Neuropsychotherapy Book release

We are excited to announce that the book “Neuropsychotherapy Theoretical Underpinnings and Clinical Applications”, have been published late October. This is the culmination of a lot of dedication by many who contributed to enrich the theoretical content by demonstrating how brain based strategies are applied to facilitate during change. This text is a highlight of the year in many respects as it enhances the impact of Neuropsychotherapy as therapeutic approach. Apart from the theory chapters it also offers 18 extensive case studies (narratives) of how clinicians utilized neuroscience to enhance therapeutic outcomes for their clients.

The aim is that it will assist clinicians to utilize neurobiological principles to maximise the therapeutic process.

This edition is a celebration of this Book – and in particular the launch on 22 November at the Rooftop of the Alpha Hotel in Brisbane. In this edition we also provide a section of one of the theory chapters.

2014 – An end and a new beginning

2014 is very quickly racing to its end. This was a remarkable year for the process of Neuropsychotherapy. I lectured in New Zealand, the USA, Africa, China and Europe; Presented keynote lectures and papers at conferences in Europe, China, Africa and Australia; 8 of my senior research students presented Neuropsychotherapy related research papers at conferences in Australia (2) and at the International Applied Psychology Conference in Paris, France (6).

I am continuing my lecturing and research at The University of Queensland and presented many workshops all across Australia, the USA, Africa, China and New Zealand. And last but not least we celebrated the launch of the text Neuropsychotherapy Theoretical Underpinnings and Clinical Applications. This text is a highlight of the year in many respects as it culminates the drive of Neuropsychotherapy in a written format with 18 extensive case studies (narratives) of how clinicians utilized neuroscience to enhance therapeutic outcomes for their clients.

The aim is that it will assist clinicians to utilize neurobiological principles to maximise the therapeutic process. This editions is a celebration of this Book – and in particular the launch on 22 November at the Rooftop of the Alpha Hotel in Brisbane. In this edition we also provide a section of one of my theory chapters.

Workshops 2015

The schedule for 2015 is already on the Mediros website registrations are available online.


This is an exciting workshop for therapists and educators alike – it focuses on the developing of the brain – the challenges facing the young brain but also how to utilize neurobiological information to effectively deal with mental health challenges as well as to maximise learning.

I trust you will enjoy the read!

Pieter Rossouw
Editor
Overview – Neuropsychotherapy – Theoretical Underpinnings and Clinical Applications

In this book Pieter Rossouw and his colleagues have made a wonderful and exciting contribution to the world of psychology, psychotherapy and counselling by bringing into practical reality the importance of an integrative approach to the psychosocial care of others. The book presents a ground-breaking, new integrated model of neuropsychotherapy, based on years of research, clinical practice and teaching in the neuropsychotherapy field. Dr Rossouw’s integrated model of neuropsychotherapy develops and enhances the theoretical work of Seymour Epstein and Klaus Grawe and recognises that safety in the therapeutic alliance is a core component and guiding tenet of a neuropsychotherapeutic approach.

Through the principles of neuroscience the book takes us on a challenging, yet exciting journey exploring the application of brain-based therapies. Section A of the book (chapters 1, 2 and 3) reviews the development through history of how neuroscience has informed schools of psychology and therapeutic approaches, and critiques existing theoretical constructs.

Section B (the remaining 17 chapters) offers a series of case studies, written by practising clinicians from across Australia, in varying clinical settings and the application of a neuropsychotherapeutic approach and principles for a wide range of psychopathologies. This book is the culmination of a significant interest in and passion for engaging with people suffering from a range of mental challenges. It is also the result of a passion for understanding the human brain and how our genetic footprint is expressed through engaging with the environment. It is this interaction that leads to genetic expression and (in safe, enriched environments) leads to healthy neural development and the capacity not only to survive the challenges of life but also to thrive. When survival is compromised, changes in the brain occur. These changes express on a neurochemical and neuro-structural level and alter neural networks and can lead to the onset of psychopathology.

