are not allowed to make mistakes</li> </ul>	<ul style="list-style-type: none"> <li>Communication is open and stimulating among all</li> <li>No obstacles to vertical and horizontal communication</li> <li>Employees listen to one another and are sensitive to situations</li> </ul>	<ul style="list-style-type: none"> <li>Employees do not listen to one another</li> <li>Communication is characterised by anger, animosity and disapproval</li> <li>Negative communication has become the norm</li> </ul>

Source: Solutionsfinding (Pty) Ltd, Kobus Neethling Group, 2000c:9

5.7.5.3 OWI results

Figure 5.15: Organisational Wellness Indicator (OWI) sample results report



Source: Solutionsfinding (Pty) Ltd, Kobus Neethling Group, 2005c

The respondent is requested to complete multiple questions concentrated around 10 OWI factors as detailed in **section 5.7.5**. Each question is rooted in an above or below the line response, that is captured and verified electronically in the OWI programme. The Wellness Profile in **Figure 5.15** captures the responses over time and plots the

progress or decline on the above and below the line graph, with the left profile indicating period one and right profile indicating period two.

Once the survey has been completed and the results extracted, the following reports and intelligence are available:

- Identify the critical wellness factors;
- Spot the below the line thinking and behaviour (degrees of dying!);
- Spot the above the line thinking and behaviour (degrees of growing!);
- Discover specific causes of problems;
- Create a flowing organisation versus a stopping organisation;
- Regain organisational wellness;
- Put wellness strategies into place;
- Monitor the sustainable passion and energy of the organisation; and
- Measure changes by company, department, level, division or location.

Results are useful in continuously monitoring that state of wellness within specific individuals, teams, departments or business units, thus enabling immediate action to be taken to correct out-of-line situations and deal with challenges in the organisation that could be impacting on business performance.

## **5.8 CONCLUSION**

The Neethling Beyonder Model forms a solid basis and foundation to start comprehending the dynamics involved in a creativity intervention, whereas the NBI is the brain profiling instrument used to establish brain preferences of individuals and teams. The Neethling Beyonder Model further provides a theoretical and philosophical framework and guidelines in adopting an approach to start crafting a creativity roadmap for business enhancement; however, falls short of the practical and business step-by-step guide to the implementation and execution of a business enhancement framework.

NBI instruments, the Brain Profiles along with the additional information generated by these tools are extremely practical and beneficial in numerous situations in everyday life and the workplace. These are significantly enhanced by superior evaluation and

interpretation of the results, by licensed NBI practitioners. In addition NBI practitioners can provide the learning and teaching regarding the aspects that assist to enhance performance and to empower people.

In summary the Neethling Beyonder Model and NBI tools are important complementary aids to be used within the creativity strategic process. In order to link the theoretical and philosophical creativity content to real-world business enhancement and improvement initiatives, a holistic approach needs to be adopted that incorporates various complementary tools, techniques and performance enhancement methods.

Reasons why the Neethling Beyonder Model and NBI tools cannot be the only model and instruments used within this research to enhance business performance, include:

1. The theoretical and philosophical nature of the Beyonder Model does not provide practical business related insights.
2. The lack of evidence in practical application or business case that identifies improvement in business performance within any SA or international company.
3. Cannot be considered as a stand-alone business enhancement or improvement product and thus needs to be incorporated with other performance improvement methods.
4. The Neethling Beyonder Model and NBI can only be considered as one of many important and critical elements of the total change management process to enhance business performance.
5. By considering and using the Neethling Beyonder Model, there is difficulty to extract specific operational and business level activities and develop an operational implementation plan for execution within the workplace.

The researcher had been the catalyst, change driver, integrator and executor of a holistic Conceptual Deliberate Creativity Framework (CDCF) that enabled the enhanced performance of the Ellerines business case and research study. An integral part of the Ellerines creativity process had been to “link the dots” and apply the relevant business expertise to optimise performance, and further create the necessary synergy, personal energy and motivation to sustain performance over the past three years.

Fundamentally, the objective remains to enhance business performance, and thus the researcher has attempted to create a holistic retail framework that incorporates creative

thinking, integrates creativity theory and ultimately provides a step-by-step business guide to the implementation and execution of a creativity strategy.