This book challenges our science, our art and perhaps most importantly of all, our humanity. For years in the real world clinicians have known the value of an holistic, integrative approach but often only whispered words like ‘eclectic’ and ‘holistic’ and ‘integrative’ in describing their practice for fear of being ridiculed for lacking a purist psychological doctrine. This book offers real validation to the care that people had known to always work and Dr Rossouw and his colleagues deserve the thanks of many, many practitioners for giving strength and confidence and structure to their practice.

The view of human distress as a disease to be treated by ‘experts’ is placed aside in recognising the power of human beings and their minds to heal and grow and change within a place of safety, to be found in the sanctuary of the therapeutic setting. Dr Rossouw and his colleagues have helped to return the people who deserve our care to the centre of healing where they belong. They have placed them there along with the wonder of relationship and connection. Dr Rossouw is constantly mindful of so many people that suffer on a daily basis with various presentations of mental distress. This book is ultimately for every one of them. Dr Rossouw’s hope is that this volume will open some new insights and pathways for clinicians to engage with their clients in such a way that the theoretical underpinnings and clinical applications of neuropsychotherapy will open new perspectives and facilitate new neural pathways to thrive and enhance quality of life.
Book Launch
We recently launched *Neuropsychotherapy—Theoretical Underpinnings & Clinical Applications* in Brisbane.

Chapter Author Lisa Stevens

Chapter Author Sue Stefanovic

Chapter Author Stephen Rendall

Chapter Author Daren Wilson

Chapter Author Natalie Kyan

Chapter Author Fiona Stevens
The friendly wait staff - some of Pieter’s master’s students at UQ Matthew, Andres, Karla, Irene, Pieter, Chantal, Magda, Viktoria and Joseph
NEUROPSYCHOTHERAPY
A THEORETICAL OVERVIEW*

Pieter Rossouw
MClin Psych., PhD., MAPS, MCClin, QCA

*This article is a selection of the content of Chapter 3 of the book Neuropsychotherapy Theoretical Underpinnings and Clinical Applications. Rossouw, P.J. (ed.) 2014.
Patient care is our most important responsibility. That is why we are here. Never let patient care take a secondary role. Patient welfare is the ultimate goal of biological science and it is the engine that drives the whole scientific enterprise.

Eric Kandel

The Integrated theoretical model of neuropsychotherapy relies heavily on the theoretical work of Semour Epstein, the consistency model of Klaus Grawe and the neuroscientific contributions of researchers like, Erik Kandel, Richard Davidson, Bessel van der Kolk, Wayne Drevets, Dunst Ongar, Joseph Le Doux and Michael Merzenich (among others).

The model is based on the neural principles described in the 19th century by Raman Cajal, Camillo Golgi, Sigmund Freud and refined in the early 20th century and re-defined in the late 20th and early 21st centuries. However, describing mental unwellness in terms of the brain, has been around since ancient times. The first notes about the function for the cerebral cortex and its function is found in a treatise dating back to the 3rd dynasty pharaoh, Zoser (who was later deified as the Egyptian god of medicine). The symptoms described in the Edwin Smith Surgical Papyrus (dated 1700 B.C.) that refers back to the treatise in the Zoser period, describes the case of a skull fracture with symptoms “he speaks not to thee” and seizure activity “he shudders exceedingly”. It is speculated that the treatise was an empirical and practical handbook on trauma for battlefield surgeons (Veith & Zimmerman 1993).

The brain through the ages

In ancient Greek times Alchmaeon of Croton (5th century B.C.) pointed to the brain as the center of the senses and the central organ for intellect “all the senses are connected in some way with the brain; consequently they are incapable of action if the brain is disturbed” (Foca 2002). Most likely the most significant contribution to understanding the link between mental wellness/illness/psychopathology and the brain was Hippocrates (460-375B.C.). In his work: “On the Sacred Disease” he is clear about the origin of wellness/unwellness and the importance of the brain: “it ought to be generally known that the source of our pleasure, merriment, laughter, and amusement, as our grief, pain, anxiety, and tears, is none other than the brain. It is specially the organ which enables us to think, see, and hear, and to distinguish the ugly ant eh beautiful, the bad and the good, pleasant and unpleasant… it is the brain to which is the east of madness and delirium, of the fears and frights which assail us… it is there where lies the cause of insomnia and sleep-walking, of thoughts that will not come, forgotten duties and eccentricities” (Adams 2014). Later scholars like Plato (428-347B.C.) introduced the concept of localisation of mental functions.

In Roman times the former slave Galen (129-199) had significant ideas on the body and the brain and dominated Western thought for almost 1500 years. He identified the brain as the site for sensation and thought and the controller of movement.

Towards modern neuroscience.

Rene Descartes (1596-1650) still based his initial work on the findings of Galen but provided the first indicators of the concept of reflex actions within nerves. His thoughts were that, within nerves there are thin threads that are attached to the one end of the sensory organs and that external stimuli “touch” those threads to inflate the muscles and cause movement. This set the scene for the beginning of electrophysiology that was first demonstrated with frogs legs by Luigi Galvani (1737-1798) who activated a muscle contraction by stimulation from an electrostatic machine. This was opposed by Alessandro Volta who believed this phenomenon was the result of currents generated by two dissimilar metals but it set the scene for more intensive work on electricity and nerves resulting ultimately in the electrical theory of neural functioning and Julius Bernstein's membrane theory of action potentials. The theory was eventually tested in Hodgkin and Huxley’s work using neurons to elucidate the biophysical basis of the action potentials (see chapter 1) (Hodgkin & Huxley 1952).

Modern neuroscience and the brain as origin of pathology and wellness

Groundbreaking research on aplysia californica by Nobel Laureate, Eric Kandel changed the paradigm of modern neuroscience from an electro-chemical approach in understanding neural activation to understanding the brain as a neural network. In his pivotal article (Kandel 1998) “A new intellectual framework for psychiatry” - that is attributed to facilitated a paradigm shift in neural science (the neural understanding of the brain as electro-chemical process to the brain as neural network), points Kandel towards a remarkable scientific revolution in molecular neuroscience. This demonstrates the changes from the rigid historical approaches to the new dynamic view of the brain. He points towards a new modality – the role of genes, genetic expressions and the “interconnectedness of us” – the effect of enriched environments on brains and even point towards the role of talking therapies to facilitate during changes to the
Neuroscience and psychotherapy – Kandel’s 5 principles

Eric Kandel identified 5 principles to guide the future of psychotherapy from a molecular neuroscience perspective. These principles are of great importance to consider in light of findings in modern neuroscientific research to effectively address mental illness.

Principle 1 – The link between the brain and environment

Kandel states that all mental processes, from the most simple to the most complex, derive from operations in the brain. Psychiatric disorders are disturbances in brain function even when the origin is environmental.

Principle 2 – Genes as communication agents

Kandel states that genes and their protein products are vital indicators of communication between neurons (neural networks) and that genetic codes play a significant role in managing behaviours and hence play a major role in understanding the pathogenesis of mental illnesses.

Principle 3 – The interconnection between nature and nurture

Genes are not all fully coded. They can be altered – through mutations as well as through exposure to the environment. Combinations of genes contribute to patterns of behaviour but genes also change expression as result of the interplay with the environment – all “nurture” is ultimately expressed in “nature” – genetics and neural wiring (not just neural firing).

Principle 4 – Genetic expressions and psychopathology

Changes in genetic expression eventually change neural communication patterns (neural wiring) and are responsible for default neural patterns of pathology.

Principle 5 – Psychotherapy changes the brain

Kandel proposes that insofar as psychotherapy/counselling produces long-term changes to behavior, it does so through changes in genetic expression that alter the synaptic connections and structural changes that alter the anatomical pattern of interconnections between nerve cells of the brain (Kandel 1998). He suggests that in due time enhance neuroimaging will be able to quantify the outcomes of psychotherapy. This has indeed been demonstrated by over 100 imaging studies demonstrating not only the efficacy of talking therapies but also the permanent changes that the interventions facilitated in the brain. The first reported study in this regard was done by Thomas Furmark and colleagues (Furmark et al 2002) at the University of Uppsala, Sweden demonstrating permanent changes in the brain as result of a talking intervention.

The principles suggested by Kandel in this article facilitated a paradigm shift in understanding and treatment of mental disorders. Not only did it clearly establish the brain as fundamental unit in presentation of mental disorders (a link that – in the modern history of mental illness - was initially suggested by Sigmund Freud) from neuromolecular basis, but it also signal the major shift away from a neurochemical approach as primary mode of intervention to treat mental illness. The brain is a neural network that does not exist in isolation of other brains but in close symbiosis with its environment. When this environment is compromised then the neural system becomes compromised as it organizes itself to survive and disrupts effective neural proliferation. The era of psychotherapy as “allied health” profession; an “add on” to the real intervention to treat mental illness (medication) is well and truly over. Findings in molecular neuroscience as well as neuroimaging clearly demonstrated that psychotherapy is much more than a “feel-good window dressing exercise”. The era of psychotherapy as quantitative science that facilitates changes in genetic expression, neurochemical release, neural structures and neural connections has arrived.

Neuropsychotherapy

It was in light of these developments that Swiss psychiatrist Klaus Grawe developed the outline of a theoretical model – Neuropsychotherapy (Grawe 2007). The model (discussed in the previous chapter) became an important reference in the wake of modern neuroscience findings as well as pioneered psychotherapy as scientific approach based on the principles of neuroscience. This was a major breakthrough in the history of development of systems/models of psychotherapy. From the early beginnings where the research of Ramon Cajal, Camillo Golgi, Sigmund Freud and others pointed towards the neurobiological underpinnings of mental illness to the rigorous experimental focus of the behaviourist tradition where the brain was basically excluded in the research and all the focus was on explaining reflexive and observable aspects of behavior, a huge paradigm shift occurred away from the link between the neural processes and mental illness. The recent focus of researchers on the neurobiological underpinnings of mental illness, not only completed circle of focus, it enhanced the depth of psychotherapy with the focus on the “hardware” that drive the forces of mental wellness/unwellness – the interpersonal neurobiology and opened the doors to a new focus on the science of Neuropsychotherapy. This is
Grawe's main contribution.

**Neuropsychotherapy as treatment modality**

As discussed in Chapter 2, Grawe relied heavily on theorists like Seymour Epstein (1924-) to develop the theoretical model of Neuropsychotherapy (Epstein 1994, Epstein, Pacini, Denes-Raj, & Heier 1996). According to Epstein’s Cognitive-Experiential-Self-Theory there are two systems of information processing. The one system is intuitive-experiential (a fast, automatic and emotionally driven system) and the other analytical-rational (a slower more rational system). Grawe linked these systems to the neural patterns of survival (more primitive responses in the brain stem and limbic system – the intuitive-experiential activation and the cortical activation processes (the analytical-rational).

The work of neurologist Paul MacLean (1913-2007) provides another key to the development of the model of Neuropsychotherapy. MacLean proposed a model of the development of the vertebrae forebrain – the triune brain (MacLean 1990). He proposed he evolution and development of the brain in three distinct phases – a primitive, reptilian phase (linked to the basal ganglia and brain stem regions); a paleomammalian phase (linked to the development of the limbic areas – septum, amygdala, hypothalamus, hippocampus and cingulate gyrus and the neomammalian brain – the neocortex. Both the development of these three systems and communication between these systems are important indicators of neural development and processes of communication. Lower order (more primitive complexes tend to override more advanced (cognitive) processes.

Although MacLean’s theory of evolution has been challenged and is generally seen as an outdated not scientifically proven concept the implications for neural development and patterns of neural wiring, opened important perspectives for the understanding of the neural underpinnings of mental disorders. Primitive (survival) systems in the brain tend to override more advanced (cognitive) functions. Many research studies clearly demonstrated the effect of distress on the brain leaving the brain to operate from the more implicit memory systems (brainstem, medulla, and HPA – hypothalamus, pituitary, adrenal stress response system) resulting in an under-functioning (down regulated) cognitive system (Tillfors et al 2001). A shift in cerebral cortical blood flow to increase activation of primitive systems is important to ensure survival however when the neural system develops neural patterns (wiring) that facilitate a default pattern when activated in situations of mild of moderate stress, then the risk of psychopathology emerges. The frontal cortical systems can no longer effectively be activated to down regulate fear based responses – the fear based triggers override this capacity and result in what Grawe refer to as motivational schemata of avoidance (albeit a survival response) the outcome is a pattern of compromised integration – psychopathology – anxiety, depression etc. emerge. The implications of this bottom-up approach is that both the rational and the efficacy of traditional cognitive approaches (top-down) to treat mental illnesses are questioned – especially in terms of more severe levels of pathology presentations. It seems the brain regulate responses and triggers from the bottom to the top and in situations of distress the primitive responses - the survival responses like breathing, heart rate and sexual procreation - takes precedence over cognition. A cognitive approach to treat these fear based responses (which are the basis of all psy-
chopathology) assumes effective cognitive ability to down regulate these unhelpful symptoms. This is a huge assumption that is not supported by neuroscience. It seems a bottom-up approach is more in line with neural activation patterns. The implication is that gene expressions as result of early experiences play a major role in the onset of patterns of wellness as well as patterns of unwellness (pathology). This also indicates that effective treatment should be mindful of the development of these patterns of pathology (from the bottom to the top) and treat these conditions accordingly – a bottom up approach focusing on down regulation of the stress responses and facilitation of meeting the basic needs to shift patterns of unwellness. These needs are identified as the need for attachment, control, pleasure maximization and self-esteem (see chapter 2). To effectively address these needs the focus is on right brain activation – the center for interpersonal connection - emotional activation and empathy (Rossouw 2012; Schore 2014). This is in stark contrast with the cognitive model of left brain activation (Beck & Alford 2009).

One of the key arguments used on regular basis in support of the superiority of the cognitive-behavioural (top-down) approaches is the plethora of research that demonstrate the efficacy of these approaches (above wait-list; placebo or often many other approaches). Countless double-blind studies and randomized control studies demonstrate the efficacy of top-down approaches. It can be stated that the cognitive approaches have secured the position of the “benchmark” or “golden standard” in therapeutic approaches. However, there are key factors that need to be taken into account. The first is that all these studies have very clear inclusion and exclusion criteria. These criteria not only set the parameters of the study but also the severity level of the pathologies studied. Exclusion of severity enhance outcome data but implicitly adheres to the neural principle that cognitive capacity is not effective when severity of symptoms increases. Another key factor is that almost all cognitive studies are short term studies (8-10 weeks). A meta-analysis of over 1000 medication and cognitive studies done by the team of Grawe (Grawe 2007) demonstrated an average treatment time of 10 weeks. This period can demonstrate some short term changes (feelings, behavior, and cognition) but not necessarily changes in neural patterns.

This does by all means not indicate that the cognitive-behavioural approaches are not useful in therapy/treatment. The frontal cortical regions play the most significant role in facilitation of change. Cognitive-emotive-behavioural approaches are and will remain to be the most important tools for clinicians to facilitate neural change. Understanding of the neural development of the brain, neural activation patterns and neurochemical processes point towards the basic needs of human functioning that take priority over higher order needs.

An approach to treat psychopathology from the top down without first addressing the basic needs runs a great risk of sabotaging the very process it aims to address. Commencing therapy from a top-down approach simply assumes cognitive capacity that may not be “available”. An outright cognitive (top-down) model of understanding mental illness and subsequent intervention strategies to treat mental conditions that does not pay close attention to the basic need of safety (Allison and Rossouw 2013; Schore 2014) is not based on the basic principles of neural functioning and is likely to not be successful when treating severe pathology as the effect of fear based neural activation will compromise cognitive interventions (e.g. compromised cortical blood flow to the frontal systems, up-regulated stress structures – amygdala HPA activation; up-regulation of stress chemicals – Corticotrophin releasing factor, corticotrophin hormone, norepinephrine and cortisol and inhibition of serotonin flow to frontal systems). In short Cognitive therapies work well when clinicians are at the level to work with the worried well (Rossouw 2013).

Grawe also introduces an important concept of incongruence in his model of Neuropsychotherapy. Inconsistency is closely aligned with the classical diathesis-stress model – the basis of change but also the basis of psychopathology. It refers to a neural activation pattern that changes is default activation towards a new pattern of firing – neuron A that communicates by default to neuron B is now activated to communicate with neuron C. This change in neural firing direction facilitates a discrepancy in communication – incongruence. Incongruence forms the basis of change – external triggers facilitate incongruence and the neural system responds to these triggers of incongruence and new patterns of neural firing (and eventually - neural wiring) occurs. Incongruence is the basis of life, survival and thriving. To demonstrate the difference between effective change and neural proliferation and neural protection and the onset of unhelpful patterns of neural wiring, the terms “controllable incongruence” and “uncontrollable incongruence” are introduced (Grawe 2007).

Controllable incongruence is facilitated when an individual is confronted with triggers that are manageable. “Manageable” triggers are triggers that can effectively activate the frontal (executive) neural networks without overactivation of the stress response in the hypothalamus-pituitary-renal (HPA) system. Blood flow to frontal cortical networks are effectively operational, serotonin production and -flow increases and executive functions are activated resulting in effective actions and problem solving capability. This leads to default neural process of
wellness – the onset of the motivational schema of approach patterns.

Uncontrollable incongruence is facilitated when the individual is confronted with triggers that activates the HPA-axis to such an extent that it diminishes activation to the frontal neural systems (the fear/survival response). Ongoing activation of uncontrollable incongruence enhance fear based neural patterns to become fixed in patterns of survival, and as result inhibit neural proliferation (the onset of genetic expressions that lead to the presentation of psychopathology (a brain wired to survive and not to thrive). The motivational schema of patterns of avoidance are activated (Grawe 2007; Rossouw 2013b).

Congruence (controllable and uncontrollable) are first and foremost activated in the individual’s primary interaction with the environment. The first “window” is the critical growth period just after birth (birth to 10 months). The primary need of safety is the key to the facilitation of motivational schema. When safety is facilitated, incongruence is experienced as controllable and approach motivational schema is activated (less stress chemicals, more GABA and Serotonin activation; less fear based responses – pain and discomfort and more pleasure activation – closeness and control).

The basic need for safety is then activated in terms of three basic needs – the need for control, the need for distress and pain avoidance and the flipside – pleasure maximization and lastly the need for attachment. A brief overview of these needs is discussed in chapter 2. Many of the case studies in the book focus on these needs and how violation of the needs activated the onset of various forms of psychopathology and eventually on all levels of life (Henson & Rossouw 2013).

The development of self was identified by Epstein as a basic human need and Grawe put self on same platform as the three other basic needs attachment, orientation/control and pleasure/pain. He attempted to explain the neural basis of all these needs and succeeded very well to clearly identify the “neuroscience” of attachment, control and pleasure however the rational for self was not well established. Indeed, Grawe (2007) agrees that:

“The neural circuits involved in self-esteem regulation are much more complex than all of the circuits we have encountered so far. This is probably the reason why no neuroscientific studies have yet addressed the issue of self-esteem regulation. The topic is too complex and cannot be successfully tackled with our current neuroscientific methods.”

Grawe also indicates that the concept of self (and self-esteem) stems primarily from studies with adults or, at least more mature human participants (not babies) and that no studies can be done with animals or babies. The reason for Grawe is that we currently do not have the refined neuroscientific methodologies to assess and measure self effectively. One can agree with Grawe to some degree (refining measures is a major priority in neuroscience) however it seems Grawe missed a vital aspect of self – self is not a basic neurobiological construct (like attachment, control and pleasure) but a higher order construct that is the result of neural patterns constructed by the primary needs. It is well established that the sense of self is closely related to the development of the pre frontal cortex (Grawe 2007). The self-complex (in its primary functional stage) is only completed at the age of 3 and continue to develop till the mid 20’s. The neural constructs of self are only identifiable in relation to the development of basic needs (pain and pleasure, control and attachment) and to the extent that these needs are exposed to enriched or compromised environments. Clusters of key aspects of self will emerge further as neuroscience refine its mechanisms of measurement however it needs to be researched in its relation to the primary need of safety (the survival complex) and the three basic needs of control, pleasure and attachment (the limbic complex).

The cognitive experiential model of Epstein and the consistency model of Grawe directed the neural underpinnings of a theory of applied brain based therapies. There are limitations to these models as discussed earlier as well as in chapter 2 however most of the key principles have been identified.

**Consistency**

The principle of consistency in neural activation is well established in neuroscience. Since the early days of the proposition of the theory of the neuron doctrine by German anatomist Wilhelm Waldeyer (1836-1921) and the consistency theory of Donald Hebb (Hebb 1949, Hebb 1961), the concept of synaptic communication as pattern of consistent firing in a specific direction has been accepted as neural principle. For a long time this principle has been emphasized to the extent that the brain was seen as fixed entity without the capacity to change neural connectivity.

**Neural plasticity and the environment**

This concept has be the focus of rigorous since the 1970’s however the historical roots seem to date back as far as the 18th century when, in 1793 Italian anatomist Michele Malacarne paired animals and trained them to perform certain tasks and found changes in there cerebellums (enlarged cerebellum) (Rosenzweig 1996). William James proposed in 1890 that our brains are not fixed and continue to change until adulthood (James 1890). This concept further
explored by Karl Lashley who explored changes in neural pathways in rhesus monkeys but it became a mainstream focus of research with scientists Paul Bach-y-Rita, Michael Merzenich and others demonstrating this principle in robust research findings (Doidge 2007). Plasticity is directly linked to expression of genes (Kandel 1998). The environment plays the primary role in genetic expression (epigenetics) and can be useful (enriched environments) and harmful (compromised/violated environments). This provided a new paradigm in understanding the neural basis of psychopathology. It became clear that the implications of the concept of neural plasticity are significant not only on neural level but especially in terms of mental health conditions and psychotherapy (Rossouw 2013; Henson & Rossouw 2013).

Safety

The basis of environmental safety is the key to neural development. In his work with aplasia californica, Kandel found that compromised environments facilitated neural change in these slugs. He found that when the environment is violated the neural adaptation process of the aplasia changed to survive the onslaught of violation. Albeit detrimental in the long terms survival of the slug the short term survival was paramount and resulted in neurochemical changes and eventually changes in neural organization (networks). The brain changed to enhance survival (Kandel 2005, Kandel 2006). Later research focused on changes in neural adaptation s result of compromised environments. Safety seems to hold the key to facilitate neural proliferation and compromised safety facilitate neural protection (Furmark et al 2002; Gould & Gross 2002; Allison & Rossouw 2013). Grawe suggests the development of functional motivational schemata in relation to enriched and compromised environments. This is in line with the findings of Kandel. In high order mammals the concept of safety is expressed in terms of three basic needs – pain/pleasure, control and attachment (Grawe 2007).

The basic needs and self

The development of these needs and more specifically the link between these needs and neurobiology are discussed in chapters 1 and 2. We also discussed the difficulty to link the need for self, self-esteem enhancement and self-esteem protection directly with neurobiological underpinnings. The difficulty to link this need directly with neurobiology is not as Grawe suggested the absence of refined enough measures to “measure” or identify the neural correlates of self-esteem. It seems the construct of “self” is not a basic need as the other three needs. The concept of “self” should be associated with the development of the basic needs of attachment, control and pain/pleasure. The culmination of the development of pain/pleasure feeds into the development of the self. In the same way does the culmination of the development of control feeds into the conceptualization of the self and the culmination of the sense of attachment feeds into the expression of the sense of self. If these culminations are expressed as result of protective/supportive/enriched environments then a healthy sense of self develops and self-esteem enhancement follows. When basic needs are compromised then the sense of self is compromised and a sense of self-esteem protection emerges resulting in patterns of protection/avoidance.

In the model of neuropsychotherapy “self” is seen as a higher order construct that results as the culmination of the basic needs. The base elements of the theoretical model of Neuropsychotherapy and discussion of the model is presented in Chapter 3 of my book (Rossouw 2014)

Literature list


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Neuropsychotherapy
recent findings in neuroscience demonstrated the unique role of talking therapies as enriched environment to facilitate changes in the brain. Neuropsychotherapy is the “language” used in the interaction between the clinician and the client to guide the client in the process of restructured the brain towards higher levels of functioning and well-being. It uses information from neurosciences to assist clients suffering from a wide range of biological, psychological and social challenges to apply strategies to down regulate unhelpful neural stress responses and up regulating neural activation towards neural change. Understanding the neurophysiology of these disorders and activation patterns of neural pathways as well as discussing practical applications, assist clinicians greatly to apply more effective strategies to treat depression, anxiety and trauma.

Workshops

The Adolescent Brain - Utilizing Neurobiological Information to Enhance Mental Health and Learning. Continuing Professional Development Hours – 12 hours specialised training

Brisbane 27 & 28 August 2015
RBW Hospital, Herston Rd, Herston, Brisbane

Sydney 10 & 11 Sept 2015
Portside Centre, Level 5, 207 Kent Street, Sydney

Melbourne 16 & 17 Oct 2015
Royal Melbourne Hospital, Grattan Street, Parkville

The Developing Brain & the Neuroscience of Memory and Trauma. Continuing Professional Development Hours – 12 hours specialised training

Melbourne 23 & 24 April 2015
Royal Melbourne Hospital, Grattan Street, Parkville

The Social Brain & the Neuroscience of Relationships. Continuing Professional Development Hours – 12 hours specialised training

Brisbane 28 & 29 May 2015
RBW Hospital, Herston Rd, Herston, Brisbane

The Ageing Brain & Neuropsychotherapy. Continuing Professional Development Hours – 6 hours specialised training

Brisbane 27 November 2015
RBW Hospital, Herston Rd, Herston, Brisbane

About the Presenter

Dr Pieter J. Rossouw
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Pieter is the Director of the Mediros Unit for Neuropsychotherapy – a company that provides training in Neurobiology and Neuropsychotherapy. He also teaches at the University of Queensland in the School of Psychology and the School of Social Work and Human Services. Currently he is involved in full time teaching and research in the fields of neurobiology and neuropsychotherapy as well as clinical training for clinicians, psychologists and general practitioners. Pieter is a member of the Australian Psychological Society and the APS College of Clinical Psychologists. Pieter was a Professor in Clinical Psychology at in South Africa and also taught at Universities in Canada and Holland. He also spearheaded a Psycho-Therapeutic Assistance Program to support people being exposed to trauma. He provided Mental Health training for GP’s for the Royal Australian College of General Practitioners. In Sydney (1999 - 2010) he worked as Senior Clinical Psychologist - Department of Health and he was the Clinical Director of both St John of God Psychiatric Hospitals (Burwood and Richmond).

Pieter specialises in Neuropsychotherapy and is an expert in anxiety and mood disorders. He has published 7 Scientific Books and 60 scientific articles. He has been involved in research in extensive clinical trials and presented research papers at 50 International Conferences worldwide. Pieter’s latest book – *Neuropsychotherapy: Theoretical underpinnings and clinical applications*, was published in November 2014. He is passionate about teaching – and was the recipient of The University of Queensland Faculty of Behavioural Sciences prestigious award for Excellence in Teaching. He provides global leadership in counselling and is invited on regular basis as keynote speaker at leading international conferences.

He is a member of the Global Association for Interpersonal Neurobiology Studies, the International Society for Traumatic Stress Studies, the International Association for Family Therapy and the Professional Association for Drug and Alcohol Workers; the Australasian Cognitive Neuroscience Society and the Board of the Neuropsychotherapist with fellow researchers Allan Shore, Louis Cozolino, Todd Feinberg and Georg Northoff. He is the director of the Institute for Neuropsychotherapy and the chief editor of the International Journal for Neuropsychotherapy and on the editorial board of The Neuropsychotherapist, Journal Psychology and Clinical Psychiatry and Journal of Psychiatry.
Neuropsychotherapy is the "language" used in the environment to facilitate changes in the brain. It uses information from neurosciences of the brain towards higher levels of functioning and to guide the client in the process of restructuring interaction between the clinician and the client. Neuropsychotherapy in Australia apply more effective strategies to treat depression, practical applications, assist clinicians greatly to patterns of neural pathways as well as discussing neurophysiology of these disorders and activation towards neural change. Understanding the stress responses and up regulate neural activation apply strategies to down regulate unhelpful neural biological, psychological and social challenges to assist clients suffering from a wide range of well-being. It uses information from neurosciences of the brain towards higher levels of functioning and to guide the client in the process of restructuring interaction between the clinician and the client.
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